A COST-EFFECTIVENESS ANALYSIS OF TWO COMMUNITY COLLEGE
BACCALAUREATE PROGRAMS IN FLORIDA:
AN EXPLORATORY STUDY
by
Edwin P. Bemmel

A Dissertation Submitted to the Faculty of
The College of Education
in Partial Fulfillment of the Requirements for the Degree of
Doctor of Philosophy

Florida Atlantic University
Boca Raton, Florida
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Edwin P. Bemmel

This dissertation was prepared under the direction of the candidate’s dissertation advisors, Dr. Deborah L. Floyd and Dr. Valerie C. Bryan, Department of Educational Leadership, and has been approved by the members of his supervisory committee. It was submitted to the faculty of the College of Education and was accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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ACKNOWLEDGMENTS

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making. My love and gratitude also to my mother, Dorine, and my brothers and sisters, Josette, Louise, Alfons, Vincent, and Mirella for their support and interest.
ABSTRACT

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Year: 2008

The purpose of this case study was to determine which, if any, alternative in delivering baccalaureate programs in the state of Florida was the most cost-effective one. This exploratory study focused on gaining an understanding of the cost effectiveness of two baccalaureate programs offered at a Florida community college to two like programs at a Florida university using qualitative and quantitative methodologies.

The researcher interviewed five community college and three State Department of Education administrators during the Fall of 2007 and analyzed expenditure and effectiveness data from 2003-04 through 2006-07 to determine the cost effectiveness for the programs at each institution.

The study revealed that the university and community college programs were equally effective as measured by student graduation and test scores. The community college baccalaureate programs were more cost effective, however, using a formula of
per-student state funding combined with student cost. The lower per-student funding and
student tuition charged resulted in the community college baccalaureate being a less
expensive alternative of offering baccalaureate degrees to the state and the students.

Using Henry Levin’s ingredients model of measuring cost effectiveness, the
quantitative analysis of the study revealed that that the university programs were more
cost effective in the early years, but the differences diminished over time. Using Levin’s
model for comparison, the researcher concluded that increased growth in the enrollment
of the programs combined with the implementation of effectiveness measures comparable
to those of the university would render baccalaureate programs at the community colleges
more cost effective.

Conclusions based on the formula of state and student cost were based on factual
data, while conclusions based on Levin’s ingredients model were based on assumptions
and estimates using a weighting factor along with an indirect cost rate for Proxim
University. The study identified factors other than the cost effectiveness that could make
the community college baccalaureate a more attractive alternative and concluded with
recommendations for practice, policy, and future research.

Differences in state and local laws, or economic, geographical, and environmental
differences combined with the nature of this exploratory case study limit the
generalizability of the results of this study.
To my wife Diana, my son Zachary, and my daughter Zayit
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Chapter 1

Introduction

The community college baccalaureate is an emerging concept in higher education. Traditionally, community colleges offer programs at the associate degree level, while colleges and universities offer baccalaureate and graduate degrees. Today, several community colleges in the United States offer baccalaureate degree programs in some capacity. Most of them collaborate with a university where the university is to offer the classes and confer the degree; however, a small number of these community colleges confer their own degree (Floyd, 2005; Floyd, 2006).

Three main factors have influenced the growth of these new baccalaureate degrees. First, the increasing cost of tuition at universities combined with tougher admissions requirements create limited access to traditional four-year colleges and universities. Second, the bachelor degree has replaced the associate degree as the entry-level requirement for a decent-paying job (Walker, 2002). A third factor that has contributed to the existence of the community college baccalaureate is the need to bring baccalaureate programs to students in rural areas. Community colleges often serve non-traditional students (older students, single parents, and students with families) compared to universities which typically serve more traditional students between the ages of 18 and 22 (Troumpoucis, 2004).

Some believe that the community college baccalaureate is one way of addressing unmet workforce demands (Walker & Floyd, 2005). For example, in Florida it is
estimated that by 2010 there will be more than 200,000 additional college credit students enrolled in the state’s colleges and universities, compared with 1999 (Walker, 1999). Florida will need 20,000 new teachers every year between 2005 and 2020, and about 29,000 for 2006-07, while public and private universities graduate about 6,000 a year. History shows that only 50-60% of these graduates become classroom teachers. Florida will also need about 8,000 new nurses annually for more than 41,000 by 2011. Currently, the nursing programs in public universities and community colleges in Florida operate at capacity and are turning away qualified applicants (Florida Department of Education, Division of Community Colleges, 2005). These staggering numbers indicate that there is an unmet demand for baccalaureate degrees in certain fields. Florida’s authorization of community colleges to offer these degrees was designed to address the demand for baccalaureate degrees.

The community college baccalaureate was introduced in Florida in 2001 when legislation authorized certain community colleges to offer and confer baccalaureate degrees. The reason legislators established this policy was to address the state’s workforce needs by providing an affordable alternative to increase access to higher education (Floyd, 2006; St. Petersburg College, 2008; Site-determined baccalaureate degree access, 2008).

Background of the Study

In 2005 Floyd, Skolnik, and Walker issued *The Community College Baccalaureate: Emerging Trends and Policy Issues*, a book that addresses the emerging trends and policy issues surrounding community college baccalaureate degrees. In this book, the authors listed issues and areas that needed to be researched. One area of interest
is related to the funding approaches for baccalaureate programs at community colleges. The authors recommended that research address funding approaches and tuition fee levels of community college baccalaureate programs. Skolnik and Floyd (2005) stated that “funding and finance would seem to be an important area for research; for example, comparing the costs of baccalaureate programs in two-year and four-year institutions” (p. 196). They noted that community college baccalaureate degrees are often assumed to be a more economical way of expanding baccalaureate enrollment, but that there is a lack of research to confirm this assumption. They suggested that funding and financing may be an important research area because of conflicting reports on the funding approaches of baccalaureate programs. They also stated that lack of funding was listed as a major problem for community colleges that were offering baccalaureate programs, e.g. in Canada, inadequate funding has been reported as the most important policy issue.

A dissertation by Manias (2007) evaluated the policies surrounding the community college baccalaureate and compared the goals set forth in the legislation with the established community college baccalaureate programs to determine if these programs met the goals. His recommendations reaffirmed the need for research into funding and financing: “a statewide cost-effectiveness analysis should be conducted on all community college baccalaureate programs” (p. 125).

Statement of the Problem

The number of community college baccalaureate programs is increasing in the United States with growing interest abroad in Canada, England and several Caribbean islands. This is an emerging trend with little research addressing the cost effectiveness of these new baccalaureate programs. Arkansas, Florida, Georgia, Hawaii, Indiana, Nevada,
New Mexico, New York, Texas, Utah, Vermont, Washington, and West Virginia have authorized community colleges to confer baccalaureate degrees, although some have converted to state colleges and changed governance structures so they are no longer considered community colleges (Floyd, 2006, Floyd & Walker, 2008). The exact number of states authorizing their community colleges to award these degrees is unclear, because as Floyd (2006) stated, “it is not a simple task to count and identify community colleges conferring their own baccalaureate as current systems of classifying these community colleges are imperfect” (p. 62). She identified several issues, including the initial mandate by the Southern Association of Colleges and Schools (SACS), the accrediting body for colleges and universities for the southern states, to drop the word community from their name as an example of why it is difficult to identify all community colleges conferring their own baccalaureate degrees. She further described the classification confusion as some community colleges are converted to state colleges, as was the case in Utah, New Mexico and Georgia.

Another unknown factor surrounding the community college baccalaureate deals with the cost effectiveness of these programs. A report issued by the Florida Office of Program Policy Analysis and Government Accountability (OPPAGA, 2005) stated that while authorizing community colleges to offer baccalaureate programs can improve the state’s ability to meet workforce needs and increase students’ choices, it could also lead to higher expenditures per student if it is not carefully implemented. This underscores the importance of a funding model to deliver these programs. While the community college baccalaureate is a growing phenomenon, little is known about the financial or economic
impact of these programs. Specifically, the issue of cost effectiveness of these programs has not been studied.

Alternatively, the OPPAGA report compared the cost of different alternatives of delivering the baccalaureate degrees in Florida. This report stated that increasing access to baccalaureate degree programs through community colleges would increase geographical access to these programs, improve the state’s ability to meet local workforce needs, and allow for a smaller school setting for students who want to obtain these degrees (p. 3). The report also stated that the Florida Legislature has capped the tuition of the community colleges’ baccalaureate programs at 85% of the public universities’ tuition, thereby creating a lower tuition model for offering these degrees. The report recognized the need for creating alternatives for offering baccalaureate degree programs in Florida and the benefits of offering these degrees through community college campuses. It also stated that the current model of the community college baccalaureate has some limitations that must be addressed, including that the current review does not ensure that community college baccalaureate degree programs are cost effective in the long term. They recognized that due to the high start-up costs and initial low enrollment, the community college per-credit-hour cost is currently higher than that of the state universities. One limitation of this report is that all expenditures for the community college baccalaureate, including the start-up cost, were added to determine the cost per credit hour.

The community college baccalaureate issues are important because this is a growing phenomenon; however, there is limited existing research on the cost
effectiveness of community college baccalaureate programs. Therefore, policy decisions are made without the benefit of effectiveness research.

*Purpose of the Study*

The purpose of this case study was to determine which, if any, alternative in delivering baccalaureate programs in the state of Florida was the most cost-effective one. The study measured the cost and effectiveness using two approaches – economist Henry Levin’s ingredient model (Levin, 1983; Levin & McEwan, 2001) and the taxpayers’ model, which is the actual cost based on per-student reimbursement and student tuition. In short, to answer the research questions, the researcher analyzed the cost effectiveness of two community college baccalaureate programs and two university baccalaureate programs at one state university using an economic model and a taxpayer model.

To get an in-depth understanding of the funding of the baccalaureate programs in Florida, this study addressed the different methods available for delivering baccalaureate degrees in this state. The first step was to gain an understanding of several alternatives of delivering these programs in Florida. The second step was to examine the funding structure of the baccalaureate programs in this state. The study then examined the cost of the community college baccalaureate and the university programs, and identified components of a cost-effective alternative. The cost-effectiveness analyses used in this study compared the cost per credit hour with two effectiveness measures – test scores and degrees awarded per credit hour.

*Research Questions*

The primary research question driving this study was:
1. What is the most cost-effective alternative for delivering baccalaureate programs in the state of Florida?

Additional questions addressed in this study were:

2. What is the real cost to the community colleges of the baccalaureate programs?

3. What is the cost differential between the community college and the university baccalaureate?

4. What are the elements of the funding model at the community college baccalaureate that make it effective or ineffective as perceived by the research participants?

5. What factors other than cost make baccalaureate programs through community colleges a more attractive alternative?

*Significance of the Study*

This topic is significant in that it addresses an area in need of research. Skolnik and Floyd (2005) noted that while the community college baccalaureate programs are considered a more economical way to expand baccalaureate progress, the research confirming this assertion is lacking.

The community college baccalaureate in Florida was established with the underlying assumption that it provides a less expensive alternative than the university for delivering baccalaureate degrees. Rather than only comparing which model results in a less expensive alternative, it is also valuable to determine which model is more cost effective, since being less expensive does not necessarily mean that this delivery model is also more cost effective.
This study was designed to reveal which delivery model results in the most cost-effective one, and was intended to contribute to the research on the cost effectiveness of community college baccalaureate programs. It may be helpful for policymakers and other stakeholders in determining which delivery model is a more cost-effective one for the following reasons:

1. With the limited funding, that is available for education, and the fact that Florida ranks low in producing baccalaureate degrees, this study could assist policymakers and lawmakers in allocating the funding into the most cost-effective model of delivering baccalaureate degrees.

2. Determining the cost of each model and its measured effectiveness could assist future researchers in comparing alternative models of delivering baccalaureate degrees.

This study may support arguments for or against community college baccalaureate degrees.

The lack of solid data to address the research question could result in inconclusive findings regarding the cost effectiveness of the different models. However, the timing of this research is still very critical, since this study could provide a benchmark for future research regarding cost effectiveness of the community college baccalaureate.

Definitions

**Baccalaureate degree:** An award that normally requires at least four but not more than five years of full-time equivalent college-level work (baccalaureate or equivalent degree, as determined by the Secretary, U.S. Department of Education). This includes all bachelor degrees conferred in a five-year cooperative (work-study)
program. A cooperative plan provides for alternate class attendance and employment in business, industry, or government; thus, it allows students to combine actual work experience with their college studies. This definition also includes bachelor degrees in which the normal four years of work are completed in three years (Integrated Postsecondary Education Data System [IPEDS], 2005).

Classification of Instructional Programs (CIP): The CIP is a taxonomic coding scheme that contains titles and descriptions of primarily postsecondary instructional programs (National Center for Education Statistics [NCES], 2000).

Community College (Junior College): Public educational institutions operated by community college district boards of trustees under statutory authority and rules of the state Board of Education. The primary mission and responsibility of community colleges is responding to community needs for postsecondary academic education and career degree education. This mission and responsibility includes:

(a) Providing lower-level undergraduate instruction and awarding associate degrees.

(b) Preparing students directly for careers requiring less than baccalaureate degrees (Community colleges; definitions, mission, and responsibilities, 2008).

Cost Effective: A program is more cost effective if it either achieves greater results for the same or less cost or if it achieves the same or better results for less cost (Hartman & Fay, 1996, p. 5). “Under cost-effectiveness analysis, both the cost and effects of alternatives are taken into account in evaluating programs with similar goals.” The underlying assumption is that only programs with similar or
identical goals can be compared, and that a common measure of effectiveness can be used to assess them (Levin, 1983, p.18).

**Cost:** The cost analyses used in the quantitative analysis of this study identified the institutional cost per credit hour using Henry Levin's model. The cost used in the qualitative interview phase addressed costs as perceived by community college and state officials interviewed. "The cost of pursuing an intervention is what we give up by not using these resources in some other way..... By using resources in one way, we are giving up the ability to use them in another way, so a cost has been incurred" (Levin, 1983, p. 48)

**Cost-effectiveness Research in Education:** The cost-effectiveness analyses used in this study compared the institutional cost per credit hour with two effectiveness measures. Measures used in this study include: a) the percentage of degrees awarded per credit hour; and b) student test scores as measured by the National Council Licensure Examination (NCLEX) passing rate and the Florida Teacher Certification Examinations (FTCE) passing rate.

**Expenditures:** "Measures of resource flows regardless of their consequence" (Monk, 1993, pp. 6-7).

**Effectiveness:** Ability to achieve stated goals or objectives, judged in terms of both output and impact. Measures used in this study include: a) the percentage of degrees awarded per credit hour; and b) student test scores as measured by the National Council Licensure Examination (NCLEX) passing rate and the Florida Teacher Certification Examinations (FTCE) passing rate.
Faculty Academic Information Reporting (FAIR): An information system that collects and reports institutional financial and academic data. The community college in this study did not use the FAIR system; rather, its financial and academic data was reported in a community college operating budget and enrollment reports.

Funding Level of Baccalaureate Funding: In this study, the current funding formula is set so that funding for the community colleges is at 85% of the university funding, and tuition of the community college baccalaureate programs at 85% of the university’s tuition.

Local Fees: Fees assessed to students by higher education institutions such as Activity & Service fees and Health fees. These fees are assessed in addition to tuition.

Lower-level Programs: Courses offered at the freshman and sophomore level at higher education institutions. These are usually 1000 and 2000 level courses.

Marginal Cost: The increase in cost that accompanies a unit increase in output.

Office of Management and Budget (OMB) Circular A-21: This circular establishes principles for determining costs applicable to federal grants and contracts, and other federal agreements with educational institutions (OMB, 2000).

Upper-level Programs: Courses offered at the junior and senior level at higher education institutions. These are usually 3000- and 4000-level courses.

Opportunity Cost: “The foregone benefits of the best alternative by using the resources in an alternative way” (Fowler & Monk, 2001, p. 13). “They are the benefits that are not realized through the best forgone alternative” (Picus, 1994, p. 4).

Real Cost: Calculation of the total cost as guided by the work of Levin (1983).
Taxpayer’s Cost: For the purpose of this study, taxpayer’s cost is defined as the per-credit-hour state funding to the higher education institutions. The cost does not include special state or federal appropriations, local or private contributions or federal or state grants to support the program.

Title IV: Part of the Higher Education Act of 1965 that provides financial assistance programs to help post-secondary students. It includes grant, loan, and work-study programs (National Student Loan Program, 2006).

Workforce Development Education: Adult general education or career and technical education. It may consist of a continuing workforce course or a program of study leading to an occupational completion point, a technical certificate, an applied technical diploma, or a technical degree (Definitions, 2008).

Delimitations of Study

The researcher was delimited by the following:

1. The study focused only on the community college baccalaureate programs in the state of Florida.

2. The researcher elected to analyze only baccalaureate programs in teacher education and nursing, since he believed that these are the most common baccalaureate degrees offered by community colleges.

3. The researcher elected to analyze one community college and compare the results with those of a public university in the geographical area.

4. The researcher elected to only compare the cost per credit hour based on the cost incurred against state-funded appropriations. Expenditures incurred from other funding sources such as gifts, donations, and other grants were not included in this study.
Lightinations of Study

This study was limited by the following:

1. The community colleges and universities in the state of Florida and the Florida Board of Education provided archived data. The final outcome of this study was depended upon the accuracy of the data provided to the researcher.

2. Due to the differences in mission and the types of baccalaureate programs offered by community colleges in Florida (workforce development), a comparison between these models could not be perfect and was anticipated to contain some flaws.

3. Universities in Florida did not separate the cost for the university centers, but accumulated the total cost per discipline and considered the cost related to the university centers to be part of the cost for the disciplines offered by the university. The researcher therefore had to assume that the cost associated with the university centers was not significantly different from the average cost reported by the universities.

4. Data available from Proxim University had to be weighted in order to come up with a reasonable estimate of Proxim University’s upper level expenditures. In addition, an indirect cost rate was applied to Proxim University’s total direct expenditures to determine the University’s full cost. The actual weighting factors and the indirect cost rate were subjective data, since there was no standard data available. The final outcome of this study may have been affected by the subjective data used.

5. With the phenomenon of a community college baccalaureate degree being relatively new, there was very little history and data available on the funding models used and the effectiveness outcomes of these programs.
6. This study may not have external validity due to the timing of the study, the differences in state and local laws, and economic and environmental differences.

7. Only one site was available for a comprehensive review and assessment. This may limit the generalizability to other institutions.

8. Cost-effectiveness ratios could imply a relationship between the cost and effectiveness; that is, the ratios may imply that the two variables are correlated. The researcher had no knowledge of whether a change in cost resulted in a change in effectiveness.

9. This study may have been limited by researcher bias. The researcher lived in the state of Florida and worked at a public university as an administrator; initially in the Division of Finance, and currently in the Division of Research. While he was not directly involved with funding issues of the university, he was exposed to those issues on a regular basis. However, this exposure and the researcher’s familiarity with funding of higher education in general may have helped him understand the intricacies of this subject.

Despite these limitations, the researcher believed that this study was important given the complexity of the funding of higher education in general, but especially in light of the increased offerings of baccalaureate programs by community colleges. Because of the newness of this phenomenon, it was critical that serious attention be given, not only to the funding models used by the different states, but to determining factors affecting the funding models.
Conceptual Framework

Guiding this study was the conceptual framework consisting of two components:

1. Deborah L. Floyd's typology of the types of baccalaureate degrees offered by community colleges, along with Lorenzo's taxonomy of the University Center helped shape the focus of this study. Floyd (2005; 2006; Floyd & Walker, 2003) offers a typology of offering baccalaureate degrees in conjunction with community colleges. The Floyd models are articulation, university center, university extension, and the community college baccalaureate. Lorenzo (2005) also offers a taxonomy for delivering the baccalaureate programs through the university center as described by Floyd. These Lorenzo models are co-location, enterprise, virtual, integrated, sponsorship, and hybrid. While these models did not provide an economic formula for determining the taxpayer's cost for this study, they were important and guided the conceptual framework toward understanding the phenomenon of the emerging community college baccalaureate and its various issues, delivery models, and challenges.

2. Henry Levin's economic model (Levin, 1983; Levin & McEwan, 2001) described an ingredient approach to estimate programmatic cost and benefit. He identified five ingredients of this economic model: personnel; facilities; equipment and materials; other program inputs; and client input.

This study compared the cost effectiveness of the community college baccalaureate programs with the university baccalaureate programs, along with Henry Levin's ingredients model to estimate the costs and benefits. The study also compared the cost-effectiveness of the two programs offered by two different types of higher education...
institutions using the taxpayer’s perspective and grounded in the typologies of Floyd (2005; 2006), Floyd and Walker (2003), and Lorenzo (2005).

Chapter Summary

The OPPAGA report (2005) stated that the community college baccalaureate incurs a high start-up while facing a low initial enrollment, resulting in high per-credit-hour expenditures. If this statement was true, what was the most cost-effective model of delivering baccalaureate programs in the state of Florida? What was the cost for the community college baccalaureate programs in Florida? What measures of effectiveness could be used to determine the most effective way of offering these degrees?

This case study clarified the available alternatives in delivering baccalaureate programs in the state of Florida and helped to determine which set of “best practices,” if any, was the most cost-effective one.

This chapter identified the problem statement and the purpose of the study, stated the research questions, defined the key terms used in this study, and set the limitations and delimitations of the study. Chapter 2 explores the literature related to this topic. Chapter 3 provides the methodological approach that was used in this study, Chapter 4 presents the findings of the study, and Chapter 5 presents the final conclusions and recommendations of this study.
Chapter 2

Literature Review

This chapter presents an in-depth analysis of research that has been conducted in the areas of community college baccalaureates and cost-effectiveness analysis in education. It begins with a discussion of community college baccalaureate degrees. This chapter will outline the demand for higher education in the United States and in Florida; the history of the community colleges in higher education; the mission of the community colleges; the concepts of the community college baccalaureate and the university center model; the development of the community college baccalaureate in Florida; the funding models; and the arguments for and against the community college baccalaureate. This chapter also presents an in-depth analysis of cost-effectiveness studies in education. This section will discuss the major studies that have been conducted in the area of education.

The Demand for Higher Education in the United States

There is a growing demand among learners for improved accessibility and convenience combined with a demand for lower cost and direct application of content to work setting. This demand is changing the environment for higher education within and outside the United States. Today's global knowledge-based economy has resulted in new learning technologies, which, combined with the growing demand for learning, has increased the pressures on the traditional university (Hanna, 1998). Hanna believed that the combination of the demand, costs, and application of content and new technologies was “opening the door to emerging competitors and new organizations that will compete
directly with traditional universities and with each other for students and learners” (p. 66). Other external factors such as changing demographics, community expectations, and the increasing numbers of occupations now requiring more than an associate degree create an increased demand on our higher education system (Cook, 2000).

In 1998, federal legislators enacted the *Workforce Investment Act*, which went into effect on July 1, 2000. This law replaced the *Jobs Training Partnership Act* and shifted the focus from the needs of the individual to the needs of companies and productivity (AFL-CIO Working for America Institute, 1998). Strawn (1998) argued that the older programs focused on either quick employment or skill-building programs. She stated that, “Quick employment programs achieve their results by helping people work more rather than helping them prepare for better jobs or helping them keep jobs longer” (p. 5). The jobs that people find in quick employment programs are often lower-paying jobs. On the other side, skill-building programs are focusing on basic skills, with few making use of secondary educational programs.

