THE COST-EFFECTIVENESS OF BACCALAUREATE PROGRAMS
AT TWO-YEAR PUBLIC COLLEGES: A POLICY OPTION TO
SUPPORT THE VIRGINIA HIGHER EDUCATION OPPORTUNITY
ACT OF 2011

By

Christopher Scott Davis

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provided love and support as if I were your son.
Abstract

The unanimous passing of the Virginia Higher Education Opportunity Act of 2011 highlights the need to create a cost-effective pathway to baccalaureate degree growth.

Using an exploratory case study design, this study compared the cost-effectiveness of two baccalaureate degree programs offered by institutions in the State University System of Florida and in the Florida College System. I found the total expenditure per student credit hour was less in the two baccalaureate programs in the Florida College System and their degree growth rate was higher than institutions in the State University System of Florida. The analysis of two Florida Statutes indicates support for community college baccalaureate programs.

I conclude that the community college baccalaureate degree is a cost-effective pathway to increase degree growth and should be considered as a policy to enhance the goals of the Act. I recommend that the Virginia General Assembly and the Governor authorize a pilot project for one two-year public college to offer a baccalaureate degree program and to enact statutes similar to Florida.
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Chapter 1

Introduction

“We have a good idea what this investment will produce for our state, because the Cooper Center’s comprehensive recent study, sponsored by the Business Higher Education Council, shows that every dollar we invest in the higher education system produces 13 dollars in additional economic output in Virginia. It returns even more in new tax revenues to the Commonwealth than it costs. So it is one of the very best economic investments we can make for our people. But we are not just investing; we are also innovating and reforming – and the two must go hand in hand” (Virginia Business Higher Educational Council, 2011). These remarks are from Governor McDonnell during a press conference announcing the proposed legislation, Virginia Higher Education Opportunity Act of 2011.

States are investing in higher education because it is believed to enhance economic growth. Higher education adds to human capital and fuels economic growth. The link between economic growth and job creation with a more educated society has grabbed the attention of state government leaders in Virginia. Like other states, Virginia, has embraced this theory and enacted it in the Virginia Higher Education Opportunity Act of 2011 (the Act).

Governor McDonnell issued Executive Order Nine which established the Commission on Higher Education for Reform, Innovation, and Investment which later led to the enactment of the Act (Office of the Governor 2010). An objective of the education legislation was to ignite economic growth in the Commonwealth and to prepare its citizens for jobs in our knowledge based economy. An excellent higher education system will have high achievement in degree attainment and personal income (Commonwealth of Virginia 2012). The Act’s goal is to increase degree attainment by conferring 100,000 cumulative additional degrees between 2011 and 2025 and to promote new cost-effective pathways to degree attainment. Educating more individuals is an engine for economic growth.
I used an exploratory case study to explore, collect and analyze data. This approach worked well for this study based upon the analysis of various higher education institutions and state laws and policies. This model allowed me to analyze and evaluate more than one institution during a specified time period and compare similar data sets from each institution.

The State of Florida explored and studied a new model of higher education, the community college baccalaureate degree. Florida instituted the community college baccalaureate degree as a method to produce more degrees to meet the needs of the local workforce, to meet the needs of nontraditional students, and to provide the opportunity of a higher education to more citizens to grow the economy. Virginia wants to accomplish similar initiatives through reform and investment in higher education.

The goal of my study was to analyze the cost-effectiveness of degree growth opportunities through the community college baccalaureate degree by initiating similar policies from Florida in Virginia. The cost-effectiveness analysis shows the difference in the total expenditure per student credit hour and percent of increase or decrease in baccalaureate degrees conferred over three academic years for a sample of two-year and four-year colleges in Florida. The policy analysis is comprised of a review of two laws that were enacted in Florida to support community college baccalaureate programs. This exploratory case study has recommendations based upon the cost-effectiveness and law and policy support for community college baccalaureate programs.

**Research Question**

The central research question defines the purpose of my study based upon an analysis of the Florida College System. My central research question is: Will Virginia offering
baccalaureate degrees at two-year public colleges cost-effectively increase the number of graduates?

**Significance of the Study**

Economic policy initiatives have promoted the goal of reforming and investing in higher education to provide the opportunity for degree attainment in a cost-effective manner. There are different options available to states to provide cost-effective higher education programs. There are three primary models used to offer baccalaureate degrees outside of the traditional attendance at a four-year university. These models are the two-plus-two model, university center model, and the community college baccalaureate model. The emerging model with relatively few studies is the community college baccalaureate. This new trend has states passing legislation to allow two-year colleges to confer baccalaureate degrees. This research will fill a gap in scholarship in regards to the cost-effectiveness of this new pathway to degree attainment and law and policy implementation.

The gap in literature is a significant part of conducting this study on the cost-effectiveness of the community college baccalaureate. There are two prior pieces of research literature that delved into policy and cost-effectiveness. Manias (2007) evaluated goals set forth in the State of Florida’s legislation for the establishment of the community college baccalaureate to determine if the policies of the current state of the community college were attaining their intended goals. Bemmel (2008) researched the cost-effectiveness of two baccalaureate programs at one community college and one university. Since this study was completed, the numbers of institutions in the Florida College System that offer baccalaureate degrees have increased. My study goes further than Bemmel’s study by looking at more than one college and university and the effectiveness measure is based upon the percent of increase or decrease of graduates. His
study looked at the quality of the programs through the passage rates of licensure exams for nursing and education. Bemmel (2008, 125) showed that these baccalaureate programs at both types of institutions were equally effective based upon the quality of the programs. My research on this phenomenon closes this gap. There are other research areas for the community college baccalaureate that are addressed in my recommendations.
Chapter 2

Literature Review

The review of scholarly literature informed my case study. The impact of human capital through higher education builds social welfare and economic growth. The mission of Virginia two-year colleges is to educate individuals in order to strengthen the local workforce. The community college baccalaureate model is emerging and benefitting individuals, employers, the economy, and government. Cost studies and cost-effectiveness analyses are used to study the benefits of higher education.