The effect of the *Workforce Investment Act* on higher education is expected to be greater within community colleges, because, as stated by Golonka and Matus-Grossman (2001), “while four-year colleges clearly offer credentials valuable in the new economy, two-year colleges are often viewed as the institutions best poised to serve welfare recipients and working adults in low-income families” (p. v). The two-year colleges are capable of doing this because they are more experienced in serving a diverse student body and in providing a wide range of course offerings (remedial education, liberal arts programs, occupational training, etc.). They have an active employer involvement with occupational and customized training programs and a relatively open admission policy.
The Demand for Higher Education in the State of Florida

Florida is the fourth most populous state with the seventh highest enrollment in baccalaureate degree-granting institutions in the U.S. However, with a population of 17 million people, it ranks 20th in the number of baccalaureate degree-granting institutions per capita (OPPAGA, 2005). According to Furlong (2003), “Florida ranks in the bottom five states in terms of producing baccalaureate degrees, with only 22.3% of the population age 25 or older holding a bachelor’s degree or higher in the year 2000....” The higher education system in Florida consists of 11 public universities and 28 community colleges. While the population almost tripled during the past 30 years, Florida has added only two new public universities during this same period. As in other states, Florida has faced an increased percentage of non-traditional students, more than likely place-bound students, who attend higher education institutions. The low level of baccalaureate-granting institutions in this state creates problems such as limited geographical access to baccalaureate degrees, limited availability to address local workforce needs, and limited student options for attending small public baccalaureate degree-granting institutions (OPPAGA).

The demand for higher education in Florida is expected to grow throughout the next decade. Approximately 20,000 new teacher positions will have to be filled annually, while there are currently about 6,400 students in teacher preparation programs per year graduating from public and other independent universities. An average of 50-60% of these graduates is expected to become classroom teachers. In addition, Florida needs 8,000 new nurses annually through 2011. While the colleges of education still have
capacity for additional students, the nursing programs are at capacity and are turning
away qualified students (Florida Department of Education, 2005).

Florida’s Master Plan (Florida State Postsecondary Education Planning
Commission, 1993) stated that the increase in the number of students in the higher
education system combined with increased demands for state general revenue from areas
other than education require our higher education system to become productive in
different ways than in the past. Higher education is driven by two goals: demand (student
access) and quality. According to this report, the quality of universities is typically
defined in terms of a strong research mission. Nationwide, this emphasis on research has
resulted in a shift of faculty time from teaching to research, and an increased emphasis on
graduate and specialized advanced degrees rather than on undergraduate teaching.
Universities have limited undergraduate access as a response to the increased graduate
demand. In December 2002, Florida’s Higher Education Funding Advisory Council
recommended “that Florida seeks to reach the national average in number of bachelor
degree graduates per capita” (Board of Governors, State University System of Florida,

*The History of the Community Colleges*

The concept of community colleges dates back a little over a century ago. In
the late 1800s, University of Chicago’s President William Rainey Harper promoted his
idea of splitting the traditional four years of the university into two sections. The first two
years would be the junior or academic college (preparatory in nature), while the last two
years would be the senior college with a more advanced nature (Rudolph, 1990). The first
community or junior college opened its doors in 1901 in Joliet, Illinois, and was to
provide college access to poorly prepared students (Walker, 2005). While the opening of
the college in Illinois officially marked the birth of the community college system,
Albertson and Wattenbarger (1998) stated that even before 1901, other private two-year
community colleges existed. Typically, those two-year colleges were small four-year
universities that converted to two-year colleges.

Two events resulted in a sharp increase in the number of community colleges in
the 20th century. The first one is the Servicemen’s Readjustment Act (GI Bill), a bill that
provided veterans several benefits including free housing, tuition, and books while
attending any educational program (Cohen, 1998). The second event is the 1947 Truman
Commission Report, which called for a major expansion of educational services. In this
report, it was suggested that junior colleges should be referred to as community colleges
because they mostly serve local educational needs. The report stated that open-door
access and responsiveness to community needs are the primary values of these
community colleges (Walker, 2005). The 207 junior colleges in 1922 increased to 650 in
1947, and to 1,200 in 1975 (Cohen).

The history of public community colleges in Florida started in 1933 when Palm
Beach Junior College was established. Before then, in 1927, St. Petersburg Junior
College was founded as the first private junior college in Florida. As part of Florida’s
desegregation effort, St. Petersburg Junior College later merged with Gibbs Junior
College, and was changed from a private to a public community college to become part
of Florida’s community college system (Albertson & Wattenbarger, 1998). Today, there
are 28 community colleges in the state of Florida. Designed to be available within
commuting distance for 90% of the population in this state, Florida's community college system has become a national model for the creation of community college systems.

In 1947, Senator Leroy Collins promoted a bill based on Dr. Wattenbarger's recommendation for the junior colleges in Florida to be an extension of local school systems and for county boards to operate these junior colleges. As Governor, Collins requested a statewide study on higher education in 1956, which focused on the expansion of higher education in Florida. According to Albertsons and Wattenbarger (1998), this study resulted in the Brumbaugh and Blee study and eventually in the creation of the community college system. They also stated that this study called for an educational system whereby the community colleges would offer lower-division courses and universities offer only upper-division courses. An articulation agreement between the community colleges and universities assuring acceptance of graduating students with an Associate of Arts degree from a public community college in Florida at the junior level of a Florida state university was the link between the community college and the upper-division universities (Albertson & Wattenbarger, 1998; Davis, 2001). Several universities in Florida, including Florida Atlantic University in Boca Raton, were initially established as upper-division institutions, but this model failed and the universities were eventually converted to traditional universities that offered lower- and upper-division programs. The articulation agreement remained in effect even after this change. Albertson and Wattenbarger described Florida's articulation agreement as a national model for articulation agreements between public community colleges and universities.

In 1979, the Florida legislature established the State Community College Coordinating Board, which was replaced with the State Board of Community Colleges in
1983. In 2001, the statute that established the State Board of Community Colleges was repealed, and the Florida community college system was placed under the jurisdiction of the Florida Board of Education (Florida Division of Community Colleges and Workforce Education, 2005). In November 2002, a constitutional amendment established the Board of Governors with the intent to create a state-level board with control over the colleges and universities. A recent court decision established that this board has the authority to grant four-year degrees at state universities and establish new colleges and universities; approve the budget for the state university system; set the tuition and fees for the state universities; select the chancellor for the state university system; define the duties of this position; and create the selection process as well as approve the appointments of the state universities' presidents. The court order did not specify who had the authority to grant four-year degrees outside the state university system (Fischer, 2006).

The Mission of the Community Colleges

In the early 1900s, the mission of the community colleges was to provide transfer degrees or postgraduate high school programs to students who were not ready or qualified to attend a university. While the community colleges continued to award these degrees, they expanded their mission to also offer technical education, workforce development, and remedial education (Glennon, 2005). Levin (2000) noted that the mission of the community colleges can be divided into three elements: a curricular focus (academic, vocational, and remedial education); one with the focus on the purpose of the institution (individual and community development, social and economic mobility of the institution, etc.); and one with the focus on the educational and training role of the community college (the community college as a job training site and as a pipeline to
baccalaureate degrees). Within these three elements, Levin suggested that there have been shifts in the mission of the community colleges.

In the 1990s, the mission of the community college had less emphasis on education and more on training; less emphasis upon community social needs and more on the economic needs of the business and industry; less upon individual development and more upon workforce preparation and re-training. (pp. 3-4) Levin suggested that during this period, the focus of the community college was to respond to the changing global economy.

The definition of the community colleges could set boundaries to the mission of these institutions. For example, Cohen and Brawer (1989) defined the community college as “any institution accredited to award the Associate in Arts or the Associate in Science as its highest degree” (pp. 4-5). Under this definition, institutions offering programs beyond the associate degree cannot be classified as community colleges.

Nationwide, community colleges are committed to offer transfer degrees, technical and workforce development, and remedial educational programs. However, the actual mission statements of the community colleges may vary from state to state. In Florida, the primary mission and responsibility of community colleges is to respond to community needs for postsecondary academic education and career degree education. Community colleges also serve as agents for pathways to baccalaureate completion. The Florida Department of Education (Division of Community Colleges, 2008a) described two ways to attain baccalaureate degrees at a community college: through a partnership model or through a community college that awards bachelor degrees.

The mission and responsibility of the community colleges in Florida includes:
1. Providing lower-level undergraduate instruction and awarding associate degrees.

2. Preparing students directly for careers requiring less than baccalaureate degrees (Community colleges; definitions, mission, and responsibilities, 2008).

The mission of the community colleges also stated that “each community college may provide access to baccalaureate degrees in accordance with law” (Community colleges; definitions, mission, and responsibilities, 2008).

More than other institutions of higher education, community colleges are known for their open admissions policy. They not only offer associate degree programs, but technical, vocational and certificate programs as well. They are known for their ability to serve their community, covering enrollment that typically includes “students from low income families, academically under prepared, diverse racial/ethnic, women, immigrant, first-generation college, single parent, older, and disabled groups” (Laden, 2005, p. 4). Levin (2002) stated that “the establishment of baccalaureate degree programs at community colleges conforms to the community college mission of both access and institutional responsiveness to community demands and to local markets” (p. 18).

_A Typology of Offering Baccalaureate Degrees_

There are different models of delivering baccalaureate programs in conjunction with community colleges. Windham, Perkins, and Rogers (2001) described the concurrent model as one alternative for offering baccalaureate programs. They defined the concurrent-use campus model as a community college campus that is shared with a four-year institution. They stated that the four-year institution could be either a public or private institution, and that the sharing may occur in different formats.

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Floyd (2005) and Floyd & Walker (2003) proposed a typology of four models that community colleges are currently implementing in the United States. The models are articulation, university center, university extension, and the community college baccalaureate. A brief description of each model as described by Floyd is as follows:

*Articulation model:* This model ensures acceptance of the freshman and sophomore credits of community colleges by universities or other senior colleges. The most common agreement is the two-plus-two model, where the student completes the first two years at a community college and the last two years of the baccalaureate program at a four-year university. However, Floyd stated that new models such as the three-plus-one model are emerging (2005). Florida’s statutes include an articulation agreement that guarantees associate degree graduates from community colleges acceptance of their college credits and junior status at the state universities.

*University center model:* In this model, universities are often located on or in close proximity to the community colleges, and they confer the degree in partnership with other universities or community colleges. The governance varies from joint boards to local college governance or even individual presidents or directors (Floyd, 2005). Most of the community colleges in Florida have a university center model agreement with nearby universities. An example is Florida Atlantic University’s presence on Broward Community College’s main campus in Davie. The non-traditional community college student can take advantage of earning a baccalaureate degree conferred by FAU; courses are offered by FAU on the community college’s campus.

*University extension model:* As in the university center model, courses in this model are offered by the university, but at a remote campus. However, Floyd (2005)
stated that the main difference is that this remote campus is part of the university. This model is not used in Florida; however, other states such as Arkansas and Hawaii successfully implemented this model.

*Community college baccalaureate model:* As stated by Floyd (2005), this model includes different ways of offering and conferring the baccalaureate degree. For this research, Floyd’s definition of the community college baccalaureate where the community college is actually conferring the degree will be adopted. Floyd pointed out that often the community colleges that are conferring these baccalaureate degrees are reclassified to a college rather than a community college (Floyd). In Florida, Miami Dade and St. Petersburg College are two examples of community colleges that now confer their own baccalaureate degrees. Both community colleges dropped the word “community” from their official names and are now Miami Dade College and St. Petersburg College.

*A Taxonomy of the University Center Models*

There are different models of the university center described earlier by Floyd. Lorenzo (2005) defined the university center as “a generic term for several fundamentally different models where community colleges collaborate with one or more senior institutions to provide more convenient access to baccalaureate degrees” (p. 77). He stated that the university center model provides a practical and cost-effective way for meeting the increased demand for baccalaureate degrees and offers a taxonomy of six models based on the role of the community college, its involvement with governance, financing, operations, and its influence over academic programs. These models as described below are co-location, enterprise, virtual, integrated, sponsorship, and hybrid.
In the *co-location model*, the community college and the four-year institution jointly use one physical location to offer programs. Lorenzo described this as a landlord/tenant arrangement where the community college typically owns the facilities but where the academic programs operate independently. Usually, there is no full-time staff dedicated to this arrangement, while the governance and decision-making process are independent. The curriculum is developed and evaluated by each providing institution. The University of Houston’s arrangement with Victoria College in Texas is an example of this model (Lorenzo, 2005).

In the *enterprise model*, several institutions form a consortium to develop and operate a higher-education center, usually in an underserved area. The facilities are either owned by a nonprofit corporation formed by the partnership or a member of the consortium, while the governance typically has a collaborative structure. Normally, the community college becomes a joint-venture partner with a proportional voice in operations, finance, and programming, along with a proportional input about staffing and budget from each participating institution based on its programming at the center. The multi-institutional teaching centers (MITCs) in Texas are examples of this model (Lorenzo, 2005).

In the *virtual model*, the community college acts as a full partner, and is actively involved with the upper-division programs. The distinctive characteristic of this model is that the upper-division coursework is offered online. The Community College Alliance developed by Franklin University in Columbus, Ohio is an example of this (Lorenzo, 2005).
In the *integrated model*, the community college identifies programming needs and dedicates staff to oversee use of space, course offerings, and technical support. In this model, the university centers usually offer a wide range of both undergraduate and graduate courses. The arrangement between Brevard Community College and the University of Central Florida is one of several integrated university center models that can be found in Florida. In most cases, the community colleges in Florida have a partnership with a single state-supported university (Lorenzo, 2005).

In the *sponsorship model*, the community college takes the lead in developing and operating the university center and its academic offerings. The community college recruits partners, obtains funding, and operates the (typically freestanding) facilities. They retain full-time staff dedicated to the oversight of these programs and assist in the evaluation of the programs. This model usually involves arrangements with both public and private universities and offers both undergraduate and graduate programs. The university center operated by Macomb Community College in Michigan is an example of this model (Lorenzo, 2005).

The *hybrid model* combines the university center with the community college authority to offer baccalaureates. St. Petersburg College in Florida is an example of this hybrid, which has the approval to offer its own baccalaureates while continuing its university center partnership with other universities. Lorenzo saw this as "the potential to deliver the best of both worlds" (pp. 82-83) with collaborative agreements through the university and baccalaureates through the community college.
Floyd (2006) recognized a seventh model, the *embedded baccalaureate model*, a partnership that graduates students with both associate and baccalaureate degrees, and emphasizes learning outcomes and seamless transitions between terms and courses.

Although there are different models of the university center, Lorenzo (2005) listed some commonalities as well:

1. The partnering institution rather than the university center grants degrees, normally without stating on the diploma that the coursework was taken at the university center.

2. University center programs generally involve only non-lab-based curricula.

3. The university centers have a formal articulation agreement with the community college.

4. While in some cases, the community college assists in providing information on general transfer and associate degrees, the partnering institution typically handles academic advice for the upper-division students.

5. States typically do not provide direct operating appropriations, while participants often pay a fee for classroom and office space on a pro rata or per-credit-hour basis.

6. There are few commonalities in the area of financing the university center and providing startup or capital funds. Some states (such as Florida) have provided start-up or capital funding to establish the university center, but restrict community colleges from charging for the use of the facilities.

7. Community colleges often assist with marketing and recruitment efforts.
By using the existing infrastructure available through the community colleges, the university center models capitalize on the community colleges’ existing flexibility and responsiveness; focus on non-traditional, at-risk, and minority students; develop the local economy and workforce; and reduce the cost for students and their families. Additionally, the existing curriculum process avoids the need for accreditation. According to Lorenzo (2005), the university center model is also more cost effective compared with expanding the university system.

Both the community college baccalaureate degree and the university center model allow the community college’s campus to be utilized as the location where the classes are normally offered. The OPPAGA report (2005) stated that the problems faced by Florida’s higher education related to baccalaureate degree production (limited geographical access and limited ability to address local workforce needs combined with limited student options to attend a small baccalaureate-granting institution) could be addressed by delivering baccalaureate programs at community colleges. Florida’s community college system was designed to be within 90% of Florida’s population, so utilizing community colleges to deliver the baccalaureate programs is a good alternative for addressing the problems. Offering baccalaureate programs via community colleges can be done through either the university center model or the community college baccalaureate model. As stated by the OPPAGA report, these two models are not mutually exclusive (2005). Based on these observations by the OPPAGA these two models offer a basis for comparison. This study will focus on these two models and determine which one is the more cost-effective way of conferring the baccalaureate degree.
In 2007, statistics from the Florida Department of Education (Division of Community Colleges, 2008b) on the concurrent-use model in Florida revealed the following information: (a) 25 of the 28 public community colleges in Florida offered upper-level courses through concurrent-use programs, (b) the community colleges partnered with 9 of the 11 public universities in Florida and independent colleges and universities in and outside of Florida, (c) a total of 346 upper-level baccalaureate programs, 100 master’s, five specialist’s, and 13 doctoral programs were offered through concurrent-use facilities, (d) 80% of these programs were offered completely on community college campuses, (e) the concurrent-use facilities served over 22,000 students.

*The Community College Baccalaureate*

The literature on community college baccalaureate programs is sparse, although increasing in recent years. Following are several studies that have addressed issues pertaining to the research questions.

The OPPAGA issued a report in April 2005 that analyzed the current options available for delivering baccalaureate degrees in the state of Florida. This report discussed the need for a cost-effective method of delivering these programs. Different methods of delivering baccalaureate degrees along with the benefits and challenges are discussed in this report. One of these benefits of the community college baccalaureate is access. According to this report, the unmet demand for baccalaureate degree programs in Florida can be addressed by offering baccalaureate degree programs through community college campuses via partnership agreements between the community colleges and other universities.
One challenge is the start-up cost. The community college baccalaureate faces accreditation requirements from the Southern Association of Colleges and Schools (SACS), along with a potential need for an increase in library holdings, a potential expansion of laboratories, and an increase in faculty with doctoral degrees. This may lead to a high start-up cost, while it is expected that the initial enrollment will be low. The high start-up cost combined with a low enrolment results in a higher per credit hour cost for the community colleges as compared with the public universities. The report stated that if the community college does not have the resources to meet the SACS accreditation requirements on an ongoing basis, it risks not only accreditation for the baccalaureate degree programs, but for the associate degree programs as well. This was the case with Chipola College, one of the colleges in Florida authorized to offer baccalaureate programs. In 2002-03, the per-credit-hour expenditure for their baccalaureate degree programs was $2,706, or 11 times the per-credit-hour cost of a public university in Florida (OPPAGA, 2005).

Another report issued by OPPAGA (2007) indicated that Florida’s legislatures, the Florida Board of Education, the Florida Department of Education, the community colleges and universities, and the Florida Board of Nursing have all taken steps to improve the student enrollment in the nursing and education baccalaureate programs. OPPAGA saw these steps as being consistent with its initial recommendations. Some steps include increased financial aid, authorization of additional community college baccalaureate programs, and the implementation of the SUCCEED program, a grant program administered by the Florida Department of Education and intended to improve the number of certified teachers, nurses, and allied health professionals in the workforce.
This recent OPPAGA report did not provide any update on the per-credit-hour cost of the existing baccalaureate programs.

The Florida Board of Governors contracted Pappas Consulting Group Inc. to study the higher education structure in Florida and to make recommendations for the future structure. Pappas issued a report in January 2007 titled Proposing a Blueprint for Higher Education in Florida: Outlining the Way to a Long-Term Master Plan for Higher Education in Florida, which has been received with mixed reviews. In this report, Pappas stated that Florida’s population growth is higher than the national average and is expected to grow above the national average through the next decade. Pappas expected that the age distribution and ethnic composition in Florida will change, which could have a significant impact on higher education enrollment growth. According to Pappas, by 2018, Florida’s Hispanic enrollment in K-12 education will jump from 21 to 36%. This demographic shift may indicate a higher demand for community colleges, since minorities and poor students are disproportionately represented in community colleges. While the State University System in Florida increased its degree production and emphasized high-demand degrees, graduate and professional programs have grown at a faster rate than undergraduate programs.

Pappas (2007) also stated that Florida’s universities face some major resource constraints due to their low tuition fees combined with the current funding formula. Florida is one of the lowest tuition states, which according to Pappas prohibits any blueprint or long-term master plan for its higher education structure. Pappas also argued that Florida’s current funding system, which is based on enrollment, rewards quantity
over quality. With this structure, branch campus enrollment increases the total university enrollment, which eventually increases the university funding.

In addition to these constraints, Florida is faced with a shortfall of its projected revenues, which has caused a reduction of state appropriations to public universities. The Florida Board of Governors (2008b) indicated that universities will have to take a $25 million budget cut in 2008-09 in addition to a $20 million budget cut they had in 2007/2008. They feared that these budget cuts would drive away faculty and limit student entrance at public universities. The reduced student admission at the universities may result in additional pressures on community colleges to accept college-bound students.

A few dissertations have been written about community college baccalaureate degrees; however, no research is available about the funding issues related to these programs. Burrows’ dissertation (2002) analyzed the history of the formation of the baccalaureate community colleges in the state of Florida. Her study focused on the history and motives that led to the community college baccalaureate movement in Florida. Burrows analyzed the concerns that are raised by the critics and advocates of this movement.

Petry’s dissertation (2006) also analyzed the baccalaureate-granting community colleges in Florida. The purpose of her dissertation was to determine the key factors that led to the establishment of the community college baccalaureate programs in Florida. In her dissertation, Petry analyzed the need, accountability, and mission of the baccalaureate-granting community colleges in Florida. Pershin (2006) also analyzed the community college baccalaureate in Florida. He addressed the impact of the community college baccalaureate on the mission, operation and evaluation of the community
colleges. Manias (2007) compared the goals that were set in the legislation when baccalaureate programs were initially established in Florida with current outcomes. The purpose of his study was to determine whether the goals regarding increasing access have been met. These dissertations contribute to one’s appreciation and understanding of why Florida is one of the pioneering states in the community college baccalaureate movement and how political interventions eventually shaped the model to offer and fund community college baccalaureate programs in Florida.

Another informative dissertation by McKee (2001) described the factors and issues surrounding the development of a baccalaureate program at Westark College, Arkansas. Ross’ dissertation (2006) identified the required faculty support and development for two-year college instructors to be able to teach in the third and fourth years of baccalaureate-granting institutions. Rice (2007) studied the effect of the community college baccalaureate on the traditional mission of the community colleges.

Researchers agree that the development of the community college baccalaureate is a significant one (Levin, n.d.; Floyd & Skolnik, 2005). Levin stated that over the past few years, there has been an increase in promoting the community college baccalaureate. An association, the Community College Baccalaureate Association, has been established to promote certain baccalaureate degrees offered through community colleges. Floyd and Skolnik stated that:

This is a hot and somewhat controversial topic, not only among community college and university leadership, but also among politicians, business leaders, students, and policy makers; all of whom are concerned with addressing issues of
access, costs, relevant curricular needs, and purposes of postsecondary education.
(p. 2)

Several external pressures have contributed to the development of the community college baccalaureate. "These include changing population demographics, demands for access and affordability, a changing job market that demands higher level credits, and a new consumerism that emphasizes differentiation" (Levin, n.d., p. 4-5). Some people, including policy makers and college presidents, see the community college with its convenient location, low cost, flexibility, and history of meeting community needs as an alternative for meeting these demands (Cook, 2000). Community college students are typically older students, from lower-income groups, the first of their generation to attend college, employed, and part-time students. University students are typically younger, full-time students (American Association of Community Colleges & American Association of State Colleges and Universities, n.d.).