The Influence of Higher Education in Human Capital

Scholars have debated what contributes to a person’s human capital for decades. A person expending resources on education, training, and medical care is the most important investment in human capital (Becker 2008). Studies have shown that higher education in the United States increases a person’s income (Becker 2008). A person’s income enables them to improve their standard of living and to invest resources in the economy. This is accomplished through investments or purchasing commodities that will generate growth within the economy. The ability for more individuals to redistribute their wealth improves the social welfare of our country. The social welfare of our country is the level at which individuals are able to care and provide the necessities for themselves and their families. Becker (2008) states that on-the-job training is very important in many careers with or without a person who possesses a higher education degree. Just as social welfare is partially dependent upon a person’s increased human capital so is economic growth. Becker (2008) states that “economic growth closely depends on the synergies between new knowledge and human capital, which is why large increases in education and training have accompanied major advances in technological knowledge in all
countries that have achieved significant economic growth”. There are states that have recognized this need by authorizing through legislation the ability of two-year colleges to confer baccalaureate degrees in job areas where there is a shortage of qualified workers. Some of these baccalaureate degrees are in applied technology, education, and/or nursing; and afford individuals the opportunity to gain a higher education degree and on-the-job training.

Stephen Machin (2008) reinforces the theory of human capital by Gary Becker through his research on the economics of education. Machin discusses that historically there has been an interest in researching economics and education. There has been a resurgence in research being conducted to attempt to show how education has effects on economics through shifts in labor markets and human capital. Human capital, human development, and other areas of economics of education have an impact on the overall economy of our society (Machin 2008). This solidifies the need to evaluate how state government can use a strategy of promoting and reforming higher education in an attempt to boost economic growth.

**Building Virginia’s Economy Through Higher Education**

Governor McDonnell campaigned on the goal to create jobs and build the economy of Virginia. He made this a priority immediately after taking office as Governor in 2010 by issuing Executive Order Nine. The Commission was to look at best practices, make findings and recommendations on ways to address his priorities in higher education that would support his initiatives to create jobs and grow the economy. The findings and recommendations prompted the Virginia General Assembly to pass legislation which set out the Governors desires into law, The Virginia Higher Education Opportunity Act of 2011. The Governor signifies through this legislation that higher education promotes economic growth and builds human capital.
The Act has ten purposes to be followed and implemented. This study conjoins three of the purposes to propose new policy to be developed and adopted for higher education. These purposes are to enhance degree attainment, assist in producing 100,000 cumulative degrees before 2025, and to provide a cost-efficient pathway to degree attainment (Commonwealth of Virginia 2012). These purposes are a segway for the Commonwealth to research and form a new model and pathway for degree attainment in a cost-effective manner for state government. The policy option of implementing state legislation for the conferral of baccalaureate degrees at community and junior colleges in the Commonwealth would prove to meet many of the purposes of this legislation.

The level of higher education attained by individuals is significantly tied to social mobility and both are connected to economic growth in a states’ economy (Haveman and Smeeding 2006, 125-150). The median income of individuals in 2000 with a bachelor’s degree or higher was double the income of individuals with a high school diploma (Haveman and Smeeding 2006, 125-150). The ability to create a pathway for nontraditional and traditional students to attain a bachelor’s degree will enhance their income. States need to implement more educational options for individuals to earn baccalaureate degrees to improve social mobility and economic growth. There are those individuals who have job and family commitments and cannot afford the traditional method of attaining a baccalaureate degree. Low income families have a harder time affording a postsecondary education and the amount of financial aid is not enough for the number of individuals in need of it to attend a higher education institution (Haveman and Smeeding 2006, 125-150). Many low income students attend two-year colleges because of the cost and the need for remedial classes (Haveman and Smeeding 2006, 125-150). Many of these individuals will take longer to complete a baccalaureate degree or will not finish
once they have completed the first two-years because of cost. Many low income families present
a strain on the economy because of their need for public service and support. A more cost-
effective higher education system would allow these individuals to improve their income and
would need less social support. These are valid points for why states should enact legislation to
enhance methods for affordable and cost-effective degree attainment.

The Act supports building the economy and creating jobs through educating students in
STEM (science, technology, engineering, and math) and the health sciences. The innovative
businesses that the Commonwealth wants to attract needs educated citizens for these positions.
The community college baccalaureate model creates new educational opportunities through
traditional bachelor programs and bachelor of applied technology. Higher education institutions
have become more involved in activities related to economic development (Storm and Feiock
1999, 97-105). Human capital and technology is needed by industries and States to be
competitive in the economy and how this is dependent upon what higher education institutions
produce (Storm and Feiock 1999, 97-105).

Community and junior colleges are educational institutions dedicated to changing the
needs of individuals and businesses in the communities in which they serve. Our economy is
changing and businesses are looking for innovative ways to train employees or hire trained
employees with advanced skill sets. There is a new degree concept among community colleges
conferring baccalaureate degrees to meet these needs. Community Colleges offer baccalaureate
degrees that are similar to the universities and applied baccalaureate degrees. The applied
baccalaureate degree will allow community colleges to prepare students for jobs of the future
(Jacobs 2005, 5). This degree allows students to gain skill sets that were previously used as
entry-level positions with an associate’s degree (Jacobs 2005, 5). The applied baccalaureate
degree is different than the traditional baccalaureate or bachelor’s degree at a university in that it incorporates learning on the job while learning applied and contextual learning methods (Walker and Floyd 2005, 96). Some of the community colleges that have instituted these degrees have the opposite structure of the traditional baccalaureate at the university level. The structure allows the technical and discipline courses to be offered in the lower division course work while the general studies courses are offered in the upper division level (Walker and Floyd 2005, 97). This design allows for a method of learning that enables the student to continue with the daily obligations of life (Walker and Floyd 2005, 97). This degree is workforce related and has a correlation with the workforce development training that occurs for communities served through the mission of community colleges (Walker and Floyd 2005, 97). Employers continue to require higher degrees in the workforce and community colleges should respond appropriately to students who have looked to the community college for their education in order to advance their career (Jacobs 2005, 5). Four-year colleges and universities are reluctant to offer an applied baccalaureate degree. There is misinformation from critics who believe community colleges are trying to compete or duplicate programs with four-year institutions (Townsend 2005, 181). Two-Year Colleges’ Mission and the Community College Baccalaureate

Junior Colleges in Virginia date back to the 1920s. The College of William and Mary and the University of Virginia had branch campuses known as junior colleges. These institutions would provide the first two-years of curriculum and were located in different geographic locations in Virginia. Richard Bland College, a branch of The College of William and Mary, was founded in 1960 and is the only junior college still in existence. The mission of the College is to “offer a traditional curriculum in the liberal arts and sciences leading to the associate degree, and other programs appropriate to a junior college. The curriculum is intended to allow
students to acquire junior status after transferring to a four-year college, or to pursue expanded career opportunities. The College also recognizes its responsibility to serve the public by providing educational and cultural opportunities for the community at large” (Richard Bland College 2012).