Supporters of the community college baccalaureate argue that the community college baccalaureate was created in response to the unmet demand for baccalaureate degrees. Walker (2000) stated that more and more companies are creating their own colleges or are asking for-profit universities such as the University of Phoenix to train their employees because universities are considered slow to respond to corporate needs. He also noted that between 1988 and 2000, the number of corporate universities increased from 400 to over 1,000.

According to Walker (2005), both a societal and institutional perspective can explain the rationale for the community college baccalaureate. He argued that from a societal perspective, the need for a baccalaureate educated workforce can be met, which
could likely increase their income and contributions to society. From an institutional perspective, Walker stated that many occupations for which community colleges have been providing students with associate degrees have raised their entry requirements to the baccalaureate level. He believed that if community colleges continue to be the major provider of graduates for these occupations, they will have to make sure that the graduates of those programs are given an opportunity to get the proper credentials.

The introduction of the community college baccalaureate has brought forth critics who state that community colleges are experiencing another mission drift (Glennon 2005; Townsend, 2005). Townsend believed that community colleges offering baccalaureate programs may be forced to divert resources from the traditional mission to meet the four-year community college standards. She also believed that new faculty members who are hired to teach upper-division courses may have values that are different from the existing community college values. For example, the value of faculty research may conflict with the community colleges’ open door policy and emphasis on teaching. While the baccalaureate degree is seen as another example of the community college’s mission drift, others feel that this new push for baccalaureate degrees is consistent with the historical development of community colleges; “its presence is evidence of the responsive and non-traditional nature of the institution” (Levin, n.d., p 5). Miami Dade College’s president argued that the community college baccalaureate is consistent with the mission of responding to the community’s workforce needs (Shkodriani, 2004).

Another area of significant concern is that of institutional identity. John Levin (2002) stated that “community colleges offering baccalaureate degrees face some major institutional identity problems” (p. 16). He noted that under Florida’s legislation, the
legislative requirements force the community colleges offering baccalaureate degrees to adhere to the community colleges’ laws, while there is a clear requirement for all baccalaureate granting institutions to be consistent with university policies. This issue of institutional identity may deteriorate because of the recent court ruling in Florida in which the court opted not to address the issue of which institutional body grants the four-year degrees outside of the state university system. In addition, according to Levin, upper-division faculty at St. Petersburg College are eligible for continuing contracts while community college faculty are not. Funding is another area of concern. The community colleges offering baccalaureate-programs in Florida are funded as both community colleges and baccalaureate granting institutions (Levin).

According to Burrows (2002), critics argue that community colleges do not have the financial resources to run the baccalaureate programs, since this requires expansion of their library holdings, laboratories, and faculty. There is also a fear that community college baccalaureate degrees will be of a substandard level as compared with those of a university. She stated that some people, including James Wattenbarger, a long-term supporter of the community college system, believe that a baccalaureate degree from a community college may be viewed as a second-rate degree. Burrows stated that Wattenbarger uses the term “second-class bachelor’s” to describe these degrees.

There are several policy issues that have to be addressed regarding the community college baccalaureate. Cook (2000) listed four items that have to be considered from a policy perspective. They are the institutional mission, the student and community need, the cost, and the structure. She believed that mission creep could create a shift in emphasis from remedial to baccalaureate education, causing internal conflicts such as a
cultural change or conflict between upper- and lower-division faculty. In order to address student- and community-need issues, she recommended that questions be asked regarding the needs and impact of this degree. On the cost issue, she stated that while community colleges may offer the community college baccalaureate in a more effective and efficient way, an institution cannot offer baccalaureate programs without incurring significant costs. These include changed cost drivers such as faculty, laboratories, and libraries due to changed accreditation expectations, and changes in faculty salaries and workload.

Floyd and Arnauld (2007) found in a survey among 10 community colleges offering baccalaureate programs that most administrators interviewed “emphasized the importance of an appropriate level of available financial resources to the success of a teacher education program.” Floyd and Arnauld stated that the exact cost of operating a baccalaureate program is often not known because expenses are often combined with other curricular areas. Cook also recommended that other cost policy issues be addressed, including whether the community colleges are capable of developing a cost model for offering baccalaureate degrees that is significantly different from the cost model currently used by four-year colleges and universities. How the community college baccalaureate will compete for fixed state resources and enrollment should be addressed too. On policy issues related to structure, Cook recommended clarity about who has the primary decision-making responsibility regarding program approval and who has primary responsibilities over funding and financial aid. She also recommended that the guidelines regarding program approval be sufficient in order to assess the need, structure, and requirements for the degree. This is necessary should state funding formulas be changed,
and to accommodate changing or emerging policies regarding financial aid for this new student class.

The Development of the Community College Baccalaureate in Florida

The development of the community college baccalaureate in Florida can be traced back to the late 1990s when Florida’s Community College System (CCS) recommended a process for community colleges to offer baccalaureate degrees. The Florida Council of Community College Presidents (Florida Department of Education, 1999) endorsed this recommendation. Subsequently, the Postsecondary Education Planning Commission (PEPC) performed different studies regarding Florida’s problems of access and articulation to the baccalaureate degrees (Florida Department of Education, 2002). In 1998, PEPC adopted the Postsecondary Education Master Plan, in which access to baccalaureate degrees was identified as a major concern. As a result, the State Board of Community Colleges adopted the 1998-2003 Strategic Plan in which they recommend the option of authorizing community colleges to grant access to limited baccalaureate degrees. Florida’s legislature acknowledged the need for additional baccalaureate attainment and for select baccalaureate degree programs by community colleges in Florida in order to meet local workforce needs, and created a bill to address this need. In 1999 they passed a bill that allowed community colleges to seek approval from the legislature to grant baccalaureate degrees in areas of high-demand when the community college could not establish a partnership with a university (Florida Department of Education, 2002).

The Florida Education Governance Reorganization Act of 2000 (2001) created the seamless K-20 education system in Florida and caused other bills that were attached to it
to automatically become law. One of those was Senate Bill 1636 (2001) which allowed community colleges in Florida to offer baccalaureate degree programs (Florida Department of Education, 2002) This has since been recodified as Site-determined Baccalaureate Degree Access (2008) in chapter 1007 of the Florida Education Code. Florida Statutes stated that the legislature recognizes the importance of the role that private and public postsecondary institutions play in “improving the quality of life and economic well-being of the state and its residents” (Site-determined Baccalaureate Degree Access, 2008). The Statute also stated that the legislature recognizes that the economic development and educational needs of place-bound, non-traditional students have increased the demand for local access to baccalaureate degrees. To address this need, the legislature allowed the expansion of baccalaureate degree programs through community colleges. The statute authorized the community colleges to expand the baccalaureate degree programs by either entering into a formal agreement with a public or private university for delivering specified baccalaureate degree programs, or by submitting a proposal to deliver specified baccalaureate degree programs in its district to meet local workforce needs.

If a community college wants to deliver its own baccalaureate degree programs, the college must submit a proposal to the State Board of Education for approval of each specified program. The proposal should identify the following:

1. A demand for the baccalaureate degree program, identified by the workforce development board, local business and industry, local chamber of commerce, and potential students.
2. An unmet need for graduates of the proposed degree program, substantiated in the proposal.

3. The community college’s facilities and academic resources that will deliver the program.

The statutes required the proposal to be submitted to the Council for Education Policy Research and Improvement (CEPRI) for their review and comments. In 2005 the approval process was revised, requiring all new requests to be sent to the Commissioner of Education rather than to CEPRI. The statutes also required community colleges to pursue regional accreditation requirements after the program is approved by the Board of Education, and they state that the State Board of Education must approve additional baccalaureate degree programs. Community colleges offering baccalaureate degree programs cannot terminate their associate degree programs because of authorization for baccalaureate degree programs, and they must maintain the mission and policies of a Florida community college Site-determined Baccalaureate Degree Access (2008).

A separate statute, F.S. 240.5278 (St. Petersburg, 2001), was issued to allow St. Petersburg College to award baccalaureate degree programs. Subsequently recodified under F.S. 1004.73 (St. Petersburg. 2008), the statute required that St. Petersburg Community College be renamed St. Petersburg College and that it meet the SACS accreditation requirements as a baccalaureate degree-granting college. St. Petersburg College is required to maintain its mission and policies as a Florida community college including its open door policy.
Funding Formulas: Florida Compared with Other States

The funding of the community college baccalaureate in Florida is based on state-appropriated funds in the form of restricted dollars; an approach normally used to account for grants and contracts funding. "Funding in the first few years of the baccalaureate degree grants for community colleges has not followed a consistent, well-defined policy" (Florida Department of Education, 2005). Legislative appropriation was based on legislative evaluation of the budget request combined with the related enrollment/performance plan and the cost per credit hour. Effective with the 2005/06 budget year, the funding for community college baccalaureate programs is set at 85% of the per credit funding of the universities’ enrollment growth (Florida Department of Education, 2005). Tuition for the baccalaureate degrees at community colleges is also set at 85% of the tuition charged by state universities. According to the OPPAGA report (2005), "the difference was intended to reflect the fact that the universities receive funding to support their research missions, which community colleges do not share" (p. 6). In addition, local fees at community colleges are significantly less than the local fees of public universities. Local fees are defined as fees such as activity, laboratory service, and health fees assessed to students by higher education institutions. These fees are assessed in addition to the state required matriculation fees or tuition.

Marks and Caruthers (1999) defined a funding formula as "a specific type of funding method that links resources mathematically to an institution’s characteristics" (p. 5). Examples are a certain amount of money per student or per square foot. They stated that funding formulas do not have a correct mathematical relationship, but are best judgments. They also stated that the funding process is based on comparative data. This
data (such as average salaries of peer institutions or other quantitative elements) is used to determine whether the funding is adequate. According to these authors, funding formulas are used to promote equity and minimize political influences.

Romano (2005) stated that there is no ideal funding formula that could be applied to all states, since funding patterns are based on the history, governance, and mission of the community colleges in different states. However, one could use economic principles (equity and efficiency) as a guide when considering changes in funding. According to Romano, equity revolves around two questions: “Who benefits from it?” and “Who pays for it?” Efficiency asks whether the costs of educating students are lower at a community college than at a four-year university and whether the quality between them is the same. Efficiency also looks at how scarce resources are allocated in order to balance goods or services against its benefits. Other factors, including spillovers (the benefits of education that are not only private but also social); imperfect capital markets; and imperfect information (poor information about how to apply to college) can also affect the community college funding (Romano, 2005).

Funding of community college varies between states. A survey by the Center for Community College Policy (2000) revealed two primary ways for allocating funds to community colleges: a formula approach, where the formula is developed through a legislative process or by the state higher education board; and a legislative hearings approach. Within the formula approach, formulas could be used to determine the amounts that would be appropriated to community colleges in that state (pre-appropriation), or they could be used to determine how much individual institutions will get from the allocated funds (post-appropriations) (Center for Community College Policy, 2000).
Community colleges generally have three main sources of revenue: (a) state appropriations, (b) tuition, and (c) local property taxes (Hansen, 2003; Romano, 2005). However, the Center for Community College Policy pointed out that community colleges in a few states (including Florida) do not have access to local tax dollars. Marks and Caruthers (1999) stated that according to the NCES, about 15% of colleges’ and universities’ educational and general budget is spent on research, while another 6% is spent on public service.

One funding source that is of increasing importance is government-sponsored grants. Brumbach (2005) argued that government-sponsored grants have become an important way of funding community college’s growing workforce development role. In fact, community college participation in grant-funded workforce development programs is in some ways a marriage of necessity driven by state and employer needs to provide workforce training. (p. 49)

Brumbach reminded the reader that “funds for workforce development usually arrive with numerous strings attached” (p. 51). She stated that the community colleges will have to comply with “tracking and reporting of individual placement outcomes, including starting and ending salaries and long term retention” (p. 51). There are benefits to receiving workforce development grants and contracts, including the fact that the funds support economic development, assist employer retention and relocation, and raise the quality of life in the area. These grants can also yield additional funding through an increase in Pell-eligible students, donations for scholarships, gifts, and equipment (Brumbach).
Cost Studies

Different cost studies have been done in the field of higher education. Approaches to cost studies often vary between states and in some cases between institutions within the same state. The most common definitions of cost along with some of the most widely used studies are discussed below.

Bowen (1980) defined cost as expenditures by a college or university to acquire services, purchase goods or provide financial aid. One cost study that is used in higher education is the cost-per-degree study. According to the National Association of College and University Business Officers (NACUBO), Congress established the National Commission on the Cost of Higher Education in 1997, as a response to a growing concern about the lack of the public’s knowledge about the governance, control, and financing of higher education combined with the public’s misconception about tuition levels. Charged with investigating the issues related to the cost and prices of higher education, the commission issued their report titled *Straight Talk about College Costs and Prices* in 1998. In this report, they recommended stronger institutional controls, government deregulation, changes in accreditation, enhancement, simplification of federal student aid, and development of better consumer information about costs and prices in order to increase their public accountability (National Association of College and University Business Officers [NACUBO], 2002). As a result, the NACUBO issued a report in 2002 with a recommended methodology of calculating the cost per degree. Their goal was to use a methodology that allows colleges and universities, regardless of their size or control, to use reported expenditures in order to determine the average annual cost of educating undergraduate students. The NACUBO report stated that calculating the cost
per degree may seem like a relatively simple task; however, the fact that this has not been
done before is an indicator of its difficulty. NACUBO President James Morley believed
that the complexity and diversity of higher education resulted in the lack of efforts made
in creating a cost reporting system that could be both acceptable by professionals and
useful for different institutions. In creating this model, NACUBO used four guiding
principles:

1. Rely on basic averaging techniques: No distinction was made between
different categories such as freshmen versus seniors, different majors, and students who
live on- versus off-campus.

2. Concentrate on the cost of undergraduate education: Expenditures that
involved either separate graduate and professional schools or separate institutions or
programs that involved few undergraduate students were excluded.

3. Use existing accepted allocation methods where possible: Universities that are
already required to follow the federal guidelines for their sponsored projects were asked
to use the federal standards as described in the Office of Management and Budget (OMB)
circular A-21; all others were asked to follow the generally accepted accounting
principles as described by the Government Accounting Standards Board (GASB) and the
Financial Accounting Standards Board (FASB).

4. Keep it simple.

Another report was issued by Middaugh, Graham, and Shrahid (2003). In this
report, the researchers surveyed four-year, Title IV eligible institutions only, with
enrollments of at least 5,000 students. The institutions also had to be organizationally
complex and have discrete academic departments or programs that corresponded with the
four-digit Classification of Instructional Program (CIP) codes assigned to disciplines by NCES (2000). The model used in this study used direct expenditures for instruction. An underlying principle of this model was that the academic discipline level data, rather than institutional aggregate data, should be used because “institutional aggregate data, while useful in making broad, general statements about higher education cost, may actually mask factors associated with expenditures and lead to erroneous conclusions when making policy related to instructional costs and productivity” (NCES, p. 4). In the NCES report, the authors stated that full-cost models consider both the direct expenditures plus the indirect expenditures, i.e., expenditures associated with research, public service, overhead associated with administrative costs, and the cost for the operation and maintenance of the physical plant. They stated that the allocation of the indirect cost or administrative overhead in a full-cost model is based on a percentage; however, determining the level of the percentage is somewhat judgmental. These inconsistencies in calculating the total costs, combined with differences in accounting standards between institutions governed by the Financial Accounting Standards Board or the Government Accounting Standards Board, caused the authors to develop a model in which only the direct expenditures are considered.

The Florida Board of Governors (FBOG) hired Management of America (MGT), a consulting group, to develop a cost per degree model for the state of Florida. This consulting group analyzed the cost-per-degree at different levels: At the state level, where the total expenditures for all state universities in Florida would be divided by the number of degrees; at the state level, where the cost per degree would be calculated by the level of the degree (bachelor’s, master’s, doctorate, etc.); at an institutional level, where the
institutional expenditures are divided by the institutional cost per degree; and at the institutional level, where the cost per degree is calculated by program (FBOG, 2005).

MGT identified and outlined limitations to each of these approaches. At the state level, the limitations are (a) not all instruction leads to, or is intended to lead to degrees, (b) cost per credit hour/FTE is a better measure of instructional output, (c) current cost may not predict future cost, (d) students leave the system without degrees and enter the system with different levels of credits and preparation, and (e) instructional and non-instructional expenditures may not be clearly distinguishable. Additional limitations for calculating the state level expenditures by degree level are that expenditures for graduate and undergraduate programs are related, while the state system’s expenditure reporting system does not include all instructional expenditures. Calculating the cost at the institutional level has the following limitations: (a) students may attend more than one institution and therefore incur instructional expenses at multiple institutions, (b) institutional mission, growth rate, and institutional size can affect the cost per degree, and (c) joint programs have separate degrees but combined costs. Additional limitations for calculating the institutional level expenditures by program are that students often change majors, and that the current expenditure report does not break down the instructional costs by specific program level (FBOG, 2005).

There are different cost analysis approaches available for different types of decisions. Each one of these cost analyses is unique to its application. Henry Levin (Levin, 1983; Levin & McEwan, 2001) described the different cost analyses and their applications in four ways:
1. **Cost-Benefit Analysis**: Evaluates the alternatives based on their cost and benefits measured in monetary terms. The values of both the costs and the benefits are measured in terms of monetary units. Alternatives with benefits in excess of costs are considered, and the one alternative with the lowest cost-benefit ratio or the highest benefits-to-cost ratio is selected. A strength of this approach is that it sets the minimal requirement for selecting an alternative (i.e., when benefits equal costs). Educational alternatives can be compared with projects that compete for the same resources but that are in other areas. The disadvantage of this approach is that the benefits and costs must be assessed in pecuniary terms though it may not always be feasible to assess benefits in pecuniary values.

2. **Cost-Utility Analysis**: Evaluates the alternatives by comparing their costs with the estimated utility or value of their outcomes. This approach allows for more subjective assessments by allowing for the use of a wide range of qualitative and quantitative data. The assessment of effectiveness and the values placed on them by the decision maker are highly subjective, which reduces the replicability of the analysis. The strengths of this method of analysis are that the data requirements are less stringent, a large number of potential outcomes can be included in the evaluation, and imperfect information and uncertainty can be addressed at the same time. The disadvantage of this study is that the results cannot be reproduced based on a standard methodology among different evaluators, since the assessments are highly subjective.

3. **Cost-Feasibility Analysis**: Evaluates the cost of each alternative to determine whether that alternative can be considered. If the cost of an alternative exceeds the established constraint, that alternative will not be considered. A disadvantage of this
approach is it only determines whether each alternative is within the boundaries of consideration; this method cannot be used to determine which alternative will actually be selected.

4. **Cost-Effectiveness Analysis**: Evaluates the alternatives based on their costs and effects in producing some outcomes or set of outcomes. Only programs with similar or identical goals can be compared, while a common measure of effectiveness is needed to assess these programs. Both the cost and effects are considered when comparing programs with similar goals. The strengths of this approach are that it only compares cost data with effectiveness data, which is normally available from educational evaluations, and it can easily be used for evaluations of alternatives that are considered for accomplishing a particular educational goal. The main disadvantage of this analysis is that the cost-effectiveness ratios can only be compared between alternatives with the same goal.

When a researcher uses one of the cost analyses described above, (s)he will have to establish an analytical framework before deciding on the type of cost analysis that will be used. Levin (1983; Levin & McEwan, 2001) suggested that this analytical framework should identify the nature of the problem, clarify the specific alternatives that should be considered, identify the primary and secondary audiences for the analysis, and select the type of cost study that has to be used in this study.

*Cost-Effectiveness Studies in Education*

Cost-effectiveness studies in higher education appear to be somewhat uncommon. According to Monk (1993), especially in the field of education, cost analyses are relatively new and not widespread. Rice (2002) believed that several reasons can be given
to this limited attention, including inappropriate training among education researchers and policy makers and inadequate understanding of the technical properties of the education production process. In her study, she concluded that in comparison with other fields of public policy, less attention was paid to cost-effectiveness studies in education policy.

The underlying concept in a cost-effectiveness study in education is to compare at least two programs with the same or similar objectives. A cost-effectiveness study calculates a ratio of the cost over the effects (or outcomes) of each alternative. One program would be more cost effective if it can either achieve the same or greater results for the same (or less) cost. According to McEwan (2002), “a good cost-effectiveness study tells us which alternatives are the least costly means of accomplishing a particular educational objective” (p. 38). Hartman and Fay (1996) suggested that a cost-effectiveness study has two components: reliable program cost data and a common measure of effectiveness for each program. They added that examples of outcomes include the effects on student retention, on graduation rates, or on academic achievement indicated by student grades. Ratios of each alternative can be compared to determine which one of the alternatives results in the most cost-effective option.

Approaches to measuring cost-effectiveness vary among scholars. McEwan (2002) stated that there is general agreement that a good cost-effectiveness study includes the following procedures:

1. Identifying the alternatives.
2. Establishing the effectiveness, benefits or utility of alternatives.
3. Establishing the costs of alternatives.
4. Adjusting cost and outcome for differential timing.

5. Evaluating the distribution of outcomes and costs.


7. Accounting for uncertainty.

Economists agree that there is a difference between expenditures and costs (Fowler & Monk, 2001; Levin, 1983; Levin & McEwan, 2001; Monk, 1993; Picus, 1994). In his study for the New Standards Project, Monk defined costs as "measures of what must be forgone to realize some benefits" and states that "for this reason, they cannot be divorced from benefits" (p. 6). Cost should be viewed as an economic concept; the opportunity cost of using resources one way prohibits the use of these resources in any other way (Fowler & Monk). Expenditures are not tied to results or outcomes. They are an accounting concept intended to capture flows of resources, usually measured in monetary units (Fowler & Monk). Monk warned readers not to confuse expenditures with cost, and states that in decisions regarding whether or not to proceed with a project, expenditure data is useless data. Expenditure data is normally more readily available than cost data; however, expenditure data is typically not useful in cost analyses. Monk believed that this becomes even more difficult when estimating costs in an area of education that is relatively unexplored.

Disagreement between researchers exists about how to calculate the cost of each alternative. The different cost-effectiveness models vary in the way the cost of each alternative should be determined. Several models for evaluating the cost effectiveness have been developed. Table 1 summarizes the key elements of the models that are discussed here.
Table 1

*Models of Cost-Effectiveness Studies*

<table>
<thead>
<tr>
<th>Name</th>
<th>Description of the model</th>
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| Levin  | Identify the ingredients and attach a value to them  
Use market prices to assign values  
Use shadow prices when market prices are not available  
Use discounted prices if alternative affects multiple years |
| Monk   | Use a hierarchy that starts with ingredients or inputs such as teachers  
Configure input and long-term social and economic outcomes of education in the next levels of the hierarchy  
Include a factor in the hierarchies to adjust the ingredients  
Anticipate possible adjustments in cost for geographical and timing differences |
| Picus  | Start with Levin's model  
Identify overstatement of benefits and make adjustments  
Use a three-dimensional matrix to identify and estimate expenditures |

The first model in evaluating the cost effectiveness of alternatives in education was developed in 1975 by Henry Levin, an economist (Hummel-Rossi & Ashdown, 2002). Thirty years later, most researchers preparing cost-effectiveness studies in education still refer to Levin’s groundbreaking work. Referred to as the ingredients method, Levin (1983) stated that the idea behind this method is that every intervention uses ingredients that have a value or a cost. Levin (1983) noted that if the ingredients can be identified and their cost can be ascertained, then the total cost of the intervention and the cost per unit of effectiveness can be calculated. Because every intervention uses resources that have valuable alternative uses, Levin stated that by devoting the resources to a particular activity, we are sacrificing the gains that could be obtained from using
them for another purpose. These sacrificed gains are the costs we incur in pursuing a particular intervention. Levin (1983) explained how the ingredients model is important in assuring that all the related costs are included. He believes that the ingredients approach is a good tool to estimate the costs. Under the ingredients model, Levin suggested that the researcher identify the resources required for each intervention. He stated that the researcher must assure that all the resources causing the observed effect are identified.

Levin also stated that when identifying the ingredients, the researcher must be clear about the scope of the intervention (2002). This step of becoming familiar with the alternative interventions is of extreme importance. Normal qualitative procedures such as review of reports (document analysis), discussions with the people responsible for implementing the alternatives (interviews), and direct observations should be used to gain this understanding. When possible, direct observation can play an integral role in this process since it can identify ingredients that cannot be uncovered from documents (Levin, 1983; Levin & McEwan, 2001).

Levin (1983; Levin & McEwan, 2001) suggested that identifiable ingredients can be divided into four or five main categories. These categories are personnel; facilities; equipment and materials; other program inputs; and client inputs. Once the ingredients are identified, a value has to be attached to each one. The valuation process of the ingredients normally consists of determining the market prices of those ingredients. The market price reflects the value that would have to be sacrificed to provide the ingredients of the intervention. Levin and McEwan stated that “the method of using market prices has two attractive features, availability and simplicity” (p. 60). They stated that many of the ingredients used in educational interventions have reasonably competitive markets.
(e.g., personnel and equipment), and that the cost of the inputs can be determined by the readily available set of prices. They also stated that “using market prices is a simple way to derive data” (p. 60). When market prices do not accurately reflect the true cost, an adjustment of the market prices may be required. If the market prices are not available, the researcher will have to estimate what the prices would be. The estimated prices are also called shadow prices. If the alternatives affect multiple years, the researcher may also have to account for the time value of money, that is, the discounting of the prices.

It is possible that the researcher ends up with different cost estimates for the ingredients, especially when there is no previous experience with the cost. In those cases, Levin suggested preparing a sensitivity analysis. When uncertainty in cost estimation arises, this is a process used to ascertain how sensitive the conclusions are to the assumptions. Another important step in this process is to estimate the effectiveness and the benefits of each alternative (Levin, 1983; Levin & McEwan, 2001).

Monk disagrees with the ingredients approach used by Levin. According to Monk (1993), the ingredients approach “places a heavy emphasis on using expenditures to measure costs and can thereby contribute to the confusion surrounding the very important conceptual difference between the two” (p. 19). He recognized that expenditures provide a measure of the different opportunities that are sacrificed. While he acknowledged that there is some merit in using expenditures to measure cost, he believed that when markets do not function well, the dollars spent on the ingredients are unrelated to the benefits derived. He also believed that in education, markets do not function well because they function in a non-competitive market. The real cost that should be calculated is the opportunity cost, which refers to the benefits forgone from the best alternative use. Monk
stated that it is difficult to determine what alternative would be considered the best alternative. He also recognized a difference between the degree to which one alternative can substitute another and the likelihood that this will actually take place, which is affected by political and economic factors. These ambiguous costs are real expenditures that could be unnecessary expenditures.

In order to come up with the real cost, Fowler and Monk (2001) recommended using a resource allocation hierarchy that starts with the ingredients or inputs such as teachers. The next level includes the specific configurations of input, such as the way the inputs are combined to provide educational services. The top of the hierarchy includes the long-term social and economical outcomes to education. The input configuration specifies the amount of each resource that will be devoted for each educational service. For example, it would specify the amount of teacher Full Time Equivalent (FTEs) needed, the amount of square footage, or the number of computers needed for one alternative. Each hierarchy represents a factor that needs to be used to adjust the ingredients to reflect the estimated cost of each alternative. The cost may also have to be adjusted to reflect geographical and timing differences.

Picus (1994) stated that it is not always easy to determine the best possible use of the alternative resources; and even if this can be identified, it may be difficult to determine the benefits. Benefits are often not only difficult to identify, but they are often also hard to measure and quantify in monetary terms. To make a cost analysis useful to decision makers, he stated that costs analysts would have to develop a common metric to measure the benefits of the alternatives. It would not only be difficult to agree on the spectrum of the benefits, but to estimate the value of a forgone benefit as well, even
though little value is added by estimating this. He asked, "after all, why calculate the benefits of something you do not plan to do?" (p. 6). Expenditures rather than costs may overstate the true costs of a program because the benefits derived exceed the benefits of the new program(s) replaced. The size of this overstatement cannot be calculated, which requires analysts to make assumptions about the factors that could cause the overstatement and then estimate the costs with and without an adjustment for this overstatement.

Picus supported the ingredients model developed by Levin, but described a model in which he made adjustments for potential overstatements of benefits. He began with Levin's ingredients models, identified the potential overstatement of benefits, and adjusted to those overstatements. He used a three-dimensional matrix consisting of the components of the program, the level of the expenditures to be incurred, and the kinds of items purchased to identify and estimate the expenditures. These expenditures have to be adjusted by determining the value of the personnel time devoted to the program, but not directly compensated by the program, along with the consideration of other cost components. He believed that because expenditures are often easier to track because of existing accounting systems, typically cost analyses in education focus on the expenditures in cost studies rather than Monk's (1993) model of cost analysis.

Expenditures data is much more readily available than cost data. In higher education, it may be difficult to come up with cost data due to the wide range of possible benefits and a lack of an understanding about how resources are translated into educational outcomes. Monk (1993) acknowledged that when estimating cost in an unexplored aspect, this problem of estimating the cost will be even more compounded.
Levin and McEwan (2001) stated that while cost analysts cannot place primary reliance on budgetary or expenditure documents to ascertain the cost of the intervention, these documents may still provide useful data. They warned that these documents can only serve as a supplementary source of information rather than the principal source for constructing cost estimates.

Hummel-Rossi and Ashdown (2002) recommended Levin’s model for gathering and identifying the cost of a particular program. They believed that “It is an inclusive method that helps to identify hidden as well as obvious costs” (p. 17). They stated, “The analysis of the costs of an educational program is more complex than it initially appears” (p. 8). They compared cost-effectiveness studies conducted in education with those in the health sciences, and noticed that cost-effectiveness studies in education are rare especially when compared with similar studies done in the health sciences. They analyzed a study by Barnett and stated that this study is similar to Levin’s ingredients model of analyzing the cost. They stated that a panel by the U.S. Department of Health and Human Sciences (1996) advocated an approach for cost-effectiveness studies in health sciences that is also similar to Barnett’s and Levin’s model. They also described it as an approach that is consistent with current thinking about resource-based approaches for costing educational services.

There are common elements of cost-effectiveness models agreed on by scholars. These include the agreement that there is a conceptual difference between costs and expenditures, and that there is a need for a methodological approach to calculate the costs. There are also disagreements between economists about the method that will result in the best estimate of the cost of each alternative. It appears that, especially in education,
any of the methods described above will result in some major challenges in capturing the true cost. Using Monk's (1993) or Picus' (1994) model will require additional judgment calls to be made in order to determine the opportunity cost. The researcher would have to calculate the foregone benefits for the best alternative use. Using either one of these two models would add tremendous complexity beyond the scope of this study. Alternatively, Levin's ingredients model is a straightforward and systematic approach to estimating the cost of each alternative, and is a model often referred to in literature on cost-effectiveness studies in education.

Measuring Effectiveness

Levin (Levin & McEwan, 2001) stated that "the measure of effectiveness chosen should reflect as closely as possible the main objective of the alternatives" (p. 108). He also stated that when programs have different objectives, they will have different measures of effectiveness, and therefore cannot be compared. Both reliability and validity have to be considered when choosing among measures of effectiveness. Levin and McEwan noted that reliability of a measure was defined as a measure that "yields to the same results when applied on repeated occasions to the same individuals" (p. 110), while validity could be defined as a measure that "bears a close correspondence to the underlying concept that it is intended to reflect" (p. 111).

While cost-effectiveness studies are typically intended to compare several alternatives in their ability to alter a single measure of effectiveness, educational alternatives often produce multiple outcomes requiring multiple measures of effectiveness. It is important for the evaluator to measure the outcomes of each alternative. These outcomes could reveal that a specific alternative yields the most
effective alternative across different measures, or that for different measures, one alternative yields more effectiveness for one measure while another alternative yields more effectiveness for another measure. When all measures yield the same alternative as the most effective one, the evaluator’s recommendation to use that alternative is supported by these outcomes. If different measures yield different outcomes, the evaluator could present the results and describe the relevant tradeoffs (Levin & McEwan, 2001).

The State University System of Florida Board of Governors (Strategic Plan 2005-2013, n.d.) has adopted the following accountability measures:

1. Graduation rates: increase the graduation rates for first-time-in-college and community college transfers.

2. Production of all degrees: increase the number of degrees granted.

3. Professional and workforce needs: meet statewide needs and produce more degrees in education, health professions, programs promoting economic development and emerging technologies, and other high-wage/high demand areas.

4. Number and percent of students from underserved populations who enroll in and complete a baccalaureate program: create more baccalaureate degrees for minorities.

5. Proportion of test takers who pass required licensure/certification exams: increase passage rates on critical licensure and certification exams.

6. Academic learning compacts: for every baccalaureate program, identify what content knowledge and communication and critical thinking skills students will have learned by the time they graduate, and how these areas are measured.
7. Academic research capacity and nationally recognized programs: Build world-class academic research capacity and increase the total and the total federal research expenditures per state-funded faculty, the number of state patents per full-time faculty, and other areas of progress per institution.

Chapter Summary

Chapter 1 provided a reason for the study based on current need and its significance to the field. The literature in Chapter 2 suggested what research is currently available related to this topic. This chapter reviewed the literature on the demand for higher education along with the history and the mission of the community college. The chapter also reviewed different models of offering baccalaureate degrees on community college campuses. In addition, this chapter reviewed literature on cost studies and cost-effectiveness studies.

Chapter 3 will explore how this topic will be researched, Chapter 4 will present the findings, and Chapter 5 presents the final conclusions and recommendations of this study.
Chapter 3

Methodology

This study explored a case study methodology of the cost-effectiveness of the community college baccalaureate and university baccalaureate programs at two institutions in Florida. This study used a mixed-method approach with both quantitative and qualitative techniques. Institutional expenditures were used to determine the total cost. Measures of institutional effectiveness were also used in order to calculate the cost-effectiveness ratios. A quantitative approach was used to address the cost-effectiveness evaluation model suggested by Levin (1983; Levin & McEwan, 2001) by analyzing the cost effectiveness of these two programs offered by two types of institutions.

Cost effectiveness was also viewed from the tax payers’ and students’ perspective by defining the cost as perceived by the research participants. Quantitative data combined with a qualitative approach was used to address cost effectiveness using the taxpayer’s model. The research questions were answered by analyzing two types of institutions: the community college baccalaureate (the community college offers and confers the baccalaureate degree) and the university baccalaureate, without respect for whether the degree was offered through a university center.

Rationale for a Case Study Approach

A case study approach was chosen for this study because it was believed to be the best methodology to address the research questions in depth. According to Creswell (2003), the researcher uses the case study to explore in depth “a program, an event, an
activity, a process, or one or more individuals” (p. 15). He states that the cases are bounded by time and activity, and that the researcher collects detailed information over a sustained period. Merriam (1998) defines a case study as “an intensive, holistic description and analysis of a single instance, phenomenon, or social unit” (p. 27).

According to Merriam, a case is “…a thing, a single entity, a unit around which there are boundaries,” something that she believes can fence in what is going to be studied (p. 27). She states that a case may be selected because it is an area of concern, issue, or hypothesis, or because “it is intrinsically interesting; a researcher could study it to achieve as full an understanding of the phenomenon as possible” (p. 28).

Subjects

This study utilized a case study method of research and compared Southeastern College, a community college in Florida, with Proxim University, a research university in the same state. The researcher used fictitious names for the institutions and the participants in this study to ensure anonymity in the reporting of the findings.

One university was selected from the 11 public universities in the state of Florida. These universities are:

1. Florida Agricultural and Mechanical University;
2. Florida Atlantic University;
3. Florida International University;
4. Florida Gulf Coast University;
5. Florida State University;
6. New College of Florida;
7. University of Central Florida;
8. University of Florida;
9. University of North Florida;
10. University of South Florida; and
11. University of West Florida.

Twenty-five of the 28 community colleges in Florida have concurrent-use partnership agreements with 9 of the 11 public universities in the state (Florida Department of Education, 2008b). The concurrent-use partnership programs were not a focus of this study.

One community college was selected from the 10 community colleges in Florida authorized to offer baccalaureate degrees. They are:

1. Chipola College;
2. Daytona Beach Community College;
3. Edison College;
4. Indian River Community College;
5. Miami Dade College;
6. Okaloosa Walton College;
7. St. Petersburg College;
8. Florida Community College at Jacksonville;
9. Broward Community College; and
10. Palm Beach Community College.

The selection of the community college and university included in this case study was based on the types of programs that they offer in efforts to select homogenous program offerings for comparison.
Institutional cooperation was noted in the literature as an exemplifying best practices model (Burkhart, 2002) and thus, the community college and university selected both were willing and cooperative organizations. Since both offered teacher education and nursing programs, these were the academic discipline areas selected for this study.

While only two program areas were selected for this study, it is important to understand that these are not the only community college baccalaureate disciplines approved in Florida. Table 2 shows the programs offered by the community colleges during the time this study was conducted. As indicated in this table, Chipola, Miami Dade, and St. Petersburg College offer programs in teacher education and nursing. The selection of the teacher education and nursing programs provided a basis for comparison between the university and the community college selected in this case study since these programs are offered at a variety of universities and community colleges. The selection of the university was based on the geographical proximity to the community college selected for this study. The programs that were analyzed are teacher education and nursing. The teacher education and nursing programs were compared with the similar programs offered in terms of both their cost and their effectiveness.
Table 2

*Baccalaureate Degrees Offered by Community Colleges as of March 18, 2008*

<table>
<thead>
<tr>
<th>Name of College</th>
<th>Program Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipola College</td>
<td>BS Middle School Science (5-9)</td>
</tr>
<tr>
<td></td>
<td>BS Middle School Mathematics (5-9)</td>
</tr>
<tr>
<td></td>
<td>BS Secondary Education (6-12)</td>
</tr>
<tr>
<td></td>
<td>BS Secondary Education Mathematics (6-12)</td>
</tr>
<tr>
<td>Daytona Beach College</td>
<td>BAS Supervision Management</td>
</tr>
<tr>
<td>Edison College</td>
<td>BAS Public Safety Management</td>
</tr>
<tr>
<td>Florida Community College</td>
<td>BAS Fire Science</td>
</tr>
<tr>
<td>at Jacksonville</td>
<td></td>
</tr>
<tr>
<td>Miami Dade College</td>
<td>BS Secondary Science Education - Biology Concentration</td>
</tr>
<tr>
<td></td>
<td>BS Secondary Science Education - Chemistry Concentration</td>
</tr>
<tr>
<td></td>
<td>BS Secondary Science Education - Earth Science Concentration</td>
</tr>
<tr>
<td></td>
<td>BS Exceptional Student Education</td>
</tr>
<tr>
<td></td>
<td>BS Secondary Mathematics Education</td>
</tr>
<tr>
<td></td>
<td>BS Secondary Science Education - Physics Concentration</td>
</tr>
<tr>
<td></td>
<td>Public Safety Management</td>
</tr>
<tr>
<td>Okaloosa-Walton College</td>
<td>BAS Project Management</td>
</tr>
<tr>
<td>St. Petersburg College</td>
<td>BAS Banking</td>
</tr>
<tr>
<td></td>
<td>BS Business Technology Education</td>
</tr>
<tr>
<td></td>
<td>BAS Dental Hygiene</td>
</tr>
<tr>
<td></td>
<td>BS Elementary Education</td>
</tr>
<tr>
<td></td>
<td>BS Exceptional Student Education</td>
</tr>
<tr>
<td></td>
<td>BS International Business</td>
</tr>
<tr>
<td></td>
<td>BS Nursing</td>
</tr>
<tr>
<td></td>
<td>BAS Orthotics and Prosthetics</td>
</tr>
<tr>
<td></td>
<td>BAS Paralegal Studies</td>
</tr>
<tr>
<td></td>
<td>BAS Public Safety Administration</td>
</tr>
<tr>
<td></td>
<td>BS Secondary Education Science - Biology Emphasis</td>
</tr>
<tr>
<td></td>
<td>BS Secondary Mathematics Education</td>
</tr>
<tr>
<td></td>
<td>BS Technology Education</td>
</tr>
<tr>
<td></td>
<td>BAS Technology Management</td>
</tr>
<tr>
<td></td>
<td>BAS Veterinary Technology</td>
</tr>
</tbody>
</table>

1 Florida Board of Education, 2008a.
Procedures

As noted in Chapter 2, other researchers including Rossi and Ashdown (2002) found Levin’s model of gathering and identifying cost to be an effective one. Levin’s methodology of calculating the cost includes identifying the ingredients and becoming familiar with the interventions. To identify the ingredients, Levin (1983, Levin & McEwan 2001) suggests that the researcher question what the required ingredients are. To become familiar with the ingredients, the researcher has to be clear about the scope of the intervention. The researcher also has to become familiar with the intervention, which can best be obtained through normal qualitative inquiries. Levin suggests that “Normally this familiarity can be gained through review of reports, discussions with professionals who are responsible for implementing the alternatives under evaluation, and direct observation of the intervention” (p. 53).

When a researcher is collecting both quantitative and qualitative data, Creswell (2003) suggests using a mixed methods approach. He states that different terms such as “multi-method, integrating, and synthesis” have been used to refer to this methodology, but that recent writings use the term “mixed method”. He defines a mixed method approach as “one in which the researcher tends to base knowledge claims on pragmatic grounds (e.g., consequence-oriented, problem centered, and pluralistic)” (p. 18). The mixed method approach is used by researchers in order to “expand an understanding from one method to another . . . to converge or confirm findings from different data sources” (Creswell, p. 210). This approach involves collection of data either simultaneously or sequentially. Although Creswell recognizes the growing interest in this methodology, he warns that it also poses additional challenges to the researcher, such as “the need for
extensive data collection, the time-intensive nature of analyzing both text and numeric data, and the requirement for the researcher to be familiar with both quantitative and qualitative forms of research” (p. 210).

Levin (Levin & McEwan, 2001) suggests that the researcher start examining program documents, which could include general descriptions of the program prepared by program staff or outsiders; budget or expenditure data; websites; and internal memos or emails. The second source of information described by Levin includes interviews with individuals involved with the intervention. As suggested by Levin, during the interview process, the researcher has to focus on identifying the ingredients that are actually used in the intervention rather than the ones that were supposed to have been used. The third source of information includes direct observations.

This study used the mixed method approach described by Creswell (2003). Levin’s ingredients model was used to determine the cost of the two models. The approach included:

1. Review of documents (i.e., University’s website and Faculty Academic Information Reporting system) from the Higher Education Governance systems in Florida.

2. Review of documents (i.e., the Operating Budget Request for Community Colleges Grants and the Board of Education/community college’s website) from the higher education governance systems in Florida.

3. Analysis of the laws that authorize the community colleges in Florida to offer and confer baccalaureate degrees.
4. Analysis of the laws that authorize universities in Florida to offer baccalaureate degrees through university centers.

5. Direct observation of the community college baccalaureate and the university center models (see Appendixes C and D).

6. Follow-up interviews with presidents of community colleges offering baccalaureate degrees (see Appendixes E and G).

Quantitative and qualitative data were collected concurrently, while priority was given to the quantitative data. Integration occurred at the data analysis stage. The quantitative data that was collected was all archived data.

Instrumentation

This study relied on Henry Levin’s ingredient model (1983) and the application of a taxpayer’s model. Below are the process steps of how the data was collected. Appendix H shows the relationship between the research questions and the analysis that will be performed to answer each question.

Cost Related Analysis. The researcher started by gathering expenditure data from the university and the community college baccalaureate programs. The university and community college fiscal data reporting systems are different, so data was collected from both systems. The Faculty Academic Information Reporting (FAIR) system was used to collect university expenditure data. The Operating Budget Request for Community Colleges Grants report was used to collect community college expenditure data. The expenditure data was entered into a worksheet similar to the one suggested by Levin (1983; Levin & McEwan, 2001). Two worksheets were generated: one worksheet for the education and for the nursing programs to determine the per-credit-hour cost of
instruction for the upper-level courses of each program at a university, and one worksheet to determine the cost of the baccalaureate through the community college baccalaureate model. Table 3 shows the worksheet that was used in this study.

Table 3

*Worksheet for Estimating Costs*

<table>
<thead>
<tr>
<th>Column 1: Ingredients</th>
<th>Column 2: Cost Total Cost (sum of columns 3-5)</th>
<th>Column 3: Expenditures reported to the state</th>
<th>Column 4: Cost to the State</th>
<th>Column 5: Cost to the Federal Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel: Faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personnel: Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials and Supplies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Inputs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required Client Inputs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Ingredients Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Number of Credit Hours</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Cost per Credit Hour</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The researcher relied on the data from the university FAIR system report and the community college Operating Budget Request (Proxim University, 2007; Operating Budget Request, 2007). The university FAIR system reported total expenditures by department for the upper-level, lower-level and graduate programs. Bowen (1980) suggests that a heavier teaching load must be assigned to advanced students in order to standardize the units measured. To reasonably estimate the expenditures related to the upper-level programs, the units were first standardized by using a weighting factor. This weighting factor allowed the researcher to estimate what percentage of the university’s total expenditures was related to upper-level instruction. Both reports, FAIR and the Operating Budget Request for Community Colleges Grants report, listed the expenditures
by ingredients as described by Levin (1983). These expenditures were therefore entered in column 3 of the spreadsheet (Table 3) by ingredient type.

The cost per credit hour was calculated as the total expenditures divided by the total number of credit hours. This case study used the cost per credit hour as a basis on which to compare the cost. After the researcher calculated the total cost for the universities and the community colleges, he calculated the cost per credit hour by dividing the total ingredient cost over the total number of credit hours.

Once the expenditures were accumulated and entered into the worksheet, the researcher used qualitative methods to identify missing information or other costs to be included for each alternative (e.g.: Are there items used but not accounted for? Are there any hidden costs? Are there items that are not listed?). Document analysis (such as review of web pages, internal documents, and other reports) and direct observations were used to validate the cost of each alternative. The value of the foregone benefits was added to the worksheet in order to determine the total cost of each model. These values were entered in Table 3’s column 4 “cost to the state” or column 5 “cost to the Federal Government.” The number of credit hours to determine the cost per credit hour then divided the total cost.