Virginia’s Community College System took a few decades to come to fruition after the Truman Commission Report. In 1966, the Virginia General Assembly legislatively established a comprehensive community college program known as the Virginia Community College System (Virginia Community College System 2012a). The Virginia Community College System enables students to attend an institution within commuting distance from their home to earn a two-year associate’s degree, a technical diploma, or a certificate (Virginia Community College System 2012a). The Virginia Community College System has articulation agreements with four-year universities throughout the Commonwealth for students to transfer to a four-year institution but they also provide for developmental, remedial, and continuing adult education courses (Virginia Community College System 2012a). As of 2006, the Virginia Community College System had an annual enrollment in degree seeking credit courses of 233,000 students and an additional 170,000 students in customized or noncredit courses in workforce development (Virginia Community College System 2012a). The State Board for Community Colleges adopted a mission statement in 2009 that continues to guide them: “We give everyone the opportunity to learn and develop the right skills so lives and communities are strengthened” (Virginia Community College System 2012b).

The goal and mission of junior and community colleges in Virginia has not changed since their inception in the early to mid-1900s. The mission of these institutions is to give all students an opportunity to become more educated, learn new skills, and develop a niche for the workforce
in a cost-effective manner while being within a reasonable commuting distance. The Truman Commission Report does not limit community colleges to offering two-year programs (Walker 2005, 11). The primary mission of community colleges is to have open door access and be responsive to community needs (Walker 2005, 11). Community colleges should offer baccalaureate degrees if that is a need in the community it serves in order to be true to the fundamental mission (Walker 2005, 11). The establishment of the community college baccalaureate in Virginia would allow the institutions to maintain their mission to support the opportunity to learn and strengthen the communities they serve by having the ability to offer a higher level of education.

Levin (2000, 3) studies the change in the mission of community colleges in the United States and Canada, specifically what he calls the Pacific-Western Region or Pacific Rim, during the 1960’s and 1990’s. His study shows that community colleges evolve programs for the community it serves. Businesses and industry during this time were changing by promoting technology and more needs in vocational skill sets (Levin 2000, 18-20). Vocational programs gained prominence at community colleges during this time because businesses and industry were employing members of the community (Levin 2000, 20). The new vocational programs were addressing the needs of the middle class and companies fueling the economy (Levin 2000, 20). There has been a similar change in community colleges over the last decade with the need for more advanced degrees and skill sets in certain fields. As mentioned previously, this has led to community colleges conferring applied science and technology baccalaureate degrees and traditional baccalaureate degrees.

There are researchers that have differing opinions on the emergence of two-year colleges conferring baccalaureate degrees. These critics of the baccalaureate degree at the community
and junior college level state that this will cause mission drift or mission creep (Bemmel et al. 2009, 157). Mission drift or creep means that the institutions will lose sight of their traditional mission and become more focused on meeting the standards of offering a baccalaureate degree (Bemmel et al. 2009, 157). The concern of reverting from offering remedial education and neglecting the goal of educating those who want to transfer to a university are the most prevalent amongst these critics (Townsend 2005, 182). The Southern Association of Colleges and Schools (SACS) is the accrediting agency for institutions in the southern portion of the United States. An institution offering baccalaureate courses has to meet the standards set by the association to be accredited as a four-year institution. These standards are what seems to be the driving concern in reference to the focus of the community college being neglected in the mission (Bemmel et al. 2005, 157). The president of a baccalaureate conferring community college disagrees with the thought of the focus of the mission being lost. His argument is that a response to educating in community workforce needs is the mission of the community college (Bemmel et al. 2005, 157). Another major concern with the mission is that faculty members at community colleges historically have not been greatly involved in research. A critical concern is that new faculty that teach in the upper level courses will have different values in the area of research than existing faculty that teach lower level courses and the institution will not value faculty research (Townsend 2005, 183).

Community College Baccalaureate Building Human Capital

Many of the pieces of literature on the community college baccalaureate discuss the social class, racial demographics, and the type of student that attends community colleges. The literature describes how community colleges would benefit students by offering baccalaureate
degrees that are relevant to their community. Community colleges are located in a convenient proximity to these students.

The open acceptance policies, the mission, and remedial course offerings of community colleges make a student’s educational abilities more equitable and less restrictive based on social class. There have been studies conducted to show that community colleges consist of students who are representative of a minority group and/or lower to middle class. The Florida Board of Governors contracted an educational structure study with Pappas Consulting Group (Bemmel et al. 2009, 155). In 2007, the Group reported that by 2018 Florida’s Hispanic enrollment would jump by 15% which would place a higher demand on the community colleges (Bemmel et al. 2009, 155). They found that minority and poor students represented a larger population at these institutions (Bemmel et al. 2009, 155). The typical community college student is older in age, lower-income class, employed, attends part-time, and is a first generation student; and university students are younger and attend full-time (Bemmel et al. 2009, 156). An article was published in 2009 about the conferral of baccalaureate degrees at two-year colleges in Florida. During this time, Miami Dade College had more than 1,000 students enrolled in baccalaureate degree programs with the average age being thirty-three (Lewin 2009). Three-quarters of these students are women and approximately half of these students are Hispanic (Lewin 2009). Lewin interviewed the President of Miami Dade College, Dr. Padron. The article states that Miami Dade College has an open-door policy and they serve sixty-two percent of the students from public schools in Miami Dade who attend college (Lewin 2009). Eighty percent of the students attending Miami Dade work and fifty-eight percent come from low-income families (Lewin 2009).
In 2003, the Community College Baccalaureate Association authorized an independent study to discover interests or other information about community college baccalaureate programs from community college presidents (Floyd 2005, 41). Surveys were sent to 500 randomly selected presidents and only 101 responded (Floyd 2005, 41). The results showed that more than one-third of the respondents confirmed that the majority of students that earn an associate’s degree or attend their community college do not transfer to a four-year university because of geographical or financial barriers (Floyd 2005, 42). Over two-thirds of the respondents agreed that certain high demand career fields requiring a baccalaureate degree are needed in their community area and the four-year universities are not meeting these needs (Floyd 2005, 42).

The offering of baccalaureate degrees at community colleges allows more individuals baccalaureate degree attainment which increases a person’s human capital. The offering of baccalaureate degrees at community colleges could promote nontraditional students with access to higher education with smaller class sizes, easier geographical access, financial access, and the stability of family and employment relationships while completing a degree (Walker 2002, 5). Community colleges enroll students whose income levels are in the low to moderate range, in regards to proportion, so the solution is to authorize conferral of baccalaureate degrees at community colleges (Walker 2005, 19). The justifications for increasing access to baccalaureate degrees are equity and the student’s contribution to the economy and society (Skolnik and Floyd 2005, 192).

Cost Studies and Higher Education

One of the main focuses in higher education is the cost of providing an education and the cost of obtaining a higher education. Over the last several years, national and state government leaders have discussed the need to provide higher education at an affordable rate by stopping the
large increases in tuition. The study of costs in higher education has been performed through various approaches. There is a need to understand the term cost, the economic terms that are attributed and used to analyze higher education, and the various cost study methods that are available to researchers.

Bowen (1981, 22) states that educational costs in higher education is the current expenditures of the institutions excluding outlay. Outlay in his definition includes the costs of research, public service, and auxiliary enterprises (sports programs, dining facilities, other self-supporting programs). He writes that once these outlays are excluded the current expenditure for the education of students is what remains. The student is the unit of service that should be related to educational cost (Bowen 1981, 22). The unit needs to be standardized when studying the average costs of educating students in a particular program or discipline of study (Bowen 1981, 22). Institutions in the State University System of Florida and the Florida College System provide the cost of educating students by using the cost per credit hour as a standardized unit.

The comparing of educational costs can vary between institutions and states. The differences in cost may originate to a minor extent based upon the location and/or size of the institution (Bowen 1981, 21). The key to comparing educational costs between institutions is to compare institutions with similar programs, size and scope (Bowen 1981, 21, 23). The other aspect of comparing costs is to evaluate an outcome. A substantial difference in cost does not imply that the outcomes will be drastically different (Bowen 1981, 23).

Educational costs are expenditures of the university or college to provide an education to the student. These expenditures are funds that are provided by the state (discussion is based on public institutions) and the tuition and fee rates collected by the institution from the student. There is a need to understand the economics of higher education. The topic of cost related issues
in higher education are centered on four general themes (Brinkman 2000, 6). The four general themes are: students as the consumers, institutions as suppliers, higher education as a market, and higher education as a variety of investments (Brinkman 2000, 6).

Higher education has a range of consumers but an economic analysis focuses upon the student as the consumer (Brinkman 2000, 6). The student is a consumer that is sensitive to price and to price discounts (Brinkman 2000, 6). Students respond to prices and price discounts differently (Brinkman 2000, 6). Low-income and minority students are especially responsive to prices and price discounts (Brinkman 2000, 6).

The public wants to know the government’s role in controlling the cost of higher education (Brinkman 2000, 5). Economists have been interested in the supply and production activities of colleges and universities (Brinkman 2000, 7). The research on these topics focus on econometrics studies such as the production function (outputs as a function of inputs) and the cost function (costs as a function of outputs) (Brinkman 2000, 7). The government and researchers can study these topics by using evaluation methods for cost analyses. State funding for public colleges and universities are partially originated from taxpaying citizens. The government should have a role in how efficiently and effectively these funds are expended by colleges and universities to produce an outcome, more degrees.

The nature of the higher education market is continually being debated, according to Brinkman (2000, 8). There are researchers who argue that the higher education market is not within the competitive market model because students are not true discriminating buyers (Brinkman 2000, 8). The counter argument would be that higher education fits better within a trust market model because it is a market where the seller knows more than the buyer (Brinkman 2000, 8). A student, whom can afford to attend any institution of their choice, is not going to
turn down an acceptance of an institution that is their primary choice in order to attend a less expensive institution. The higher education market continues to have excess demand and an example is a selective college that never meets the demand of students who want to attend (Brinkman 2000, 8).

The decision to attend a higher education institution should be considered an investment decision by students (Brinkman 2000, 8). Nontraditional students have to consider this cost investment in higher education when considering the attendance at a local two-year college or at a four-year university. States have to evaluate expenditures on higher education based upon the future social benefits it will produce (Brinkman 2000, 8). Florida has evaluated expenditures in higher education and believes that there is a social benefit in offering baccalaureate degrees at the community college level. It allows students the ability to earn a degree in a career field that is needed within their geographic community. The social benefit is more people being employed and growth in the local and state economy. Virginia is setting the stage for higher education to provide a stronger social benefit through the Act. Colleges and universities have a monetary social return on the local and regional economies where they reside (Brinkman 2000, 8).

Cost Analyses Used in Evaluation and Decision Making

Studies pertaining to cost are performed using various methods of analysis for evaluation and decision making. There are four primary cost analyses used by researchers and practitioners when evaluating a program or the implementation of a policy. These types of evaluations allow a decision maker to decide upon an outcome that has the best cost application.

Cost-effectiveness analysis is a cost analysis that evaluates both the costs and effects of alternatives with a goal of producing a set outcome (Levin and McEwan 2001, 10). A cost-effectiveness analysis combines the costs with measures of effectiveness (Levin and McEwan
All the alternatives are evaluated according to their costs and their contributions to meeting the same effectiveness criterion (Levin and McEwan 2001, 10). The cost-effectiveness analysis method is used in education because the evaluation and decision-making is usually focused on making a choice on an educational intervention or alternatives for reaching a particular objective (Levin and McEwan 2001, 10). These objectives could be increasing test scores, increasing enrollment, or increasing graduation rates (Levin and McEwan 2001, 10). The decision maker needs to decide which alternative has the lowest cost for the most effective method of increasing test scores, enrollment, or graduation rates (Levin and McEwan 2001, 11). The decision to choose the most cost-effective alternative will free up resources that can be invested in another area of education or another endeavor (Levin and McEwan 2001, 11). When using this analysis method you have to compare alternatives with the same goal (Levin and McEwan 2001, 11).

Cost-benefit analysis is a method of evaluation of alternatives with regard to their costs and benefits when each is measured in monetary terms (Levin and McEwan 2001, 11). Each alternative is assessed by its monetary costs and the monetary value of its benefit (Levin and McEwan 2001, 14). This means each alternative is being evaluated on its own merit to make a decision on if it is appropriate (Levin and McEwan 2001, 14). Decision makers select among several alternatives when using this method and one would choose the alternative that had the lowest ratio of costs to benefits or the highest benefit-cost ratio (Levin and McEwan 2001, 15). Cost-benefit analysis is a preferred method of evaluating alternatives with different objectives but allows the decision maker to choose which alternative has the most overall social benefit when the public is the entity funding the investment (Levin and McEwan 2001, 15). A
disadvantage of this method is that benefits and costs have to be assessed in pecuniary terms but the difficulty can be assessing benefits in pecuniary terms (Levin and McEwan 2001, 15).