Effectiveness Related Analysis. Effectiveness measurements were collected from the archived data available from the Florida Department of Education. The researcher used two measures of effectiveness per discipline: test scores and degrees awarded per credit hour. For both education and nursing, the researcher used the number of degrees awarded divided by the upper-division student credit hours to come up with a percentage of the degrees awarded per credit hour. The second measure of effectiveness used was the
passing rate for the state licensing exam. For the nursing program, the researcher looked at the National Council Licensure Examination (NCLEX) passing rate (Florida Department of Health, 2008). For the education program, the researcher looked at the Florida Teacher Certification Examination (FTCE) score (Title II, Higher Education Act, 2008).

Once the cost and the effectiveness measures were calculated, the researcher calculated the cost effectiveness by dividing the cost per credit hour by the effectiveness measures. The researcher also calculated the actual cost based on state per student reimbursement and student tuition.

**Analysis Techniques**

The quantitative data in this study was analyzed by looking at the cost effectiveness ratios to determine which model resulted in the lowest ratios using Levin’s model. The model with the lowest ratio was considered the most cost effective one. Since multiple effectiveness measurements were used, the study resulted in multiple outcomes. The outcomes could have revealed that one model consistently resulted in more cost-effectiveness ratios between the different effectiveness measures. It could have been possible that one model was more cost effective when using one effectiveness measure and less cost effective when using the other effectiveness measure. If the outcomes of the study resulted in consistent effectiveness ratios between the models, the researcher would have considered the model with the lower cost effectiveness ratio to be more cost effective. If the outcomes of the study resulted in outcomes where one model was more cost effective for one effectiveness measure but less cost effective for the other effectiveness measure, the researcher would have only described the outcomes rather than
determining which model was more cost effective. Because the researcher used a case study approach, this study did not use an inferential analysis to examine the quantitative data.

The qualitative data in this study was analyzed by using the coding scheme method suggested by Merriam (1998). Detailed reports including expenditure data and data on effectiveness factors were obtained and reviewed. Documentation was analyzed, collated, and coded so that the data could be compiled for analysis.

*Follow-up Interviews.* Interview data was also coded so that the data could be compiled for analysis. The researcher utilized member-checking to determine the accuracy of the interviews. Patterns that manifested themselves repeatedly in the findings were coded as themes. The collection of data from two sources, interviews and document analysis, allowed for triangulation of data collection methods. This triangulation added validity to this study.

*Site Visits.* Site visits were utilized to add validity to the quantitative and other qualitative data collected. These site visits assisted the researcher in determining if the quantitative data reported accurately reflected the institution’s financial state of affairs.

*Chapter Summary*

Chapter 1 included the introduction to this study, along with the problem statement, the purpose of this study, and the research questions. Included in this chapter were also the background of the study, definitions, the conceptual framework, delimitations, limitations, and the significance of this study.

Chapter 2 discussed the literature review. This chapter covered the history and the mission of the community colleges and the demand for higher education in the United
States and in Florida. This chapter also covered a typology of the university centers, the community college baccalaureate, and the development of the community college baccalaureate in Florida. Finally, Chapter 2 covered cost-effectiveness studies in education, cost studies, models of cost-effectiveness studies, and effectiveness measures.

Chapter 3 described the methodology to be used in this study. This chapter identified the subjects for this study, the research procedures that will be used in this study, and the instrumentation and analysis techniques that will be used in this study.

Chapter 4 will discuss the results of this study, while Chapter 5 will cover the conclusions along with the recommendations for future research.
Chapter 4

Research Findings

This chapter discusses the research findings of the analysis of two community college baccalaureate degree programs with similar university programs. The purpose of this case study was to determine which, if any, alternative in delivering baccalaureate programs in the state of Florida was the most cost-effective one. This case study contributed to the research on the cost effectiveness of community college baccalaureate programs in comparison with university programs. The results serve as a snapshot in time of an ever-fluctuating higher education financial market.

Background

Southeastern College, a pre-set fictitious name for the Florida community college, was a large urban, multi-campus college located in the southeastern United States with a current enrollment of over 50,000 students. Originally chartered as a community college, this college partnered with different public and private universities through its university center model and started to offer baccalaureate programs in 2002. It was geographically located within 30 miles of Proxim University, a pre-set fictitious name for a major public university with a distributed campus structure. With more than 45,000 students on their multi-campus university and more than $300 million in research expenditures, Proxim University was listed as one of the nation’s top 63 public research universities. Proxim University offered courses at Southeastern College through the university center model.
The geographical logistics of the area caused major challenges for students who wanted to enroll for classes. What should take someone less than half an hour to commute to class in some communities often would take twice that time in this area. Southeastern College served an area that ranked 67th out of 67 counties in the state. The state also ranked low in baccalaureate degree production—49th nationwide.

Qualitative Findings

The researcher used a qualitative approach of interviews, site visits and document analysis to provide a better interpretation of the data collected through the quantitative methods. Semi-structured interview techniques (Merriam, 1998) were used during the interviews. All interview questions and the order of the questions were predetermined, but the researcher used some open-ended questions and allowed for some flexibility during the interview process in order to respond to individual situations during the interviews. The interviews were also needed to determine if expenditures alone reflected the full or real costs and expenditures.

Other documents, websites from the State of Florida’s Board of Education, the community college, the university, and the state itself were reviewed to obtain a more comprehensive understanding of the background of the community college baccalaureate. Document analysis was used to further clarify the mission of the institution and how the current fiscal management supported that mission.

Interviews

A total of eight interviews were conducted in the Fall of 2007. Five interviews were conducted with senior personnel of Southeastern College, while three interviews were with representatives of the State of Florida’s Department of Education. The
interviews with Southeastern College representatives were conducted at their college; one interview with the Department of Education was conducted via telephone, while the other two interviews with the Department of Education were conducted via written responses. The participants who provided written responses received the questions via email, completed the answers at their convenience, and returned the completed answers via email. Interviews ranged in time from 50 to 60 minutes to 21/2 hours.

Prior to the start of each interview, participants were provided a copy of the informed consent form. The actual interviews commenced following the receipt of a signed consent form noting that the recipient understood the nature of the study, how the data would be protected, and what the intent of the data collection was. With the participants’ permission, each interview was recorded on a digital voice recorder on a backup microcassette recorder. These recorded interviews were subsequently transcribed. The transcribed interviews were sent to the participants for member-checking following the interviews to verify that the written account reflected accurately the verbal information recorded. Several participants returned these written transcripts with additional clarifications and amendments.

The researcher used cross-comparative analysis with the transcribed data in order to identify themes in these transcripts. Recurring patterns in these transcripts were coded and grouped together as themes that manifested themselves repeatedly in the findings. In presenting the findings, the researcher included verbatim quotes to answer the questions related to what the real cost of the baccalaureate programs was to the community colleges and if there were factors other than cost that should be considered to make baccalaureate programs through community colleges a more attractive alternative. These quotes provide
a richly textured story from the community college's administration and representatives from the Department of Education.

The researcher identified a total of eight major themes. These themes are (a) political, (b) location and access, (c) ranking within the state, (d) quality, (e) growth, (f) salary structure, (g) expense allocation, and (h) funding model. The themes, expanded with thick, rich support data, are included where appropriate. Pseudonyms were provided to the respondents to the interviews to ensure anonymity in the reporting of these findings.

*Political.* Several political players and moves contributed to the evolution of the community college baccalaureate at Southeastern College. The State Board of Community College's Master Plan of 1998 identified access to baccalaureate degrees as a major concern and suggested that community colleges offer baccalaureate degrees as one way to address this need (Florida Department of Education, Division of Community Colleges, 2002). Subsequently, a local state senator tried to expand baccalaureate access in his county by providing additional funding to a university to set up a branch campus in this county. After receiving this special appropriation, the university allocated the money to programs other than expanding the needed access. The senator became frustrated and approached the president of Southeastern College to discuss the possibility of Southeastern College offering these baccalaureate programs. In addition, local school boards expressed interest in Southeastern College offering baccalaureate degrees.

The senator subsequently wrote a bill to support baccalaureate programs offered by Southeastern College in critical need areas. John White recalled that:

80
Not having major resistance, but not having full support, we proceeded, and when the bill was filed originally it had other colleges in it but in the final version of the bill it included only us and we went to the legislature, we went to the people and in 2001, the last bill, the last day, the last hour, the last minute, this bill was put onto another bill and it passed. And we already knew that the governor would support it. (J. White, personal communication, October 22, 2007)

Jack Silver also recalled how the bill passed at the last minute of the last day of the legislative session. According to Joe Brown, “the school superintendents and the high tech firms locally and the hospitals asked us to do the program.” He also mentioned that a senator, a U.S. congressman, and the governor were some of the key players in the precipitation of the community college baccalaureate programs at Southeastern College.

Location and Access. Access was a major challenge for the local community. Southeastern College was located in the most densely populated county of the state. Brown stated that while there were other counties in the state that were heavily populated, the per-square-mile population in this county was higher than any other county in the state. In addition, there were few roads that went north and south, which according to Karen Black made it challenging to navigate. White simply said: “It takes forever to drive on that road from one end of the county to the other.”

Location was also a significant attribute to the local community and the population Southeastern served. Southeastern was strategically located in an urban area with high population density and complex traffic patterns. The challenges actually served as a recruitment tool for Southeastern. The strategic locations of the college and its satellite campuses provided nontraditional students several alternatives to meet their
educational needs in an area difficult to move through. Brown made the following remark:

Why? It’s not because we’re better than them, it’s because we’re where the people are. They already have a job, they already have their daycare, they can take the program at three different sites here and they’re used to us. (J. Brown, personal communication, October 24, 2007)

Brown stated that location was a significant factor in Southeastern College’s success. He said, “It’s because we’re where the people are.” He also mentioned that the success of the community college baccalaureate was partially driven by volume: “Can you afford to do it in a rural area is very different.”

Location also played a major role when trying to attract new faculty to service the ever-expanding student population. Brown described it as, “…a wonderful place, not just the beach, but quality of life, not for everybody, because there’s a lot of traffic, other than traffic, quality of life is really high….” He believed that this may have been an advantage to Southeastern College when hiring faculty nationwide. John White argued that location contributed to the cost benefit:

Look at all that housing cost that a student saves by being able to live in the area where they already have a home. Also, in the real estate market today if you’re here and you have to sell a home to move to another place how can you do it? Nobody’s home’s selling to speak of. So, in a recession type atmosphere of housing sales this is a great benefit: Cost saving. Nowhere in these costs do they talk about that. All they talk about is the direct appropriation and what it is.
Somewhere down the line, you have to, I think, consider that. Housing cost is half of the cost or more. (J. White, personal communication, October 2007)

*Ranking in the State.* The development of a baccalaureate program in this setting was precipitated from a series of issues related to educational need. The county was ranked as one of the lowest in the state in the category of “producing bachelor’s degrees, 67 out of 67” based on comments by White, Clear, Silver and Brown. Brown stated that in 2001, when the bill passed, the state ranked 49th out of 50 in baccalaureate access and that there were 67 counties in the state with his county ranking “67th out of 67.” White also said that his county “was the worst at 67.” Brown noted, “We’re the worst state in the country and we’re the worst county in the state.” It was the low ranking that according to Silver resulted in state support: “In terms of the access to baccalaureate degree programs, we’re one of the worst in this country and so that was recognized by our representatives to the state legislature.” Clear and Green also stated that “the low ranking of the state in producing bachelor’s degrees (49th out of 50)” precipitated the creation of the baccalaureate programs at Southeastern College.

*Quality.* Southeastern College interviewees displayed pride regarding the quality of their programs and the progress that has been made in addressing the shortages in graduates in the area. Karen Black, for example, stated that it was extremely important for them to make sure that they would have the state approval for the programs prior to graduating the first students. Joe Brown saw name recognition as a key factor:

They know us. If they hate us, they still hate us but mostly they like us so if they got their nursing degree here they still know the faculty, that we do a quality program, so that’s where the quality comes in, we make sure it’s a quality
program. They get a quality degree. (J. Brown, personal communication, October 24, 2007)

In order to meet these quality standards, Southeastern College filed for national accreditation for their programs. In nursing for example, the College was accredited by the National League for Nursing Accrediting Commission (NLNAC, 2008). Grey stated that “...we’ve since gone on now to receive CCNE accreditation, so we have two national accreditations and we’re really recognized in the country as a leader in this area.” She also stated that “...I do think that the baccalaureate program at Southeastern is having a significant impact on nursing.” In addition, the state Board of Education supported this model as well. Brown noticed that:

They could have come in and not like this model, but they did, and so they’ve been a big supporter of us and in particular as the pilot and then as these new colleges come along and ask to do it; they said yes, sign a notice on it. (J. Brown, personal communication, October 24, 2007)

Southeastern College’s commitment to providing quality programs was also reflected in their support to other community colleges throughout the United States. They often offered consulting and advice at no charge to other community colleges throughout the country that were interested in starting baccalaureate programs. The leaders of Southeastern College considered it part of their role to serve as mentors to other institutions in this process. Brown stated:

Normally we do it as a favor because we really want them to do it right, if anybody that had done it wrong in the first couple years, it would have been bad for all of us, and so we’ve done a lot of consulting and I visit Miami Dade, and
Broward and Indian River, Daytona as they’ve started their programs. Kingman College was here last week from Texas, we work with Midlands, south Texas and Great Basin. It’s important to us to share what we have, they don’t have to do what we do, but we want them to have all those accreditation standards and not have anything out there that’s not top quality. (J. Brown, personal communication, October 24, 2007)

It was the view of the interviewees that the evidence of quality had positive effects on the student population and ultimately the cost-effectiveness ratios of the programs. According to Grey, the quality of the programs convinced some students to stay in the nursing profession. “Some individuals have said that they were thinking about leaving the profession of nursing, but with the addition of our program they feel they have so many more opportunities in the nursing arena.”

The quality of the programs was also evident in the quantitative analysis of this research. For example, Table 4 indicates that the size of the nursing program at Southeastern College surpassed the size of the upper-level nursing program at Proxim University in 2006-2007. Brown stated that the nursing program was recognized as the largest upper-level nursing program in the country. With retention being so low and demand being so high in this field, finding a means to retain quality students in the program and in the local geographic area may serve Southeastern College’s bottom line over time. The number and size of the program in an area of need, nursing, spoke to the significance of a community college being able to meet demand in the local area.

**Growth.** One of the aspects of the baccalaureate programs at Southeastern College was growth. Julie Grey saw this as “… a very good problem to have, to have that many
students that want to come.” She further stated: “I think it speaks well for our reputation.”

Jack Silver also regarded this exponential growth as a positive surprise:

I think that the growth of our program is definitely a surprise, a very good surprise. The fact that we’ve graduated so many graduates in the College of Education, we’ve graduated so many people early on and how quickly we had graduates, particularly the technology management program. (J. Silver, personal communication, October 23, 2007)

John White summarized this growth as follows:

But we were so determined and so energized to do this, so now, that’s kind of how it got going and now, five, six years later we have over 500 graduates, of our College of Education, we have in the Bachelor of Nursing, which is a BSN program, from last year to this year we had a 50% increase in the bachelor degrees. In the College of Education, our total enrollment is between, I believe, 700 and 800 students. We’re rapidly becoming one of the largest colleges of education in the south. (J. White, personal communication, October 22, 2007)

In an era when teaching professionals in select disciplines were in such demand, the creation of a program that provided well-trained and well-qualified teachers to meet demand could have been as significant as meeting the nursing shortage. The fact that Southeastern found a method to respond quickly to these needs could serve as a model for other institutions that failed to be as responsive as Southeastern to their market. If the methods used were also cost effective, the model that was created may well serve as a model for other community colleges and perhaps universities as well.
In 2002, Southeastern College began with 87 students majoring in education and grew significantly since then. At the same time, Nursing projected an initial enrollment of 50 students, started with 65, and also experienced a progressive growth since then. On the issue of growth, Brown commented as follows: “It’s a big state so it takes a lot to grow, but we have about 1,300 or 1,400 graduates now. We’re growing pretty fast.” Table 4 in the quantitative analysis will compare the growth rate of the enrollment in education and nursing in Southeastern College and Proxim University.

*Salary Structure.* Interviewees noted that administrative changes were implemented to provide more incentives for success in the baccalaureate area. For instance, faculty contracts in the baccalaureate programs were structured differently compared with the faculty contracts in the associate degree programs. John White explained this difference as follows:

It’s the same salary schedule but most of them, not all of them, but by far the most, have 12 month contracts and therefore they would get vacation and other things. Very few university faculty get 12 month contracts, they’re 101/2. We made that to make it more appealing, to keep current in their field, and they also do some counseling, which helps their workload and their pay and Joe can tell you about that. So, we .... They work 40 hours a week, whereas the two-year college staff works 30 a week. (J. White, personal communication, October 22, 2007)

Grey also explained that the differences between the salaries of the baccalaureate and the lower-division faculty were due to the structure of the contracts. She said:
All of the baccalaureate faculty initially were 12 month contracts so their salaries are going to be about 15% more because they are teaching 12 months, because they also have some administrative responsibilities as well, so the salaries are probably about 15% higher. (J. Grey, personal communication, October 23, 2007)

Other than the 12 versus 101/2 month difference described above, the salary structure for both the baccalaureate and the associate programs were the same. Silver explained this as follows:

The structure for our faculty is based on credentials, but the exact amount of faculty, the exact amount of salary that any faculty gets is also influenced by longevity, experience level. We have a salary structure for master’s degree, we have a salary structure for master’s degree plus 30, and we have a structure for PhD. Within those structures the amount of years experience will dictate the differences between salaries and over time. (J. Silver, personal communication, October 23, 2007)

This is confirmed by Brown who stated the following:

There’s two answers. The first answer is, we use a formula based on years of service and degree, years of experience and degree level. The two-year and the four-year have the same formula, so if someone has a doctorate in English and is teaching English in a lower division, with 10 years experience and we hire somebody to teach banking at the upper division with 10 years experience and a doctorate, they make the same. The part two of that is that [at] the upper-division they’re more likely to have the doctorate, more likely to have more years of
experience, one or the other, so some of them do make more money, but not all of
them. (J. Brown, personal communication, October 24, 2007)

*Expense Allocation.* In order to conform to basic cost accounting principles,
creative strategies were devised to handle accounting so that the success and cost-
effectiveness of the changes in the system could be tracked. Expenditures that were
specifically allocated to the lower- or upper-division programs were properly charged to
each division. For example, the upper division paid for all classes taught in the upper
division, while classes taught in the lower division were paid from the lower-division
budget. In addition, the baccalaureate programs had some administrative staff that were
funded from this program, while other positions that had to be created because of the
baccalaureate programs, such as additional librarians, were directly funded from the
baccalaureate programs. Further, a flat fee was charged to the baccalaureate programs to
“charge” these programs for their share of any shared expenses that were not easily
identifiable. Silver explained the flat fee charge as follows:

The baccalaureate program makes a contribution to the charges for services that it
shares. Now that contribution is, I think, is $125,000 a year, so we make a
contribution from fund 12 to the other funds to cover stuff like networking costs,
internet costs, tech support costs, and so forth. (J. Silver, personal communication,
October 23, 2007)

John White stated that they “try to live by good cost accounting.” As explained by
Jack Silver, where possible, Southeastern was “able to leverage the infrastructure from
the lower division.” Silver explained this by giving the following example:
For example, in some cases he provided staff to the budgeting side of the house that will help support the budgeting aspect of the baccalaureate program, but a combination of the existing staff was used and that's part of where the efficiency comes in, where the synergy comes in. For example, in our student registration system, we already had an entire group of technical people that support our student registration system, we have a set of staff that support our financial system, we have an entire set of staff that supports our HR payroll system, so we were able to leverage and gain synergy out of some of the lower-division staff, but another specialized staffing needs for deans for librarians just for the higher education, augmenting existing staff with funding and staffing from the appropriations. (J. Silver, personal communication, October 23, 2007)

Tony Blue stated that Florida law required cost to be properly allocated from the proper budget. According to Blue, if a faculty member was teaching a class in the baccalaureate program, the law required for a proportionate amount of that faculty member's salary to be funded from the baccalaureate program's budget. Universities typically did not have to allocate the effort of a faculty member teaching between lower-level, upper-level, and graduate programs, since the lower-level, upper-level, and graduate programs would be considered within the same department and the funding would be from one source. Proper allocation of time and effort was usually only required when funding was received from multiple sources and if the effort had to be accounted for based on the funding source (such as teaching in the lower- and upper-level programs at the community colleges in this state). While this method of allocating cost may have

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created some challenges in additional administrative processes to budget and allocate the cost, it helped identify the true cost of the baccalaureate programs.

*Funding Model.* The community college baccalaureate funding was based on special appropriation from the state. As Silver explained,

That special appropriation is sometimes referred to as categorical funding, where as it comes out of the community college program fund but is a separate fund from our funding for the lower division, so it was a separate line item in the program funding. (J. Silver, personal communication, October 23, 2007)

Brown mentioned, “the good news with a categorical is you get to spend every nickel of it on the program, so I love that. The bad news is it could go away or something if it’s categorical.” Categorical funding is defined as “financial assistance by a higher level of government to a lower-level for educational services of a specific type or for a particular group of students” (Institute for Research on Educational Finance and Governance, 1981). Categorical funding is established typically to provide greater equity in funding. Through categorical funding, the government attempts to distribute the educational services to groups that are most in need of them. Funding is generally restricted to a particular purpose; this is different from general funding which can be used for any educational funding. In the past, concerns about categorical grants have been that funding was used as a substitution rather than an augmentation to the existing funding, and that there was a significant administrative burden involved with this funding (Levin, 1981).

The funding of the baccalaureate programs was set at 85% of the University’s funding. According to Brown, “Probably the most important point is if you’re funded at 85% of the direct cost only of the university that means you’re only getting funded at
about 65% of the full cost of the university." He also stated that "85% is of direct cost only, so it's really about 65% of the university upper division that we got and we pay our direct and indirect out of the appropriation, including overhead and these other positions."

Brown stated that by definition the community college baccalaureate was more cost effective since it was less costly for the state as well as the for students. Tony Blue also confirmed that the 85% funding is based on direct instructional cost of the university. He thought that this 85% was an agreed-upon percentage. It accounted for the lower average salaries of community college faculty compared with university faculty ($51,255 compared with $73,690) and the higher teaching load of faculty at the community college as compared with the university faculty (15 hours compared with 12). The current model of 85% seemed to raise some concerns with the college's administrators. White, for example, made the following comment:

I think the issue for us is that if you take the 85%, of what do you take it against? Actual, or do you take it against a very broad figure, and I think that is a question that we may have to look at. (J. White, personal communication, October 22, 2007)

Brown also mentioned that that the 85% was a low percentage: "We're only getting paid at 65% of the upper division – over time that's low...." To illustrate the funding inequity, Brown indicated that for 2008-2009, Southeastern College's baccalaureate programs was expected to be funded at $3,398 per FTE, while the average funding of the public universities in 2008-2009 in this state was estimated at $8,500 (reported on October 22,
2007; new figures released on June 19, 2008, indicated that Southeastern would be funded at $2,656 during 2008-09).

In general, this funding model was perceived as being adequate to Southeastern College at this time, although concern was expressed that if national and state fiscal cutbacks are implemented, the adequacy of funding would be a factor. Silver said:

We think it's a fair, I do, I personally think it's a fair funding model. We do not have the research component. I think it's advantageous for the state of Florida to be with the increased access to baccalaureate degrees at a lower cost structure and we've found that it's adequate funding, we've got our programs established and we can also look at other need areas and we have enough seed money available to start doing analysis, need-based analysis, to see if there are other needs out there that should be met and then make a proposal and seek funding for additional programs as the needs dictate. (J. Silver, personal communication, October 23, 2007)

White commented: “But for the state of Florida as a whole, right now, it is indeed a bargain.” The general consensus among those interviewed was that the community college baccalaureate program was a good return on investment by the state for the number of graduates produced to fill the niche markets.