Cost-utility analysis is a method of evaluating alternatives by comparing their costs and value of their outcome (Levin and McEwan 2001, 19). Economists use the term utility to express the satisfaction of individuals from one or more outcomes (Levin and McEwan 2001, 19). Cost-utility analysis uses an individual’s information on the preferences they express on their overall satisfaction on a single or multiple measure of effectiveness (Levin and McEwan 2001, 19). Cost-utility analysis is highly subjective based upon the qualitative method used to elicit the opinion of individuals or the subjective estimates derived by the researcher (Levin and McEwan 2001, 19). Once the measures of utility are obtained, the decision maker chooses the alternatives that provide a given level of utility at the lowest cost (Levin and McEwan 2001, 19). A major disadvantage to this analysis is the difficulty for the results to be reproduced by other researchers because there can be conflicting methodologies used to estimate importance weights (Levin and McEwan 2001, 21).

Cost-feasibility analysis is a method of evaluating the cost of each alternative to decide if it should be considered (Levin and McEwan 2001, 22). If the cost of the alternative exceeds the budget then the alternative will no longer be considered for analysis (Levin and McEwan 2001, 24). This type of analysis is a limited form of analysis that only determines whether or not an alternative is eligible for consideration and cannot be used by a decision maker to make an actual alternative selection for implementation (Levin and McEwan 2001, 25).

A Cost-Effectiveness Analysis Model for Education

A cost-effectiveness analysis is used in the educational field because it allows a researcher to compare similar educational programs through alternative approaches. Educational
programs have a cost related to offering the program. A cost-effectiveness analysis allows researchers to compare alternative approaches for efficiency while still maintaining a set goal for the outcome.

Richard Lent (1979) wrote an article on a model for applying cost-effectiveness analysis to decisions involving aspects within the field of education. Determining the cost-effectiveness of an aspect in education is a specialized type of evaluation (Lent 1979, 26). It is designed to allow a researcher to make an informed decision about an alternative means to a given goal (Lent 1979, 26). Cost-effectiveness analysis ultimately combines outcome and cost data and the outcomes are normally measured in physical or monetary terms (Pritchard 2011). A cost-effectiveness analysis is designed to compare alternative approaches to reaching a goal (Lent 1979, 26). The costs associated with the alternative approaches are usually measured monetarily whereas the effectiveness is usually measured on a scale to show the nature of the goal (Lent 1979, 26). Cost-effectiveness analysis is usually flexible in nature and because of this it is a preferred method to use in making decisions on educational policies and programs (Lent 1979, 26).

The proposed cost-effectiveness analysis model consists of six phases, as seen in Figure 1 (Lent 1979, 27). Researchers using this model will be conducting some phases simultaneously and be familiar with the concepts and techniques of educational evaluation (Lent 1979, 27).
The first phase of the model is to prepare for the study which entails for certain decisions to be made and information obtained (Lent 1979, 28). One of the three areas of concern in preparing for the study is to identify the decision-makers and the audience of the study (Lent 1979, 28). The next area of concern is to determine the purpose of the study. It is important for the researcher to establish the purposes and framework at the onset of the study so that the comparisons will be similar in relevance (Lent 1979, 28). The final area of concern is to plan study management (Lent 1979, 28). The researcher needs to study and consider the resources that are needed and available for the study, a timeline for the study, and the operating characteristics to follow while conducting the study (Lent 1979, 28).

The second phase of the model is to identify the alternatives to be compared in the study (Lent 1979, 29). Identifying and defining the alternatives for the study is the most important part of the study. There are four steps to achieve this activity: 1) identify the goal, 2) identify any constraints that could occur during the study, 3) identify a range of existing or potential alternatives, and 4) describe the selected alternatives (Lent 1979, 29). A clear understanding of
the goals of the study must be reached before the process of identifying possible alternatives (Lent 1979, 29).

The third phase of the model is to design a cost-effective comparison that will allow the researcher to design the specific form of cost-effectiveness comparison (Lent 1979, 30). It has two major components: 1) define the criteria and 2) choose an analytic model (Lent 1979, 30). For a cost-effectiveness study, there must be at least two criteria employed to decide upon the desirable alternatives to reach the goal (Lent 1979, 30). Usually at least one criteria is a cost criteria while any of the other pertain to the effectiveness variable (Lent 1979, 30). Some criteria in cost-effectiveness analyses are cost per student, cost per student credit hour, production of graduates, student achievement, and/or student attitudes (Lent 1979, 30). In education, the cost criteria or activity should be measured from an academic year (Beilby 1980, 32). The analytical model is the framework where the comparison of the performance of the alternatives and the cost and effectiveness of the criteria occur (Lent 1979, 30).

The fourth phase of the model is to determine the costs (Lent 1979, 31). The cost study begins by considering the resources needed by the alternatives and the type of costs that the decision-maker will find most rewarding (Lent 1979, 31). A researcher does need to be cognizant of three phenomena that could create a problem for a cost analysis: 1) costs are continuous, 2) calendar years, fiscal years, and academic years do not always match, and 3) cost bubbles occur when additional expenses are incurred during the development of a new educational program (Beilby 1980, 31).

The fifth phase of the model is to determine the outcomes (Lent 1979, 31). This is the study of the effectiveness side of the equation (Lent 1979, 31). The method of determining this
study of the model will be determined on the type of criteria selected to look at the operation of the alternatives (Lent 1979, 31).

The sixth phase of the model is to assemble the findings (Lent 1979, 31). This phase of the cost-effectiveness analysis synthesizes the cost and outcome data obtained during the study and compares it amongst the alternatives (Lent 1979, 31). There are three steps to complete this in sequence: 1) assemble cost and outcome information, 2) analyze information and prepare recommendations, and 3) consider uncertainties (Lent 1979, 31).
Chapter 3
Research Design and Methods

The exploratory case study method was used as the research design. A cost-effectiveness analysis and policy analysis were conducted to evaluate two baccalaureate programs at public community colleges and universities in the State of Florida. These analyses will determine if the community college baccalaureate is a cost-effective policy option to enhance the Act. The cost-effectiveness data are quantitative and the policy information is from existing Florida policy and law.

Why a Case Study Approach

The exploratory case study approach allows the researcher to analyze the process and/or program of an existing organization and to collect detailed information that is based on a specific function over specific time parameters (Creswell, 2009). The exploratory method of a case study is used to research new topics or issues in a flexible manner with a conceptual framework (Shields and Tajalli 2006, 320). This study has allowed me to research a state with two public higher educational systems offering baccalaureate degrees with similar higher educational needs as Virginia. Studying Florida allowed me to obtain data for three academic years which establishes a pattern. This method was the most appropriate way to evaluate this new phenomenon in higher education.

Research Question

The essential goal of the Act is to educate more citizens in the Commonwealth, 100,000 more degrees, in a cost-effective manner in job areas that will enhance the economy. The central question for this study is: Will Virginia offering baccalaureate degrees at two-year public colleges cost-effectively increase the number of graduates? This question will be answered by
evaluating colleges and the laws and policies pertaining to community college baccalaureate programs in Florida. The State of Florida has been instrumental in evolving the concept of the community college baccalaureate.

**Study Population and Sample**

Florida has a State University System which is comprised of eleven public universities and the Florida College System which is comprised of twenty-eight public state colleges, formerly called community colleges. Twenty-two colleges were authorized to offer baccalaureate degrees as of February 2012, beginning on a specific date established by the Florida Department of Education (Florida Department of Education 2012). Ten of the twenty-two institutions were requested to be involved in this study but only four accepted. The colleges selected for the study were based upon those authorized to begin offering baccalaureate programs in nursing and education for the academic years selected for this study. Nine universities will serve as a sample for the nursing baccalaureate degree and ten universities will serve as a sample for the education baccalaureate degree. Four community colleges will be the sample for both baccalaureate degree.

The research only uses those institutions from both systems that offer baccalaureate programs in education and nursing. These two program disciplines were chosen because of two reasons. First, a prior case study was completed that researched the cost-effectiveness of one public community college and one public university in Florida using these two programs. The research analyzed how students in these program disciplines scored on their respective professional licensure tests once completing the baccalaureate programs at both types of institutions. The results showed that both types of institutions produced graduates that scored high percentages on the licensure exams (Bemmel 2008). Second, these two program disciplines
represent two areas of study that are most homogeneous for comparison between the two types of institutions. The institutions and data are divided into different charts and all of the two-year institutions and four-year institutions that confer baccalaureate degrees in these disciplines are grouped in the respective tables. These tables are located in the appendix.

**Plan and Method of Data Collection**

The study used existing data from the higher education institutions being evaluated and policy information and laws in Florida. In order to answer the central research question, the researcher had to obtain expenditure (cost) and baccalaureate graduation data from each sample institution. Expenditure data is the total expenditure per student credit hour for the nursing and education programs. The effectiveness data is the number of graduates in these same programs. The data are needed from the respective community colleges and universities in order to compare the percent of difference in cost between the two types of institutions to determine cost-effectiveness. The policy analysis consists of information obtained on the process Florida used to study this baccalaureate model and the laws that have been implemented. This information was obtained from prior and existing legislation and literature on prior state studies and actions.

The university expenditure data (cost) was obtained from the State University System of Florida website and by correspondence with the System. Expenditure data for the community colleges in this study were obtained by contacting each institution by e-mailing a request for the total expenditure per student credit hour to an individual in the finance or business services department. Follow-up phone calls and e-mails were conducted with these institutions. The data are from three academic years, 2008-2009, 2009-2010, and 2010-2011.

Data was collected for the number of baccalaureate degrees in the nursing and education disciplines granted (effectiveness) at both types of institutions for the three academic years. The
State University System of Florida and the Florida College System have this information available on their websites and each university’s nursing data was gathered by correspondence with the State University System of Florida. As the researcher collected the expenditure and graduation data, the information was put into tables (Tables 1-8 in the appendix) which were used for analysis. The information was obtained over a two to three month period of time.

**Data Analysis**

The cost-effectiveness analysis determined if nursing and education baccalaureate degrees in Florida are cost-effective at two-year colleges. The cost measure was based on the total expenditure per student credit hour for each academic year. The researcher wanted to not only analyze each individual institution by total expenditure per student credit hour but also by the average of the two types of systems to determine the percent of difference. The effectiveness measure was based upon the number of graduates and the percent of increase or decrease during the three academic years. This will determine if the number of graduates in the education and nursing disciplines are increasing or decreasing and by what percentage from the prior year. The 2008-2009 year will not be applicable to the percentage of change because it is being used as the base year for this study. This cost-effectiveness analysis will help determine if this is a method of producing more degrees in a cost-effective manner. The policy analysis of prior and current laws and legislation in Florida will provide policy recommendations for Virginia.

**Validity and Reliability**

All of the data analyzed for this study was obtained from an existing source, from an individual in the business services or finance departments of the institutions, or Systems being studied. The researcher insured the data to be accurately transferred from the source to the worksheet tables listed in the appendix. This data was reviewed to verify that numerical data
was not transposed or placed under the wrong college or university. The researcher also verified how the expenditure data was calculated and that the time periods are for academic years (summer, fall, and spring semesters) through websites, documents, or phone conversations with the respective Systems or institutions. The researcher believes that the sample used in this study is large enough for an exploratory case study.

**Protection of Human Subjects**

The researcher believes this case study has minimal risk to any participant involved in this study. All considerations were given based upon human subjects training and the requirements of the researcher’s institutional review board (IRB). The IRB process for this study was conducted under the exempt review process. All material for this study is public information but the data sets were saved in a secure method.
Chapter 4
Research Findings

The research findings are a reflection of the cost-effectiveness analysis and the policy analysis of Florida baccalaureate programs at two-year institutions. The cost-effectiveness analysis shows how cost-effective the community college baccalaureate programs in nursing and education are compared to similar programs in the university system. The information derived from the cost-effectiveness analysis is useful in understanding how and why baccalaureate programs began in Florida community colleges and the policy decisions of Florida Legislators to enact the current laws and policies for these institutions and programs. There are two Florida State Statutes that are beneficial to Virginia’s Governor and Legislature when creating a policy that allows two-year public higher education institutions to offer baccalaureate degrees.