Another significant aspect of the funding was that the community college baccalaureate funding in this state was based on a projected FTE or enrollment plan, which was the same funding model that was used for the public universities in this state. According to Blue, this was different from the lower-division community college
funding, which was based on prior year enrollment as opposed to prospective enrollment. Silver stated:

Well, we’ve been funded on projected FTE and now there is a policy discussion, well how long do we do that, do we fund it on projected FTE for three years, five years, or do we fund it on another amount of years and start funding on actual FTE. (J. Silver, personal communication, October 23, 2007)

Site Visits

Two site visits were made to facilities at Southeastern College; one at the college’s Department of Nursing and one at its Department of Education. The purpose of the site visits was to add validity to the quantitative and other qualitative data collected. The site visits assisted the researcher in determining if the quantitative data reported accurately reflected the state of affairs at the institution based on the researcher’s view and the interviewees’ views. It was significant to the study to get a clear account of how expenditures were used to support the objectives of the institution. In select situations, the researcher used observations to clarify how expenditures alone did not clearly explain the resourcefulness and cost effective measures used in the institution under review.

Document Review

The researcher reviewed several websites and documents, including the websites of Proxim University and Southeastern College, the Florida Board of Governors’ website, and data obtained from the Florida Department of Education’s Division of Community Colleges. This data supported the information revealed in the interviews: that the community college funding was set at 85% of the university’s direct cost. In addition, data from these documents revealed that the 2006-07 state funding of community college
baccalaureate programs was set at $5,574 per FTE (Proposed State Funding for Community College Baccalaureate Degree Programs, 2007). Data also revealed that the average state funding for the same period for the universities was set at $8,392 per FTE (Florida Board of Governors, 2008a). In addition, the institutional websites revealed that the 2007-08 student tuition was set at $85.20 for Southeastern College and $100.27 for Proxim University (Southeastern College, 2008; Proxim University, 2008b).

Quantitative Findings

The researcher used a quantitative analysis to determine the cost effectiveness of the programs. The methods used in this study were based on Levin’s (1983; Levin & McEwan, 2001) cost-effectiveness model. The researcher collected expenditure data for Southeastern College and for Proxim University, a public university in the geographical proximity of Southeastern College. In addition, graduation rates and passing rates for the National Council Licensure Examination (NCLEX) (Florida Department of Health, 2008) and Florida Teacher Examinations (FTCE) exams were collected to determine the institutions’ effectiveness (Title II, Higher Education Act, 2008).

The cost-effectiveness calculation required a per-unit cost along with two measures of effectiveness. The per-unit cost used was the cost per credit hour. The researcher used the following quantitative information to determine the cost effectiveness: the total cost for each program, the fundable credit hours, the cost per credit hour for teacher education and nursing for each institution, and the effectiveness measures described previously. Expenditure and effectiveness data were collected for the years 2003/2004 through 2006/2007. Expenditure data for 2007-08 was not available at the time that the study was conducted. The researcher gathered the expenditure data for
Southeastern College through Florida’s Department of Education. Each community college in this state was required to submit an annual Operating Budget Request which included the prior year’s actual expenditures, the generated credit hours, student FTEs, and number of degrees awarded. The researcher used actual expenditures, degrees awarded, generated student credit hours information, and the passing rates for the FTCE and NCLEX exams to calculate Southeastern’s cost effectiveness (Operating Budget Request, 2007).

The researcher gained access to Proxim University’s Faculty Academic Information Reporting (FAIR) system. Among other information, this system reported university expenditures by campus, funding source, college, department, and academic period. The researcher retrieved the expenditures by the University’s fiscal year for the departments in the College of Education for the university’s main campus and the College of Nursing, as well as effectiveness measures for the same fiscal years (Proxim University, 2007). To do a reasonable comparison between the cost of offering a baccalaureate degree at the community college and a similar degree at a university, the researcher selected only the teacher education-related programs, since Southeastern’s baccalaureate program in education only included teacher education programs. The teacher education programs at the university were identified and only the expenditures from those departments were selected.

Proxim University offered both lower- and upper-level classes, as well as graduate and doctorate programs. The expenditures retrieved from the university-based FAIR system included the total expenditures by department which included undergraduate and graduate programs. The researcher could not determine the actual
expenditures for the lower-level, upper-level, and graduate programs, but prorated the expenditures to come up with a reasonable estimate of the expenditures for the upper-level programs. The researcher prorated the expenditures between the lower- and upper-level and graduate programs by using the funded credit hours by level, along with a weighting factor that he obtained from the provost’s office of a public university within the same state that the research was conducted (N. Kaufman, personal communication, January 25, 2008). Originally developed by the State University System of New York, this weighting model accounted for the variations in costs across levels to establish a standardized basis for each level. Bowen (1980) states that “to standardize the units in which teaching loads are measured, heavier weights must be assigned to advanced students than to beginners” (p. 5). The fundable credit hours were multiplied by the factors for each level, and the weighted data were used to prorate the expenses between the different levels to come up with a reasonable estimate of the cost of the upper-level programs (see Table 7). Southeastern College did not offer graduate programs and the costs of their upper-level programs were isolated and specifically identifiable and did not have to be weighted.

The cost for Proxim University only included the direct cost of instruction while that of Southeastern College included the full cost, as explained in the qualitative findings. The discussions in the qualitative findings revealed that the 85% funding of the community colleges covered the full cost of operations while the calculation was based on the direct cost of instruction of the universities. To adjust for this difference and to allow for a basis of comparison, the researcher adjusted Proxim University’s cost to come up with a reasonable estimate of its full cost. Middaugh et al. (2003) indicate that
identifying the indirect cost to come up with the full cost is very complex. They cite different studies using different rates. For example, they referred to a study done by Halstead, who used 33%. The researcher used the administrative cap of indirect cost allowed under the Office of Budget and Management (OMB) Circular A-21. This is a maximum allowable indirect cost rate that OMB allowed for research institutions to charge as an administrative indirect cost rate on federally sponsored agreements (Office of Management and Budget, 2000).

The university’s direct costs were multiplied by the indirect cost rate and the calculated indirect cost was subsequently added to the direct cost, which resulted in the full cost of each program. The full cost per program was divided by the fundable credit hours which resulted in the cost per credit hour. The researcher also compared the calculated full cost per credit hour for Proxim University with the state’s published average cost per credit hour to assure that his calculated rate was reasonably close to the state’s average rate. Each institution’s cost per credit hour was divided by the effectiveness factors to determine the cost-effectiveness ratio.

It was critical to use both the weighting factors and the indirect cost rate to reasonably estimate the full upper-level cost incurred by Proxim University. The weighting factors along with the indirect cost rate used in this study were subjective numbers since there were no standard factors or a standard indirect cost rate available. The final conclusion of this study could have been affected by the actual factors used in this study.

The researcher collected the effectiveness measurements from the data available from the State Department of Education and Department of Health. The researcher used
two measures of effectiveness per discipline. For both education and nursing, the researcher used the number of degrees awarded divided by the upper-division student credit hours to determine the percentage of the degrees awarded per credit hour. The second measure of effectiveness used was the passing rate for the state licensing exam. For the nursing program, the researcher used the National Council Licensure Examination (NCLEX) passing rate (Florida Department of Health, 2008).

Southeastern College's nursing program was an RN to BSN program, while Proxim University had a generic BSN nursing program. The RN to BSN program required students entering the nursing baccalaureate program at Southeastern to have passed both the Registered Nurse (RN) and NCLEX test and have a current license. In addition, the NCLEX scores reported by the Florida Department of Health only included students from the associates' program at Southeastern. The researcher used an NCLEX passing score of 100% for Southeastern to account for this. For the education program, the researcher used the Florida Teacher Certification Examinations (FTCE) score (Title II, Higher Education Act, 2008).

*Fundable Credit Hours*

Proxim University's institutional data was available via its website (Proxim University, 2008a). The researcher selected the credit hour information for the teacher education and nursing programs for each period starting with 2003-2004 through 2006-2007. The researcher printed each report for the related programs and periods.
Table 4

Fundable Credit Hours by Institution – Proxim University and Southeastern College

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<td><strong>Proxim University</strong></td>
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<tr>
<td><strong>Education</strong></td>
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<tr>
<td>Lower-level</td>
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<td></td>
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</table>

Similarly, the researcher used credit hours reported by Southeastern College (Operating Budget Request, 2007). Data for Southeastern College was provided on the Operating Budget Request, which was received from the state Department of Education. These budget sheets were also printed. Table 4 shows a summary of the credit hour
information for both Proxim University and Southeastern College, broken down by college and period.

Table 4 shows a slight increase annually in the upper-level fundable student credit hours of Proxim University, while Southeastern College showed a more significant growth in student credit hours. For example, both the education and nursing programs at Southeastern seemed to have doubled their enrollment between 2003-04 and 2005-06. In addition, the nursing program grew by another 25% in 2006-07. It is interesting to note that compared to 2004-2005, the upper-level nursing program at Proxim grew from 8,337 to 9,719 in 2005-06, or over 16%. This seemed to have been the only significant growth in the upper-level programs at Proxim for the period covered in this research. Table 4 also shows that the nursing program at Southeastern College was larger than the upper-level nursing program of Proxim University in 2006-2007. Again, this speaks to meeting the area of need identified by the constituency the community college served.

Cost Per Credit Hour

To get a reasonable representation of the university's cost and enrollment, the researcher selected data from Proxim University's main campus. The researcher gained access to the FAIR system, and used the following search criteria to determine the expenditures in teacher education: report type (based on funding source): general revenue funding; operating unit: Proxim’s main campus; college: the College of Education, department (the teacher education departments within the College of Education), and fiscal period (Proxim University, 2007). The researcher started with fiscal period 2003-2004, and repeated the selection criteria indicated above for each fiscal period 2004-2005, 2005-2006, and 2006-2007. Within the College of Education, the researcher
identified three departments related to teacher education: childhood education, secondary education, and special education. Each report was printed. This process was repeated for the College of Nursing, except that the selected operating unit was the university's Health Sciences Center, and the college was Nursing.

After all reports were printed, the researcher entered the expenditures from the reports on an Excel spreadsheet in accordance with Levin's model. Expenditures were listed by reporting period with each department in the College of Education listed in a separate column and summarized with a total cost column for the three departments. Nursing did not have any separate departments, so the spreadsheet had only one expense column per fiscal year. Table 5 shows the spreadsheet created for the College of Education for period 2003-2004, while Table 6 shows a summary of all expenditures for the Colleges of Education and Nursing.
Table 5

Proxim University’s 2003/2004 Teacher Education Total Cost

<table>
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<tr>
<th>Total Cost</th>
<th>Childhood/ Language Arts/Reading</th>
<th>Secondary Education</th>
<th>Special Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty</td>
<td>4,209,345</td>
<td>1,258,620</td>
<td>2,028,728</td>
</tr>
<tr>
<td>Other</td>
<td>590,773</td>
<td>212,090</td>
<td>262,524</td>
</tr>
<tr>
<td>Capital Outlay Materials and Supplies</td>
<td>-</td>
<td>162,945</td>
<td>29,547</td>
</tr>
<tr>
<td>Other Inputs Required Client Inputs</td>
<td>12,138</td>
<td>4,800</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Direct Ingredients Cost

- Indirect Cost @ 26%
  - $4,975,201
  - $1,505,057
  - $2,350,361
  - $1,119,783

Total Ingredients Cost

- $6,268,753
- $1,896,372
- $2,961,455
- $1,410,927

\(^1\) Faculty Academic Information Reporting System
The expenditures shown in Table 6 reflect the total expenditures for the Colleges of Education and Nursing for lower-level, upper-level, and graduate programs. To come up with a reasonable estimate of the total cost for the upper-level programs, the researcher used a weighting factor as described earlier in this chapter and shown in Table 7. The fundable credit hours in this table were multiplied by the factors which resulted in the weighted credit hours (see Table 7). This weighted data for each level was divided by the cumulative weighted data to come up with a weighted percentage distribution (Table

104
To illustrate the calculations, the researcher marked four columns in Table 7 as columns A, B, C and D. For example, for fiscal year 2003-04 the data in column A was multiplied by the factor in column B to get the weighted data in column C. Subsequently, the information in column C was measured as a percentage of the sum. The results were reflected in column D. Algebraically, this calculation could be expressed by the following formulas: A*B=C and C/(ΣC) = D. For example, to determine the weighted percentage for the upper-level education program in 2003-2004, the researcher multiplied each level of the 2003-04 enrollment (A) by the factors (B) and came up with a total weighted number of 40,913 (ΣC). The weighted upper-level credit hours for this same year were determined by dividing the 24,554 (C) over 40,913 (ΣC), which is 60% (D).
Table 7

Weight Factors and Weighted Fundable Student Credit Hours – Proxim University

<table>
<thead>
<tr>
<th>Education</th>
<th>Original Data</th>
<th>Weight factor</th>
<th>Weighted Data</th>
<th>Percentage (rounded to the nearest whole number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower-level</td>
<td>1,593</td>
<td>1,284</td>
<td>1,215</td>
<td>1,287</td>
</tr>
<tr>
<td>Upper-level</td>
<td>20,462</td>
<td>20,230</td>
<td>21,011</td>
<td>22,701</td>
</tr>
<tr>
<td>Master's</td>
<td>7,784</td>
<td>7,492</td>
<td>7,074</td>
<td>7,174</td>
</tr>
<tr>
<td>Doctorate</td>
<td>2,394</td>
<td>2,583</td>
<td>2,464</td>
<td>2,382</td>
</tr>
</tbody>
</table>

Nursing

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower-level</td>
<td>32,233</td>
<td>31,589</td>
<td>31,764</td>
<td>33,544</td>
<td>40,913</td>
<td>40,230</td>
<td>40,331</td>
<td>42,416</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Upper-level</td>
<td>3,552</td>
<td>561</td>
<td>2,271</td>
<td>2,822</td>
<td>1.10</td>
<td>607</td>
<td>617</td>
<td>2,498</td>
<td>3,104</td>
<td>3%</td>
<td>3%</td>
<td>9%</td>
</tr>
<tr>
<td>Master’s</td>
<td>7,189</td>
<td>8,337</td>
<td>9,719</td>
<td>9,319</td>
<td>1.80</td>
<td>12,940</td>
<td>15,007</td>
<td>17,494</td>
<td>16,774</td>
<td>66%</td>
<td>64%</td>
<td>60%</td>
</tr>
<tr>
<td>Doctorate</td>
<td>2,117</td>
<td>2,712</td>
<td>3,103</td>
<td>3,426</td>
<td>2.40</td>
<td>5,081</td>
<td>6,509</td>
<td>7,447</td>
<td>8,222</td>
<td>26%</td>
<td>28%</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>317</td>
<td>365</td>
<td>505</td>
<td>485</td>
<td>3.20</td>
<td>1,014</td>
<td>1,168</td>
<td>1,616</td>
<td>1,552</td>
<td>5%</td>
<td>5%</td>
<td>6%</td>
</tr>
</tbody>
</table>

|          | 10,175       | 11,975       | 15,598        | 16,052  | 19,643  | 23,301  | 29,056  | 29,653  | 100%    | 100%    | 100%    | 100%    |
The weighted percentage found in Table 7 (D) was multiplied by the total cost to determine the prorated direct cost for the upper-level programs. These prorated amounts were entered in a new spreadsheet, based on the format shown in Table 6. For example, to calculate the 2003/04 cost for the upper level, the researcher multiplied column E in Table 6 by the 60% found in column D or the 2003/04 upper-level percentage to come up with an estimated upper-level cost shown in F on Table 8. The algebraic formula used was \((\text{Table 6)E} \times (\text{Table 7)D} = (\text{Table 8)F})\). A summary of the results is shown in Table 8. To determine the full cost of instruction, the researcher multiplied the total direct cost in Table 8 by the indirect cost rate of 26%. The indirect cost was added to the direct cost by college and by fiscal period; the sum of the direct and indirect cost represented the full cost of instruction for the upper-level programs in education and nursing for each reporting period. The total cost was divided by the total of un-weighted fundable credit hours used in Table 4 to show the cost per credit hour.
Table 8

*Summary of Proxim University’s Upper-level Expenditures by Year*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personnel: Faculty</td>
<td></td>
<td>2,526,261</td>
<td>2,845,110</td>
<td>3,147,847</td>
<td>3,388,180</td>
</tr>
<tr>
<td>Personnel: Other</td>
<td></td>
<td>354,556</td>
<td>398,416</td>
<td>438,847</td>
<td>397,631</td>
</tr>
<tr>
<td>Capital Outlay</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>38,474</td>
</tr>
<tr>
<td>Materials and Supplies</td>
<td></td>
<td>97,792</td>
<td>113,754</td>
<td>84,142</td>
<td>47,335</td>
</tr>
<tr>
<td>Other Inputs</td>
<td></td>
<td>7,285</td>
<td>-</td>
<td>5,245</td>
<td>(879)</td>
</tr>
<tr>
<td>Required Client Inputs</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total Direct Nutriment Cost</td>
<td></td>
<td>2,985,894</td>
<td>3,357,280</td>
<td>3,676,080</td>
<td>3,870,741</td>
</tr>
<tr>
<td>Indirect Cost @26%</td>
<td></td>
<td>776,332</td>
<td>872,893</td>
<td>955,781</td>
<td>1,006,393</td>
</tr>
<tr>
<td>Total Ingredients Cost</td>
<td></td>
<td>$3,762,226</td>
<td>$4,230,173</td>
<td>$4,631,861</td>
<td>$4,877,133</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>20,462</td>
<td>20,230</td>
<td>21,011</td>
<td>22,701</td>
</tr>
<tr>
<td>Total Cost per Credit Hour</td>
<td></td>
<td>$183.86</td>
<td>$209.10</td>
<td>$220.45</td>
<td>$214.84</td>
</tr>
<tr>
<td><strong>Nursing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personnel: Faculty</td>
<td></td>
<td>1,489,404.99</td>
<td>1,649,623.39</td>
<td>1,636,116.97</td>
<td>1,865,019.31</td>
</tr>
<tr>
<td>Personnel: Other</td>
<td></td>
<td>133,314.51</td>
<td>90,420.23</td>
<td>185,762.27</td>
<td>238,105.53</td>
</tr>
<tr>
<td>Capital Outlay</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Materials and Supplies</td>
<td></td>
<td>185,912.36</td>
<td>144,543.30</td>
<td>251,694.19</td>
<td>248,406.12</td>
</tr>
<tr>
<td>Other Inputs</td>
<td></td>
<td>-</td>
<td>27,495.62</td>
<td>7,974.76</td>
<td>31,615.67</td>
</tr>
<tr>
<td>Required Client Inputs</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total Direct Nutriment Cost</td>
<td></td>
<td>$1,808,631.86</td>
<td>$1,912,082.55</td>
<td>$2,081,548.19</td>
<td>$2,383,146.63</td>
</tr>
<tr>
<td>Indirect Cost @26%</td>
<td></td>
<td>470,244.28</td>
<td>497,141.46</td>
<td>541,202.53</td>
<td>619,618.12</td>
</tr>
<tr>
<td>Total Ingredients Cost</td>
<td></td>
<td>$2,278,876.14</td>
<td>$2,409,224.01</td>
<td>$2,622,750.72</td>
<td>$3,002,764.75</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>7,189.00</td>
<td>8,337.00</td>
<td>9,719.00</td>
<td>9,319.00</td>
</tr>
<tr>
<td>Total Cost per Credit Hour</td>
<td></td>
<td>$316.99</td>
<td>$288.98</td>
<td>$269.86</td>
<td>$322.22</td>
</tr>
</tbody>
</table>
The researcher used a similar approach to determine the cost per credit hour for Southeastern College. The Operating Budget Request forms were used to determine the actual expenditures for the upper-level programs (Operating Budget Request, 2007). This data was then entered by year on a spreadsheet similar to the one shown in Table 5. As mentioned earlier, the upper-level cost for Southeastern College was isolated and specifically identifiable and did not have to be weighted. In addition, as stated in the qualitative findings, the expenditures listed for Southeastern represented the full cost of instruction, so no indirect cost had to be calculated. The total cost per program for each period was divided over the number of credit hours shown in Table 4 to calculate the cost per credit hour. The results of these calculations are shown in Table 9.

The cost per credit hour shown in Tables 8 and 9 indicate that while for Proxim University this cost seemed to have leveled and showed only slight fluctuations between years, the cost per credit hour for Southeastern College fairly consistently decreased between years. For example, the cost per credit hour for education at Proxim University showed minor increases annually between 2003-04 and 2005-06, and a slight decrease in 2006-07, while the cost per credit hour for nursing showed a decrease between 2003-04 and 2005-06 and an increase in 2006-07. The cost per credit hour at Southeastern College decreased each year for both programs between 2003-04 and 2005-06, while only the education program increased in 2006-07.
Table 9

*Summary of Southeastern College’s Expenditures by Year*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personnel: Faculty</td>
<td>757,636</td>
<td>1,070,525</td>
<td>1,186,376</td>
<td>1,500,817</td>
</tr>
<tr>
<td>Personnel: Other</td>
<td>240,693</td>
<td>370,210</td>
<td>411,555</td>
<td>503,913</td>
</tr>
<tr>
<td>Capital Outlay</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Materials and Supplies</td>
<td>1,360,281</td>
<td>1,097,165</td>
<td>1,415,283</td>
<td>2,109,843</td>
</tr>
<tr>
<td>Other Inputs</td>
<td>238,446</td>
<td>246,571</td>
<td>115,651</td>
<td>75,000</td>
</tr>
<tr>
<td>Required Client Inputs</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Direct Ingredients Cost</strong></td>
<td>$2,597,056</td>
<td>$2,784,471</td>
<td>$3,128,865</td>
<td>$4,189,573</td>
</tr>
</tbody>
</table>

| **Allied Health**      |         |         |         |         |
| Personnel: Faculty     | 642,735 | 850,306 | 1,223,116 | 1,300,850 |
| Personnel: Other       | 100,824 | 181,140 | 216,514 | 206,600 |
| Capital Outlay         | -       | -       | -       | -       |
| Materials and Supplies | 556,329 | 1,106,544 | 1,400,948 | 1,812,696 |
| Other Inputs           | 193,177 | 154,531 | 82,596 | 80,000 |
| Required Client Inputs | -       | -       | -       | -       |
| **Total Direct Ingredients Cost** | $1,493,065 | $2,292,521 | $2,923,174 | $3,400,146 |

| **Effectiveness Measures** |       |       |       |       |
|**Total Number of Credit Hours** | 7,410 | 10,590 | 14,550 | 15,904 |
|**Total Cost per Credit Hour** | $350.48 | $262.93 | $215.04 | $263.43 |
|**Total Number of Credit Hours** | 3,660 | 5,850 | 8,070 | 10,210 |
|**Total Cost per Credit Hour** | $407.94 | $391.88 | $362.23 | $333.02 |
degrees per credit hour. This ratio was calculated by dividing the number of degrees awarded annually by the number of credit hours for the same period.