Quantitative Findings

The researcher used a quantitative analysis to determine the cost-effectiveness of community college baccalaureate degrees in education and nursing. The cost-effectiveness model used in this case study was based on the model presented by Lent (1979). The cost-effectiveness analysis, according to Lent (1979), has a cost measure and at least one effectiveness measure. The expenditure data used was based on a per-unit cost. The per-unit cost was the total expenditure per student credit hour. The total expenditure per student credit hour is calculated for each program in the study based upon upper level courses (baccalaureate).

The calculation used by the State University System of Florida to form the total expenditure per student credit hour is total full expenditure for each upper level course in each program divided by the total fundable student credit hours. The total full expenditure is calculated from the sum of state funding provided to the institution used to fund each program.
and the student tuition and fees for each program during an academic year. The total fundable
student credit hours are the total number of credit hours that students were enrolled in classes for
the two programs during each academic year.

Institutions in the Florida College System calculate the total expenditure per student
credit hour in a different method. The institutions calculated the total expenditure for upper level
courses by using the state funds and student tuition and fees that are allocated for instructional
cost and college-wide costs allocated to the programs being studied. The college-wide costs are
fees charged to students for use of technology and other resources pertaining to educating the
students. The term used to measure total credit hours in a program is full time equivalent
(FTE). One FTE is 30 credit hours and the credit hours are totaled from part-time and full-time
students. In order to calculate the total expenditure per student credit hour, the total expenditure
is divided by the number of FTE’s in the program which provides the cost per FTE. The cost per
FTE is then divided by 30 which provide the total expenditure per student credit hour. The
researcher calculated the mean for total expenditure per student credit hour, the standard
deviation, and level of significance (p value) for each year and each program of study to compare
the two systems as a whole. An academic year for this study consists of summer, fall, and spring
semesters.

The effectiveness measure data consisted of the total number of nursing and education
baccalaureate degrees conferred each academic year by each institution. The mean was
calculated for each academic year so the two systems could be compared as a whole. The
researcher then calculated the percent of increase or decrease per year for each program of study
from the total calculation of each year. Tables 1-8 depict each institution’s nursing and
education data for 2008-2009, 2009-2010, and 2010-2011 academic years. They are located in the appendix.

Cost Measure

The total expenditure per student credit hour in nursing and education at the colleges were less costly than at the universities, accept for one year. The percent of difference in each year shows how this cost measure contributes to the overall cost-effectiveness analysis. Table 9, below, is sectioned by programs and by the two types of Systems.

Table 9
Average Cost and Percent Difference in Cost for Education and Nursing

<table>
<thead>
<tr>
<th>University/College Systems and Programs</th>
<th>2008-2009 Academic Year</th>
<th>2009-2010 Academic Year</th>
<th>2010-2011 Academic Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>$270.43</td>
<td>$266.44</td>
<td>$294.72</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>81.77</td>
<td>89.65</td>
<td>154.68</td>
</tr>
<tr>
<td>p value</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>Colleges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>$289.24</td>
<td>$182.72</td>
<td>$172.13</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>196.40</td>
<td>80.35</td>
<td>94.13</td>
</tr>
<tr>
<td>p value</td>
<td>.06</td>
<td>.02</td>
<td>.04</td>
</tr>
<tr>
<td>Percent Difference</td>
<td>6.7%</td>
<td>37.3%</td>
<td>52.5%</td>
</tr>
<tr>
<td>Universities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>$448.23</td>
<td>$416.45</td>
<td>$413.41</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>106.2</td>
<td>76.9</td>
<td>67.5</td>
</tr>
<tr>
<td>p value</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>Colleges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>$208.38</td>
<td>$176.47</td>
<td>$175.67</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>160.50</td>
<td>12.59</td>
<td>47.94</td>
</tr>
<tr>
<td>p value</td>
<td>.08</td>
<td>.00</td>
<td>.01</td>
</tr>
<tr>
<td>Percent Difference</td>
<td>73.1%</td>
<td>80.9%</td>
<td>80.7%</td>
</tr>
</tbody>
</table>

The findings for upper level baccalaureate courses in education from universities shows the mean total expenditure per student credit hour for the three academic years is above $250 but stays below $300. The total expenditure per student credit hour for the sample of colleges is
higher in 2008-2009 academic year but drastically decreases in 2009-2010 and further decreases in 2010-2011. The reason for the higher expenditure for colleges in 2008-2009 is because Northwest Florida State College had costs associated with initial implementation of the program that could not be removed from the data that was obtained by the researcher. The comparison of these costs can be observed by reviewing Table 4 in the appendix. The reduction in expenditure for Northwest Florida State College is significant after 2008-2009.

The upper level baccalaureate courses in nursing for universities shows the mean total expenditure per student credit hour as being below $450 for the three academic years. There is a larger decrease in cost between 2008-2009 academic year and 2009-2010 academic year. There is minimal decrease in cost between 2009-2010 and 2010-2011 academic years. The 2008-2009 academic year for upper level baccalaureate courses in nursing for colleges shows a cost of $208.38 which compared to the same year as the university is $239.85 less costly. The colleges show a slight decrease in cost between the 2008-2009 academic year and the 2009-2010 academic year. The decrease in cost between 2009-2010 and 2010-2011 is minimal for the colleges. Nursing programs are traditionally higher in cost because of smaller class sizes (need for lower student to teacher ratio) and the technology equipment needed for instruction (this cost is covered partially through student tuition and fee rates). As stated in the literature review, most universities have research referenced in their mission statement and usually conduct research whereas colleges do not have a major focus on research because their mission is not predicated in this area of education. Faculty members of universities are usually compensated at a higher rate of pay than those in colleges because of the research requirement of faculty. All of these components can attribute to reasons for the difference in the total expenditure per student credit hour for particular programs.
The standard deviation is a measure of variability of the numbers that form the mean. For this study, the standard deviation measures the distance of each of the universities’ and colleges’ total expenditure per student credit hour from the mean for each academic year. The larger the standard deviation the more spread out the expenditures are for each institution for each academic year. The lower the standard deviation the closer each institution’s expenditures for the year are closer to the mean. The nursing and education upper level baccalaureate programs for the universities show that there is variation in expenditures in each year and between each institution. The standard deviation for colleges shows two statistical issues. The standard deviation measure for both nursing and education for the 2008-2009 academic year are higher than the succeeding two years. This shows that one or more of the total expenditures per student credit hour is an outlier from the rest of the expenditures that form the mean. This is an accurate interpretation because one of the college institutions in the education program had a higher expenditure during this academic year than the rest of the institutions because it had initial implementation expenditures. Another accurate depiction of this is the college institutions with nursing programs for this particular academic year. This standard deviation is high because one of the institutions did not incur costs because the program was not fully implemented during this year and two of the other three had significantly higher expenditures. The most accurate depiction of the individual expenditures being close to the mean is the standard deviation for the college institutions with nursing programs for the 2009-2010 academic year. The standard deviation is 12.59 which is relatively small which is interpreted as the individual institution expenditures are similar, as can be viewed in Table 2 in the appendix.