The second effectiveness measure for both programs was student test scores. For teacher education programs at both Southeastern College and Proxim University the student test pass rates of the Florida Teacher Certification Examination (FTCE) were used. FTCE was a state-required licensure examination for people entering the teacher education profession. Statistics on the FTCE passing rate were available from the Department of Education’s website. The researcher gained access to the website and retrieved the necessary data for each year (Title II, Higher education Act, 2008).

For the nursing programs at both Southeastern College and Proxim University the student test pass rates of the National Council Licensure Examination (NCLEX) were used. NCLEX is a nationwide examination for people entering the nursing profession. The NCLEX results were available from the state Department of Health’s website (Florida Department of Health, 2008). The researcher gained access to the website and retrieved the necessary data for each year.

Table 10 summarizes the effectiveness ratios for both Southeastern College and Proxim University for each period form 2003-2004 through 2006-2007.
Table 10

**Effectiveness Measures by Year – Proxim University and Southeastern College**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proxim University</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degrees Awarded per Credit Hour/Nursing</td>
<td>2.13</td>
<td>2.14</td>
<td>1.69</td>
<td>2.70</td>
</tr>
<tr>
<td>Degrees Awarded per Credit Hour/Education</td>
<td>1.48</td>
<td>1.66</td>
<td>1.57</td>
<td>1.58</td>
</tr>
<tr>
<td>FTCE Scores</td>
<td>99.00</td>
<td>100.00</td>
<td>100.00</td>
<td>*</td>
</tr>
<tr>
<td>NCLEX Scores</td>
<td>96.47</td>
<td>95.45</td>
<td>95.83</td>
<td>92.11</td>
</tr>
<tr>
<td><strong>Southeastern College</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degrees Awarded per Credit Hour/Nursing</td>
<td>0.77</td>
<td>0.89</td>
<td>2.52</td>
<td>1.76</td>
</tr>
<tr>
<td>Degrees Awarded per Credit Hour/Education</td>
<td>0.66</td>
<td>0.92</td>
<td>1.02</td>
<td>1.32</td>
</tr>
<tr>
<td>FTCE Scores</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>*</td>
</tr>
<tr>
<td>NCLEX Scores</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

* Data not available

Table 10 shows that while Proxim University showed higher rates for the degrees awarded per credit hour, their numbers were somewhat flat between years, while the same data for Southeastern College over this period show that their rates were increasing. The data also show that the FTCE scores for both Proxim and Southeastern are the same in 2005-2006 and in 2006-2007.

**Cost-Effectiveness Ratios**

Cost effectiveness for the NCLEX and FTCE passing rates was calculated as the cost per credit hour divided by the effectiveness measure. Table 11 summarizes the cost-effectiveness ratios for both Southeastern College and Proxim University for the teacher education and nursing programs during 2003-2004 through 2006-2007.

Data on this table show that for the education and nursing program, the cost-effectiveness ratios based on the degrees awarded per credit hour were lower for Proxim University in 2003-2004, 2004-2005, and 2006-2007. The table shows that based on the
NCLEX scores, the cost-effectiveness ratios for Proxim University were lower compared with the same ratios for Southeastern College in all years, except in 2006-07, in which year Southeastern’s cost-effectiveness ratio based on NCLEX scores was lower. The table also shows that the cost-effectiveness ratio based on FTCE scores was lower for Proxim University in all years except for 2005-06, in which year Southeastern’s cost-effectiveness ratio based on the FTCE scores was lower.

The data also show that between 2003-2004 and 2005-2006, all of Southeastern’s effectiveness ratios have decreased each year, while Proxim University’s ratios were relatively flat and even increased in most cases during this same period. In 2006-2007, however, the cost-effectiveness ratio for the nursing program at Southeastern College based on degrees awarded per credit hour shows an increase. The FTCE results for 2006-2007 were not available at the time that this study was completed; however, since 2004-2005 both Southeastern College and Proxim University showed a passing score of 100% on the FTCE. If this trend would continue in 2006-2007, Proxim University’s cost-effectiveness ratio would be 215, while Southeastern’s College’s cost-effectiveness ratio would be 263. This would mean that Proxim University would have been more cost effective in 2006-2007 based on the FTCE scores.
Table 11

Cost-Effectiveness Comparison by Year – Proxim University and Southeastern College

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on degrees/credit hour</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proxim University</td>
<td>12,417</td>
<td>12,590</td>
<td>14,036</td>
<td>13,623</td>
</tr>
<tr>
<td>Southeastern College</td>
<td>53,001</td>
<td>28,706</td>
<td>21,141</td>
<td>19,950</td>
</tr>
<tr>
<td>Based on FTCE scores</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proxim University</td>
<td>186</td>
<td>209</td>
<td>220</td>
<td>215*</td>
</tr>
<tr>
<td>Southeastern College</td>
<td>350</td>
<td>263</td>
<td>215</td>
<td>263*</td>
</tr>
<tr>
<td><strong>Nursing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on degrees/credit hour</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proxim University</td>
<td>8,639</td>
<td>9,794</td>
<td>13,064</td>
<td>7,945</td>
</tr>
<tr>
<td>Southeastern College</td>
<td>53,178</td>
<td>44,087</td>
<td>14,348</td>
<td>18,890</td>
</tr>
<tr>
<td>Based on NCLEX scores</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proxim University</td>
<td>329</td>
<td>303</td>
<td>282</td>
<td>350</td>
</tr>
<tr>
<td>Southeastern College</td>
<td>408</td>
<td>392</td>
<td>362</td>
<td>333</td>
</tr>
</tbody>
</table>

*If trend continues/data not available

Chapter Summary

This chapter presented the results associated with the cost per credit hour calculations, along with the cost-effectiveness measures. Interviews were conducted with administrators of Southeastern College, the findings of which were presented as well. The final chapter provides a discussion of the findings along with the researcher’s interpretations and explanations.
Chapter 5

Summary, Conclusions, and Recommendations

This chapter presents an overview of the purpose of this study and a discussion of the findings, conclusions, and recommendations. Based on the nature of the study, the quantitative and qualitative findings and the recommendations and findings of this study are integrated and discussed in one section.

Purpose of the Study

The purpose of this case study was to determine which, if any, alternative in delivering baccalaureate programs in the state of Florida was the most cost-effective one. This study was an exploratory case study of a snapshot in time of one Florida community college approved to offer baccalaureate degrees. It is not a simple task to compare cost data between institutions of higher education; it gets even more complicated when comparing cost data between programs offered at community colleges with similar programs offered at universities. There may be flaws in the approach used in this study due to the unique perspectives of the issues that were studied. As mentioned in the limitation section of chapter one, this study may have been limited by the researcher’s, bias since the researcher worked in an administrative position at a public university in the state of Florida. In addition, the conclusions based on the formula of state and student cost were based on factual data, while conclusions based on Levin’s (1983) ingredients model were based on assumptions and estimates using a weighting factor along with an
indirect cost rate for Proxim University. Caution should therefore be exercised when trying to generalize the results of this study.

One rationale for allowing community colleges to confer baccalaureate degrees was the lower cost to the state and students. Some may argue that the state appropriations should be considered when evaluating the cost effectiveness of the community college baccalaureate. While the community college baccalaureate received significantly less funding compared with the universities, the community college incurred a higher per FTE cost. There are many factors included in the cost that explain the differences in the cost structure. These factors include the scale of the universities compared with the community colleges, salaries at the universities which are higher compared with the community colleges, and differences in programs offered at universities and facilities and equipment costs (M. McDemmond, personal communication, May 30, 2008).

It is common practice in universities that lower-division programs subsidize upper-division programs and undergraduate programs subsidize graduate programs. These practices are also evident in select community college settings. Bowen (1980) stated that “costs tend to be higher as students advance up the academic ladder” (p. 4). According to Bowen, the educational costs will be greater in institutions with high proportions of advanced students compared with institutions with high proportions of beginners. These factors contribute to a significantly higher funding per FTE for the universities compared with the community colleges. The funding formula used for universities included the average amount needed to support the full university operations which covered items listed above (M. McDemmond, personal communication, May 30, 2008). While this explains differences between the community college and university

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cost structure, this study suggests that a better comparison of cost can be made when comparing the actual cost of instruction. By comparing the actual cost of instruction, the researcher hopes to create a model that could be used by college and university administrators to determine if a less expensive alternative also resulted in a more cost-effective one.

The researcher explored whether a lower cost would necessarily translate in more cost-effective programs. In addition, the researcher explored if factors other than cost could justify allowing the community colleges to confer baccalaureate degrees.

**Summary of Findings**

The first research question explored which alternative for delivering baccalaureate programs in the state of Florida – the community college baccalaureate or the university model – was more cost effective. Applying Levin’s (1983) model, the quantitative findings indicated that the baccalaureate programs at the community college in this case study were less cost effective in the earlier years of implementing these programs for all cost-effectiveness measures used in this study. However, the results also showed that Southeastern College’s cost-effectiveness ratios were improving and that in 2005/06, the education programs were more cost effective at Southeastern College compared with Proxim University when using the cost-effectiveness measures based on FTCE scores. The results also showed that in 2006/07, the nursing programs were more cost effective at Southeastern College compared with Proxim University using Levin’s model for cost-effective measures and based on the NCLEX scores.

Two factors contributed to the improving cost-effectiveness ratios: the improved cost per credit hour and the improved effectiveness ratios. The results showed that the
cost per credit hour of both the nursing and education programs at Southeastern College were decreasing each year between 2003-04 and 2005-06, and that in 2005-2006, the cost per credit hour for education at Southeastern was lower compared with the cost of Proxim University. As stated by the OPPAGA report (2005), the initial high start-up cost combined with low enrollment during the first years caused the per credit hour cost of the community college to be significantly higher in the first years of operation, while it would gradually decrease over time as enrollment increases. Southeastern College started to offer the programs in 2002-2003, while the study analyzed 2003-04 through 2006-07. The total number of credit hours at Southeastern for both education and nursing was expected to continue to increase, which could result in a lower cost per credit hour due to the economies of scale. It was noticeable, though, that the cost per credit hour for education program increased in 2006-07. This may have been the result of investing additional faculty and/or infrastructure in the program in anticipation of the continuing exponential growth of the program.

Applying the lens of cost based on state reimbursement per student and student tuition, the qualitative findings indicated that the community college baccalaureate resulted in an alternative that was less costly to the state and the students. The average state funding for the 2006-07 university baccalaureate programs was $8,392 per FTE (Florida Board of Governors, 2008a). The state funding for the community college baccalaureate for the same period was $5,574 per FTE. Thus, universities received $2,818 more from the state than community colleges for each student served. Tuition for the community college students was set at 85% of the university’s tuition, while local fees at community colleges were lower than the local fees charged at the public
universities. In 2007-08 for example, tuition at Proxim University was $100.27 per student credit hour, while Southeastern College’s tuition was $85.20 per credit hour. Thus, since the university and community college programs were equally effective using two student outcomes measures but the community college tuition and state costs were considerably less than the university, the community college baccalaureate was viewed as being more cost effective through the lens of the taxpayer.

The second research question addressed the real cost of the baccalaureate programs to the community colleges. To determine the real cost, the researcher searched for expenditures and other costs that were supported from sources other than the state funding. For example, the researcher performed a site visit to the campuses where the nursing and education programs are offered. The purpose of this visit was to assess whether the college purchased equipment with money drawn from sources other than the state or found other alternatives to offset expenditures. The interview questions also addressed this issue. Southeastern College received a federal grant to teach working paraprofessionals to become teachers. The expenditures of this grant are reflected in the expenditures reported to the state. The researcher has found no additional evidence that the programs were being supported from additional sources other than the state funding.

The cost per credit hour (Table 9) shows the real cost for the nursing and education programs. This table shows that the cost per credit hour for education was $350.48, $262.93, $215.04, and $263.43 for the years 2003/04, 2004/05, 2005/06, and 2006/07, while the cost per credit hour for nursing was $407.94, $391.83, $362.23, and $333.02 during the same period. This indicates that there has been a decrease in the cost per credit hour (except for 2006/07) for education. While Southeastern showed a decrease
in the cost per credit hour, Tables 8 and 9 shows that the actual cost at each institution is about the same. This seems to be consistent with Romano’s (2005) conclusion, which stated the following: “Is it less expensive to educate a student at a two-year rather than a four year college? The answer to that question is yes, but not by as much as you might expect by looking at the average cost per student at each institution” (p. 39).

The real cost has also been viewed through the lens of the taxpayer or the student by some of the research participants. Through this lens, the cost of the taxpayer was defined as the state funding per credit hour, while the cost of the student was defined as the tuition paid by the student. While the study showed that the real cost per credit hour was higher for the community college baccalaureate programs, the study also showed that the cost to the state and the student was significantly less for the community college baccalaureate programs compared with similar programs offered at the state universities. Based on this view, the real cost for the taxpayer was $8,392 for the university and $5,574 to the community college in 2006-07. From the perspective of student cost, Proxim University’s per credit hour tuition for 2007-08 was set at $100.27, while Southeastern College’s tuition was at $85.20. The lower-cost alternative programs were guaranteed in the state statutes, which required funding to be at 85% of the university’s cost and tuition to be at 85% of the university’s tuition. In addition, local fees at community colleges were also lower than the local fees charged at the public universities.

The third question addressed the cost differential between the community college and the university baccalaureate. Tables 8 and 9 illustrate what the cost per credit hour for the education and nursing programs at Proxim University and Southeastern College was. The cost differential was defined as the difference in the cost per credit hour
between the community college and the university. The cost differentials for the education programs between Proxim University and Southeastern College were $183.86 compared to $350.48, a difference of $166.62 in 2003/04; $209.10 compared to $262.93, a difference of $53.83 in 2004/05; $220.45 compared with $215.04, a difference of $5.41 in 2005/06; and $214.84 compared with $263.43, a difference of $48.59 in 2006/07.

The researcher found that between 2003/04 and 2005/06 the cost differential was decreasing annually, with a minimum differential in 2005/06. However, in 2006/07, the differential increased due to the increased cost per credit hour at Southeastern College. The cost differentials for the nursing program between Proxim University and Southeastern College were $316.99 compared to $407.94, a difference of $90.95 in 2003/03; $288.98 compared with $391.88, a difference of $102.90 in 2004/05; $269.86 compared with $362.23, a difference of $92.37 in 2005/06; and $322.22, compared with $333.02, a difference of $10.80 in 2006/07. It was noticeable that the cost differential in nursing remained about the same in each year between 2002/03 and 2005/06. The significant change in the cost differential in 2006/07 was due to the increase in the cost per credit hour at Proxim.

The fourth question addressed elements of the funding model that could make this model effective or ineffective as perceived by the research participants.

The researcher found three elements related to the funding model: the funding was set at 85% of the university’s per-credit-hour funding; the funding was based on categorical funding; and the funding was based on projected funding. The findings are discussed below.
The funding model allowed for Florida's community colleges offering baccalaureate degree programs to be funded at 85% of the university's per-credit-hour funding. The study showed that this funding model allowed for an alternative method of offering baccalaureate programs that was less expensive for the state and the students since the average state reimbursement was $8,392 to the university and $5,574 to the community college baccalaureate, while the student tuition at the community college was set at 85% of the university's tuition. The arguments for funding the community colleges at 85% included the fact that the community colleges' faculty did not have the research assignments in their workload, compared to the university faculty with research assignments. As a result, the teaching load of baccalaureate faculty in the community colleges was greater; however, their average salaries were lower than their university counterparts. The researcher found a level of concern about whether or not this 85% funding model would provide sufficient funding in the long run. Specifically, several participants expressed their concern about the 85% funding which was based on the direct cost of instruction at the university; however, this funding rate was used to cover the full cost at the community college. Administrators at Southeastern realized that this translated to about 65% of the university's full cost. While it may have been sufficient at the time of the research, the researcher sensed a general concern that this potentially would not be the case in the long run.

Another issue related to funding was the concept of categorical funding. The researcher found that the community college baccalaureate programs were funded under a categorical funding model. There was a general consensus about the effectiveness of this model. Some participants identified the flexibility to spend the funding in full as
another benefit of this funding model. However, at least one participant recognized the inherent danger of this model regarding the continuity of this structure. Specifically, the funding could be discontinued by the legislation under a categorical funding model.

A final conclusion about the funding model is that funding of the community college baccalaureate programs was based on a projected student FTE or enrollment plan. The projected student FTE model was also used by the public universities in this state, and based the funding on a projected student enrollment rather than prior year actual enrollment. Funding of the lower-division courses at community colleges was based on actual enrollment. The researcher learned that there were ongoing policy discussions about this model and about whether a hybrid model should be used, combining the projected enrollment plan for the first years followed by a funding model based on actual FTE.

The last question addressed whether factors other than cost could be considered that make baccalaureate programs through community colleges a more attractive alternative. The need to offer baccalaureate degrees at community colleges is based on access, geographical location, and demand. Southeastern College was located in a large and densely populated urban area. While Proxim University was only 30 miles away from Southeastern College, complex traffic patterns made it difficult to move through this area. In addition, the state ranked at the bottom of producing baccalaureate degrees, while the county in which Southeastern was located ranked at the bottom of producing baccalaureate degrees within the state.

The baccalaureate degrees offered at Southeastern College were funded at 85% of the direct cost of the state university funding. In addition, tuition and fees were less at

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Southeastern College as compared with the tuition and fees of Proxim University, which resulted in a low-cost baccalaureate program alternative. The programs were also designed to offer degrees in a variety of areas that were considered “high need” for the local economy. The high-need areas were addressed faster and lessen the downtime of being without the select professionals to meet the local need.

Another important factor was that programs were tailored to assure students’ growth and success in transitioning from the associate to the bachelor degrees and beyond to assure that the local community received the maximum good from these degrees. The support efforts noted lessen attrition rates and thus overtime, lessen additional start-up costs to attract and train new students to compensate for those leaving due to lack of institutional support and guidance.

Also noticeable was that Southeastern College was so successful in enrolling students in the baccalaureate program in education that Proxim University arranged with Southeastern College to transfer three degree programs in undergraduate elementary education to Southeastern in order for Proxim University to focus on graduate programs while Southeastern College would focus on offering the undergraduate programs. This transfer of degree programs is a testament to the perceived success of Southeastern College in producing qualified students in a high area of need.

These factors reflected a high need for baccalaureate-granting programs in the area. In addition, the findings indicated that Southeastern College was located in an area that may be conceived as an attractive one by prospective faculty. Based on literature identifying a need to increase baccalaureate access through community colleges, the
researcher concluded that factors other than cost effectiveness could enhance the appeal of community college baccalaureate programs.

Conclusions

This study concluded that the two university and community college baccalaureate programs were equally effective using two student outcomes measures. Further, both were cost effective, using two different lenses. Using the lens of Henry Levin’s 1983 model described in Chapter 3, the university programs were a more cost-effective alternative during the early years of implementing the community college baccalaureate programs; however, over the years, the increase in student credit hours resulted in a decreased cost per credit hour and a projected increase in the community college baccalaureate cost effectiveness over time. The researcher concluded that the community college enrollment would have to continue to increase to make the community college baccalaureate programs more cost effective than the university programs. The researcher noticed that community college enrollments were increasing and thus, over time it is probable that they may be more effective using this lens.

In addition, the researcher noticed that the quality of the programs as reflected in the effectiveness measures showed that the community college baccalaureate programs were equally as effective as the university programs. The researcher concluded that with increased growth in the enrollment of the programs combined with effectiveness measures that are comparable to those of the university, the baccalaureate programs at the community colleges would become more cost effective over time. The real cost per credit hour was lower for the university programs when compared with the same cost for the community college baccalaureate during their first few years of operations, but that
these costs for the community college baccalaureate programs were decreasing annually during the years reviewed. The study also concluded that the cost differential between the community college baccalaureate program and the university programs showed a higher cost differential in the early years, but that the differentials were decreasing over time.

The study also showed that there were factors other than the cost-effectiveness that could make the community college baccalaureate a more attractive alternative for states to consider. These factors included location, traffic patterns, proximity to the learner’s home and workplace, marketability, and customer relations. These are important factors for future research.

Using the lens of the taxpayer, or the funds received from the state for each student combined with the student tuition costs, the study revealed that the community college programs are less expensive than the university programs. Community college student tuition was less than the university counterpart, and the monies the institutions received from the state for each student was also less at the community college. Thus, those interviewed in this study supported the notion that the community college baccalaureate programs were more cost effective because they were funded at a lower rate while outcomes were equally as successful as university counterpart programs.

Recommendations for Practice, Policy, and Future Research

1. Policy makers and higher education leaders should encourage and invite community colleges to participate in cost-benefit research studies about baccalaureate degree programs using various lenses and models to aid understanding. Controls for varying delivery models should be taken into account.
2. Policy makers should cautiously consider the pros and cons of continuing differential and lower funding levels of community college baccalaureate programs. The community colleges are currently funded at 85% of the universities' direct cost of instruction while this funding covers the full cost of the baccalaureate programs at the community colleges. Over time, the effects of this funding model needs to be monitored by reviewing student outcomes as effectiveness measures. Continuing a policy of funding community college baccalaureate degrees lower than comparable university degrees has the potential to save money, but it also has the potential to result in community colleges offering underfunded degrees.

3. It would be advantageous if the community colleges and the universities could agree on a set of attainable effectiveness measurements for comparable baccalaureate degree programs. These measurements could be used to better compare and assess the programs offered by the community colleges and universities, including cost-effectiveness measures.

4. Consideration should be made by policy makers to apply equitable formulas to community college and university baccalaureate programs. For instance, if universities are funded based on projected enrollments, then community college baccalaureate approvals and funding should include projected enrollments as a part of the formula.

5. The researcher suggests that policymakers evaluate the funding model of the community college baccalaureate programs and determine whether the categorical funding model is the most cost-effective one.

6. Policy makers should be cautious when reviewing data that compare the models of offering baccalaureate programs at community colleges as each model
introduces its own level of uniqueness, while different programs in each model could result in comparison of unlike data.

7. Consideration should be given to issues such as the cost effectiveness, initial start-up cost, and marginal cost increases of offering baccalaureate programs when expanding these programs through additional course offerings or community colleges authorized to confer baccalaureate degrees, and the establishment of a state college system.

8. Researchers may want to study what role factors such as geographical location, proximity to other four-year institutions, and density of the population play in the cost effectiveness of the community college baccalaureate.

9. Researchers should review how the community college baccalaureate programs will evolve over time and analyze what, if any, changes are made to the campus and administration structure and how these changes will impact the cost and effectiveness of the community college baccalaureate programs.

10. The researcher suggests that a more uniform methodology of calculating the full cost of instruction at universities and community colleges be developed. Specifically, some standards should be set on determining the indirect cost of instruction.

11. The researcher suggests that variables are developed that can be used to determine the benefits to the society and the workforce of the community college baccalaureate.

12. The researcher suggests that future research modify the research design to compare and contrast an entering class of students at both Southeastern College and Proxim University. Additional effectiveness measures that could be considered would
address (a) attrition rate and reason; (b) time to complete the degree; (c) graduation rate (including retention); (d) graduation in high-need areas; (e) ability to transfer degrees to other institutions; (f) employment rates in the field; (g) completion of mandatory state certification programs or accreditation requirements.

13. Based on this research study, future researchers should determine the real cost of offering a baccalaureate degree at a community college from a taxpayer’s perspective and compare this with the cost of offering a similar degree at a university. The researcher suggests that researchers use this data to determine which one of the two models is more cost effective.

14. Close attention needs to be given to new developments in this area, such as the issuance of Senate Bill 1716 in Florida. This Bill, signed into law in May 2008 and effective July 1, 2008, established a separate college system and required programs to be delivered in a cost-effective manner at substantial savings to the student and the state as compared with the state universities. The researcher suggests that researchers determine if these changes will impact the cost effectiveness of the community college baccalaureate.

15. Future studies may also address the differences in perceived effectiveness of a degree from a community college and a university based on the views of the student and his or her employer. If students are recruited and trained to meet local high-need areas, the degree of their dedication may well affect the quality of their contribution and in time contribute to other effectiveness measures.

16. Caution should be exercised when interpreting the results of this study. The effectiveness measures used for the passing scores are not only very similar for both
institutions, but they are all near or at 100%. The cost-effectiveness measure was therefore only a function of the cost and not a function of both the cost and effectiveness.

Summary

In closing, as already proven by some community colleges, the community college baccalaureate could play a significant role in meeting the workforce demand in certain fields such as nursing and teaching. The current mission of the community colleges makes authorizing them to offer baccalaureate degrees in these high-demand fields an attractive alternative. Policy makers and community college administrators need to understand that there is no one-size-fits-all model to address this issue. What may be the most cost-effective model in one situation may not necessarily result in similar outcomes elsewhere. As Floyd and St. Arnauld (2007) state in describing their research about community college baccalaureate teacher education programs, “...to get the programs approved and implemented, the full costs were sometimes not fully revealed and, in many cases, not fully known.” This underscores the importance of the need for cost studies of higher educational programs in order to better understand the financial impact of these programs.

Further, the fact that this study revealed that the university and community college baccalaureate programs were both cost effective, depending on the lenses with which one viewed the data, is very important. Through the lens of a university reporting system and an economic model, the university teacher education and nursing programs were more cost effective initially and community college programs were becoming more cost effective over time. Through the lens of the taxpayer and the lower community college tuitions and state costs per student, the community college programs were more
cost effective because they actually cost less than the university programs. Both university and community college programs studied were equally as effective in terms of student outcomes. Policy makers, leaders and researchers need to recognize that the lenses applied to study this topic make a difference in the answer to the question, “Which programs are more cost effective?”

The cost-effectiveness analysis of the community college baccalaureate degree programs could be used as a basis to develop a model for future studies and could make a significant contribution to policy analysis and future research. This exploratory study analyzed a new delivery model. Additional work is needed in comparing the cost effectiveness as well as the factors other than cost effectiveness that support or oppose this model. Researchers are encouraged to expand on this model, while policy makers and community college administrators are encouraged to consider the program cost effectiveness in the approval process for the community college baccalaureate degree.
Appendix A

Request for Participation
Dear Dr. XXX,

Please allow me to briefly introduce myself. I am a doctoral candidate in the Educational Leadership program at Florida Atlantic University. I am currently working on my dissertation, titled, "A cost-effectiveness analysis of the community college baccalaureate programs in Florida: An exploratory study." The purpose of this study is to clarify the available alternatives in delivering baccalaureate programs in the state of Florida and to determine which, if any, alternative is the most cost-effective one.

My proposal has recently been accepted by the dissertation committee. This dissertation is being conducted under supervision of the dissertation chairs, Dr. Deborah L. Floyd and Dr. Valerie C. Bryan. Other members of my committee are FAU faculty: Dr. David J. Weerts and Dr. John D. Morris and Dr. Kenneth P. Walker, President, Edison College.

Before I can collect any data, my university requires a letter of consent from each institution indicating agreement to participate in the study. My study is limited to three community colleges in Florida that confer baccalaureate programs in teacher education and nursing and I have selected your institution as one of the three to study. The cost-effectiveness of these community colleges will be compared with that of three public universities in a geographical proximity. The data collection will consist of reviewing data on expenditures, reviewing other documents related to the community college baccalaureate, observing sites where the baccalaureate programs are offered, and conducting interviews. The interviews will be with the President or his/her designee, along with one other top administrator involved in the initiation of the baccalaureate programs.

I am requesting the cooperation of your institution to participate in this study. I know that your time, and the time of your staff, is valuable, and I will ensure you that I will keep all interactions to a minimum. I expect that most of my data collection will be between April and August 2007. Your participation in this study is of extreme importance. This study may contribute to the research of the cost-effectiveness of the community college baccalaureate, and it may help policy makers along with other stakeholders to determine
which model is more cost-effective. If you would like a copy of the Executive Summary, please indicate this on the attached consent form.

I will contact you or your designee via email by Friday, April 6th, 2007 to confirm your participation in this study. If you agree for your institution to participate, and authorize a guided tour on your campus please reply by signing the attached form and return it in the self addressed envelope included with this letter, or fax it to me at 561 297 0227.

If your institution requires a formal IRB approval, I will make sure that I will follow their guidelines as well. If you have any questions regarding this study, please feel free to call me at 561 706 7847 or email at ebemmel@msn.com, or contact Dr. Deborah L. Floyd at (954) 564 0344 (email: DFloyd@fau.edu) or Dr. Valerie C. Bryan at 954 592 3224 (email: Bryan@fau.edu).

I look forward to your response soon. Thank you.

Respectfully,

Edwin P. Bemmel
Doctoral Candidate, Florida Atlantic University

Enc: self-addressed envelope
     approval form
Appendix B

Consent Form
CONSENT FORM

1) **Title of Research Study:** A Cost-effectiveness Analysis of the Community College Baccalaureate Programs in Florida: An Exploratory Study.

2) **Investigators:** Mr. Edwin Bemmel, Doctoral Candidate; Dr. Deborah L. Floyd, Supervising Professor; Dr. Valerie C. Bryan, Supervising Professor.

3) **Purpose:** The purpose of this study is to clarify the available alternatives in delivering baccalaureate programs in the state of Florida and to determine which, if any, alternative is the most cost-effective one. The study will focus first on gaining an understanding of the cost-effectiveness of community college baccalaureate programs in Florida. The second step will be to examine the funding structure of the baccalaureate programs in this state. The study will then examine the cost of several alternatives and determine which alternative, if any, provides the more cost-effective alternative.

4) **Procedures:**
Participation in this study will require a guided tour and interview which will be conducted at a location of your convenience. The guided tour will take 1-2 hours. This interview will take about 60 minutes to complete. The subjects in this study will be asked to answer a number of questions about the community college baccalaureate program. The interviews will be audio taped in order to accurately transcribe all responses. Interviews will also be coded so that the data can be compiled for analysis. The researcher will utilize member-checking to determine the accuracy of the interviews. Participants will have the opportunity to review their comments for accuracies of transcription. Patterns that manifest themselves repeatedly in the findings will be coded numerically as themes.

5) **Risks:**
The risk involved is minimal and no more than one would experience in daily activities. Efforts to minimizing risks will be employed. Interviews will be coded, pseudonyms will be used, and all participants will have the opportunity to review their interview for accuracy. Within two months of the final defense, the interview transcripts will be shredded. All transcribed data will be stored on a flash drive, and along with the audio tapes, will be kept for five years.

6) **Benefits:**
This study is designed to reveal which delivery model of the baccalaureate programs, if any, results in the most cost-effective one, and may contribute to the research on the cost-effectiveness of community college baccalaureate programs. It may be helpful for policymakers and other stakeholders in determining which delivery mode, if any, is a more cost-effective one.

Benefits to the individual:
1. Upon request, the participants will receive an executive summary of the study.
2. If interested, the participant will be notified if the findings of this study will be presented at a conference.

Benefits to society:
1. This study may provide valuable data for or against the community college baccalaureate degrees in nursing and teacher education.
2. With the limited funding that is available for education, this study could assist policy and lawmakers in steering the funding into the most cost-effective model of meeting the needs in critical shortage areas.
3. The findings of this study could be used as a model for future research in the area of cost effectiveness of the community college baccalaureate.

7) **Data Collection & Storage:**
Data will be kept confidential. No interview data (audio tapes, written transcripts, and electronic media storages such as flash drives with transcribed data) will be released without permission of the participants. Expenditure data that will be collected will be public information that is readily available under Florida's Sunshine law. Edwin Bemmel will transcribe the audio tapes. The audio tapes, along with the transcribed data, and any other reports will be kept in a locked file cabinet at Edwin Bemmel's home. Paper copies of written transcripts will be shredded within two months after successful defense of the research. All transcribed data will be stored on a flash drive, and along with the audio tapes will be kept for five years. All this data will only be accessible by him.

8) Contact Information:
For related problems or questions regarding your rights as a subject, the Division of Research of Florida Atlantic University can be contacted at (561) 297-0777. For other questions about the study, you should call Mr. Edwin Bemmel, Doctoral Candidate at (561) 706 7847, or Dr. Deborah L. Floyd at (954) 564 0344, or Dr. Valerie C. Bryan at (954) 592 3224.

9) Consent Statement:
*I have read or had read to me the preceding information describing this study. All my questions have been answered to my satisfaction. I am 21 years of age or older and freely consent to participate. I understand that I am free to withdraw from the study at any time without penalty. I have received a copy of this consent form.

I do____ I do not____ agree to be audio taped in this study.
I do____ I do not____ agree that you can use my identity and quotes in this study. [investigator will provide you with an opportunity to review the transcribed interview]
( ) As a participant in this study, I am requesting an executive Summary of this study.

Signature of Participant: __________________________________________
Date: __________________________

Signature of Investigator conducting the interview: __________________________
Date: __________________________
Authorization to Participate in the Study

XXX College
Address....

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5) **Risks:**

   The risk involved is minimal and no more than one would experience in daily activities. Efforts to minimizing risks will be employed. Interviews will be coded, pseudonyms will be used, and all participants will have the opportunity to review their interview for accuracy. Within two months of the final defense, the interview transcripts will be shredded. All transcribed data will be stored on a flash drive, and along with the audio tapes, will be kept for five years.

6) **Benefits:**

   This study is designed to reveal which delivery model of the baccalaureate programs, if any, results in the most cost-effective one, and may contribute to the research on the cost-effectiveness of community college baccalaureate programs. It may be helpful for policymakers and other stakeholders in determining which delivery mode, if any, is a more cost-effective one.

   **Benefits to the individual:**
   3. Upon request, the participants will receive an executive summary of the study.
   4. If interested, the participant will be notified if the findings of this study will be presented at a conference.

   **Benefits to society:**
   4. This study may provide valuable data for or against the community college baccalaureate degrees in nursing and teacher education.
   5. With the limited funding that is available for education, this study could assist policy and lawmakers in steering the funding into the most cost-effective model of meeting the needs in critical shortage areas.
6. The findings of this study could be used as a model for future research in the area of cost effectiveness of the community college baccalaureate.

7) Data Collection & Storage:
Data will be kept confidential. No interview data (audio tapes, written transcripts, and electronic media storages such as flash drives with transcribed data) will be released without permission of the participants. Expenditure data that will be collected will be public information that is readily available under Florida’s Sunshine law. Edwin Bemmel will transcribe the audio tapes. The audio tapes, along with the transcribed data, and any other reports will be kept in a locked file cabinet at Edwin Bemmel’s home. Paper copies of written transcripts will be shredded within two months after successful defense of the research. All transcribed data will be stored on a flash drive, and along with the audio tapes will be kept for five years. All this data will only be accessible by him.

8) Contact Information:
For related problems or questions regarding your rights as a subject, the Division of Research of Florida Atlantic University can be contacted at (561) 297-0777. For other questions about the study, you should call Mr. Edwin Bemmel, Doctoral Candidate at (561) 706 7847, or Dr. Deborah L. Floyd at (954) 564 0344, or Dr. Valerie C. Bryan at (954) 592 3224.

9) Consent Statement:
By signing below I acknowledge that I have read the preceding information describing this study. All my questions have been answered to my satisfaction. I understand that I am free to withdraw from the study at any time without penalty. I have received a copy of this consent form. I authorize my college to participate in this study. I also authorize Edwin Bemmel to take a guided tour on my college’s campuses. I agree to authorize Edwin Bemmel to interview participants who agree to participate in this study.

I am requesting an executive Summary of this study. _____ yes _____ no (please check your preference)

Signature of College President or designee: ________________________________ Date: ______

Signature of Investigator conducting the interview: __________________________ Date: ______
Appendix C

Observation Guide
Observation Guide

The observation guide will assist the researchers in identifying the physical and personnel resources that may or may not appear in the fiscal expenditure reports. This information will be used to ask additional questions if needed with interviewees. The observation is being used to clarify the researcher's perception regarding current resources at the community college level.

The purpose of this study is to better understand the available alternatives in delivering baccalaureate programs in the state of Florida and to determine which model is the most cost-effective alternative.

The researcher will conduct a one - two hour observation of the three community colleges and three of the university centers.

These observations are relevant in that they will help the researcher understand what ingredients are actually being included in the cost for the baccalaureate programs offered by the community colleges and universities in Florida.

Items and issues to be observed within each setting include:

1. Physical setting
   - building/location used
   - equipment used
   - classroom setting

2. Personnel
   - faculty and staff in the program
Appendix D

Observation Table
## Observation Table

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is the real cost to the community colleges of the baccalaureate programs?</td>
<td>(This is not readily applicable to the observation. It should be evident via the analysis of the archived data found in the Operating Budget Request for Community Colleges Grants report along with the document analysis and interviews.)</td>
</tr>
<tr>
<td>2. What is the cost differential between the community college and the university baccalaureate?</td>
<td>1 and 2</td>
</tr>
<tr>
<td>3. What is the marginal cost for the universities to add additional capacity in order to meet the unmet demand for certain programs?</td>
<td>(This is not readily applicable to the observation. It should be evident via the document analysis and interviews.)</td>
</tr>
<tr>
<td>4. Are there factors other than cost that should be considered that make offering baccalaureate programs through community colleges a more attractive alternative?</td>
<td>(This is not readily applicable to the observation. It should be evident via the document analysis and interviews.)</td>
</tr>
</tbody>
</table>
Appendix E

Interview Protocol-1
Interview Protocol-1

Script:
Good morning (or good afternoon). My name is Edwin Bemmel, and I am a doctoral candidate at Florida Atlantic University. The purpose of this interview is to add to my understanding of the community college baccalaureate programs. In order to properly reflect your responses to my questions, I would like to record this interview. Do I have your permission to record this interview? Then turn on tape.

Good morning (or good afternoon). My name is Edwin Bemmel, and I am a doctoral candidate at Florida Atlantic University. The title of my dissertation is “A cost-effectiveness analysis of the community college baccalaureate programs in Florida: An exploratory study.” The purpose of this interview is to add to my understanding of the community college baccalaureate programs. Could you please state your name? ...Thank you.

Thank you for completing the consent form. Do you have any questions that you would like to get answered before we start this interview?...Thank you for agreeing to participate in this study.

1. Please explain in detail how the community college baccalaureate at your college was funded. 
   Probing:
   • Are there any sources other than the state’s start up funds and restricted funding that you used? If yes, please list.
   • Did you use existing resources or did you reallocate resources?
   • Did you have to eliminate programs to start the new degrees?
   • Since you started the baccalaureate programs, did you have to cut your budgets for any other programs? If yes, for which programs?

2. Please tell me in detail about the creation of the baccalaureate degree programs of your college. 
   Probing:
   • What precipitated the move to the community college baccalaureate at your college? (Why was it done?)
   • Who were the key people involved in creating the baccalaureate program at your college?
   • What were the challenges that your college encountered related to the funding of the baccalaureate programs?

3. Looking back from the day that the programs have been implemented, please describe the issues and challenges that you have faced. 
   Probing:
   • Were there any surprises that you ran into since you started the baccalaureate programs at your college?
   • What were the issues that emerged as a result of the baccalaureate programs?

4. The current funding formula is set for the funding to the community colleges at 85% of the university funding and for tuition of the community college baccalaureate programs at 85% of the university’s tuition. How does this funding model work for you?
   Probing:
   • Is it sufficient? Does it provide enough revenue? Does the funding result in any surplus or shortfall at the end of the year?
   • If it is not sufficient, how do you balance your budget?
   • If you are over funded, what do you do with the surplus?
   • What do you see as the shortfalls of this funding model?
   • What can be done to improve this model?

5. I am trying to understand the real cost for this program. Please help me understand whether all expenditures for this program are funded by the community college baccalaureate grant funding. 
   Probing:
   • Are there co-use equipment/faculty?
   • Are there equipment and/or faculty used that do not appear on the expenditure report?
6. How does the salary of faculty in the upper-division compare with that of faculty who only teach in lower-division?

7. Are you familiar with the 2005 OPPAGA report regarding the community college baccalaureate? If yes, could you share your comments about this report?

8. What effectiveness measures do you use to evaluate the baccalaureate programs?

9. Does your institution collect data on student success as a measure of effectiveness such as employment evidence; graduation rate; test rate?
   * Probing:
     - Are there other output measures that relate to your funding and cost-effectiveness?

10. One argument against the nursing baccalaureate program is that there is a shortage of nursing faculty: creating additional sites for offering nursing programs is just going to add to the problem of not having sufficient and capable faculty. How do you comment to this?

11. One argument against the baccalaureate program in teacher education is that universities in Florida currently have a problem increasing their enrollment in this area: increasing the supply of these programs through the community college baccalaureate will not increase the enrollment. How do you comment on this?

12. Is there anything else that you would like to say regarding the funding and cost-effectiveness at your institution?

Thank you.

I will transcribe the interview. I can assure you that the recorded interviews along with the transcribed data will be kept confidential and be processed with the utmost care. Would you like to review a copy of your responses following the transcription? …… I will return the transcriptions back to you by the first week of September, 2007. I would appreciate it if you can give me a quick response in okaying the transcription. Please mail a hard copy of the transcriptions back to me along with any corrections and your signature. My address is 5029 Prairie Dunes Village Circle, lake Worth, Fl 33463.
Appendix F

Interview Protocol-2
Interview Protocol-2

Script:
Good morning (or good afternoon). My name is Edwin Bemmel, and I am a doctoral candidate at Florida Atlantic University. The purpose of this interview is to add to my understanding of the community college baccalaureate programs. In order to properly reflect your responses to my questions, I would like to record this interview. Do I have your permission to record this interview? Then turn on tape.

Good morning (or good afternoon). My name is Edwin Bemmel, and I am a doctoral candidate at Florida Atlantic University. The title of my dissertation is “A cost-effectiveness analysis of the community college baccalaureate programs in Florida: An exploratory study.” The purpose of this interview is to add to my understanding of the community college baccalaureate programs. Could you please state your name? …Thank you.

Thank you for completing the consent form. Do you have any questions that you would like to get answered before we start this interview?...Thank you for agreeing to participate in this study.

13. Please explain in detail how the community college baccalaureate in Florida is funded.
Probing:
- Are there any differences in the funding between St Pete and the other colleges?
- Are there any sources other than the state’s start up funds and restricted funding that colleges can use? If yes, please list.
- Since the baccalaureate programs started, are you aware of colleges cutting their budgets for other programs? If yes, for which programs?

14. Please tell me in detail about the creation of the baccalaureate degree programs at the state level.
Probing:
- What precipitated the move to the community college baccalaureate from the state’s perspective? (Why was it done?)
- Who were the key people involved in creating the baccalaureate program in this office?
- What were the challenges that your office encountered related to the funding of the baccalaureate programs?

15. Looking back from the day that the programs have been implemented, please describe the issues and challenges that you have faced.
Probing:
- Were there any surprises or issues that you ran into since the state started the community college baccalaureate programs?

16. I am interested in understanding more about the 85 percent funding model for the community college baccalaureate programs. Please help me understand how this model is working for the colleges.
Probing:
- Why 85%? How was it determined?
- Is it sufficient? Does it provide enough revenue? Does the funding result in any surplus or shortfall at the end of the year?
- If it is not sufficient, how are they expected to balance their budget?
- If they are over funded, what can they do with the surplus?
- What do you see as the shortfalls of this funding model?
- What can be done to improve this model?

17. I am trying to understand the real cost for this program. Please help me understand whether all expenditures for this program are funded by the community college baccalaureate grant funding.
Probing:
- Are there co-use equipment/faculty?
- Are there equipment and/or faculty used that do not appear on the expenditure report?

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18. How does the salary of faculty in the upper-division compare with that of faculty who only teach in lower-division?

19. (Have a copy of the OPPAGA report and share it with the interviewee!) Are you familiar with the 2005 OPPAGA report regarding the community college baccalaureate (show the interviewee the report)? If yes, could you share your comments about this report?

Probing:
- Is there more current information or another report available?

20. What effectiveness measures are used to evaluate the baccalaureate programs?

Probing:
- Does your office collect data on student success as a measure of effectiveness such as employment evidence; graduation rate; test rate?
- Are there other output measures that relate to funding and cost-effectiveness of the community college baccalaureate programs?

21. One argument against the nursing baccalaureate program is that there is a shortage of nursing faculty: creating additional sites for offering nursing programs is just going to add to the problem of not having sufficient and capable faculty. How do you comment to this?

22. One argument against the baccalaureate program in teacher education is that universities in Florida currently have a problem increasing their enrollment in this area: increasing the supply of these programs through the community college baccalaureate will not increase the enrollment. How do you comment on this?

23. Is there anything else that you would like to say regarding the funding and cost-effectiveness of the community college baccalaureate programs?

Thank you.

I will transcribe the interview. I can assure you that the recorded interviews along with the transcribed data will be kept confidential and be processed with the utmost care. Would you like to review a copy of your responses following the transcription? .... I will return the transcriptions back to you by the first week of September, 2007. I would appreciate it if you can give me a quick response in okaying the transcription. Please mail a hard copy of the transcriptions back to me along with any corrections and your signature. My address is 5029 Prairie Dunes Village Circle, Lake Worth, Fl. 33463.
Appendix G

Interview Table
**Interview Table**

Please note that the interview questions of appendix E of the interview protocol address the research questions of this study.

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Interview Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is the real cost to the community colleges of the baccalaureate programs?</td>
<td>Questions 2, 3, 4, 5, 6, and 7</td>
</tr>
<tr>
<td>2. What is the cost differential between the community college and the university baccalaureate?</td>
<td>Questions 2, 3, 4, 5, 6, and 7</td>
</tr>
<tr>
<td>3. What is the marginal cost for the universities to add additional capacity in order to meet the unmet demand for certain programs?</td>
<td>This is not readily applicable to the interview. It should be evident via the document analysis.</td>
</tr>
<tr>
<td>4. Are there factors other than cost that should be considered that make offering baccalaureate programs through community colleges a more attractive alternative?</td>
<td>Questions 1, 3, 7, 9, and 11</td>
</tr>
</tbody>
</table>
### Analysis Table

Please note that this table addresses the analysis of the research questions of this study.

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Analysis</th>
</tr>
</thead>
</table>
| 1. What is the real cost to the community colleges of the baccalaureate programs? | - Review of the spreadsheets for expenditures. Divide the total cost by the total number of credit hours for both the universities and the community colleges.  
- Analysis for qualitative items (observation and document analysis)              |
| 2. What is the cost differential between the community college and the university baccalaureate? | Analyze the differential by comparing and contrasting the per credit hour figures found in research question 1.                         |
| 3. What is the marginal cost for the universities to add additional capacity in order to meet the unmet demand for certain programs? | What are the marginal costs for each unit? To add additional capacity.                                                                  |
| 4. Are there factors other than cost that should be considered that make offering baccalaureate programs through community colleges a more attractive alternative? | Now that we know what is most cost-effective, are there other reasons we should do this?                                               |
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