The p value is a measure of the level of significance. It is the probability that the mean for the sample for each year is a true representation of all the universities and colleges. When
the p value is .10, .05 or less, depending on the percent of confidence being used for the study, then the mean is statistically significant. Most studies use a percent of confidence or confidence interval of 90%, 95%, or 99%. If the confidence interval was set at 90%, a p value of .10 or less would indicate that the mean is statistically significant. This study used a 90% confidence interval and the p values for all of the means in Table 9 reflect the means being statistically significant.

The findings show that the percent of difference in cost between the State University System of Florida and the Florida College System for education grow over the three academic years used in this study. The percent of difference for the 2008-2009 academic year is the lowest because the universities are less costly because of the high initial program implementation cost for Northwest Florida State College. The 2009-2010 and 2010-2011 academic years show the percent of difference between the two types of systems favoring the Florida College System because of their lower total expenditure per student credit hour. During the 2010-2011 academic year, the sample of institutions from the Florida College System has over a 50% difference in total expenditure per student credit hour.

The percent of difference in cost for the nursing programs between the two systems are the greatest. The upper level baccalaureate courses have over a 70% difference in expenditure for each of the three academic years studied. The 2009-2010 and 2010-2011 academic years shows a relatively static level between the institutions in the Florida College System and the State University System of Florida. The obvious reason for the large percent of difference between the institutions in the two systems is because of the large disparity in the total expenditure per student credit hour. This cost analysis depicts that the sample colleges in the Florida College System expend less than those sample universities in the State University
System of Florida. With the cost analysis showing more efficient expenditures of state funding and student tuition and fee rates for upper level baccalaureate classes, the next measurement needed to prove cost-effectiveness is the effectiveness measure of the analysis.

Effectiveness Measure

The percent of increase or decrease in the number of baccalaureate graduates in the education and nursing programs at the sample colleges are compared to those at the sample universities over a three year period which is how this cost-effectiveness analysis is measuring effectiveness. This effectiveness measure contributes to the overall cost-effectiveness analysis. Table 10, below, shows the percent of increase or decrease in the total number of graduates in each program for each System.

Table 10
Total Number and Percent of Increase or Decrease in Education and Nursing Graduates

<table>
<thead>
<tr>
<th>University/College Systems and Programs</th>
<th>2008-2009 Academic Year</th>
<th>2009-2010 Academic Year</th>
<th>2010-2011 Academic Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>4,258</td>
<td>4,097</td>
<td>3,901</td>
</tr>
<tr>
<td>Percent of Increase or (Decrease) from prior year</td>
<td>N/A</td>
<td>(3.8%)</td>
<td>(4.8%)</td>
</tr>
<tr>
<td>Colleges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>255</td>
<td>353</td>
<td>511</td>
</tr>
<tr>
<td>Percent of Increase or (Decrease) from prior year</td>
<td>N/A</td>
<td>38.4%</td>
<td>44.7%</td>
</tr>
<tr>
<td>Universities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>1,501</td>
<td>1,517</td>
<td>1,320</td>
</tr>
<tr>
<td>Percent of Increase or (Decrease) from prior year</td>
<td>N/A</td>
<td>1.1%</td>
<td>(13%)</td>
</tr>
<tr>
<td>Colleges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>144</td>
<td>213</td>
<td>402</td>
</tr>
<tr>
<td>Percent of Increase or (Decrease) from prior year</td>
<td>N/A</td>
<td>47.9%</td>
<td>88.7%</td>
</tr>
</tbody>
</table>

The findings for education graduates at the sample universities in the State University System of Florida show a percent of decrease between academic years 2008-2009 to 2010-2011. There was a 3.8% decrease from 2008-2009 to 2009-2010. There was a 4.8% decrease from
2009-2010 to 2010-2011. The exact opposite can be notated for the sample colleges in the Florida College System with graduates in education. These institutions have a medium level of percentage of increase overall from 2008-2009 to 2010-2011. There was a 38.4% increase from 2008-2009 to 2009-2010. The next increase from 2009-2010 to 2010-2011 was modestly larger, 44.7%, but it still represents growth in the number of education baccalaureate graduates at institutions in the Florida College System. As can be seen in Table 8, in the appendix, the evolution of the education program at the sample colleges in the Florida College System produces more graduates each year. The increase in individuals earning the degrees caused the Florida College System institutions to have a large percentage increase in the number of education baccalaureate graduates than the sample universities in the State University System of Florida.

The findings for nursing graduates at the sample universities in the State University System of Florida show a slight increase and a decrease between academic years 2008-2009 to 2010-2011. There was a 1.1% increase from 2008-2009 to 2009-2010. There was a 13% decrease from 2009-2010 to 2010-2011. This decrease in percentage is not conducive to being cost-effective. The nursing graduates at the sample colleges in the Florida College System increased every year. There was a 47.9% increase from 2008-2009 to 2009-2010. The next percent of increase was 88.7% from 2009-2010 to 2010-2011. Table 6, in the appendix, shows the increase in the number of graduates from the sample institutions in the Florida College System being conferred the baccalaureate degree in nursing. These increases show that there is a need and desire of students to have a baccalaureate program in these fields of study offered through a two-year institution. The percent of increase in nursing and education baccalaureate graduates at colleges in the Florida College System compared to the percent of decrease of
graduates at universities in the State University System depicts the measure of effectiveness for creating a new pathway to degree attainment and a method of producing more baccalaureate degrees.

**Cost-Effectiveness**

The cost-effectiveness analysis combines the cost data and effectiveness data of the two higher education systems for an outcome. The outcome for this study was to evaluate whether baccalaureate degree programs can produce graduates in a cost-effective manner. The total expenditure per student credit hour (cost data) was less for nursing and education baccalaureate programs at the sample institutions for the Florida College System overall. The Florida College System institutions’ degree growth (effectiveness data) increases by a higher percentage than the universities in the State University System of Florida. When you combine the cost and effectiveness measures, the analysis clearly shows that the community college baccalaureate is a cost-effective pathway to degree attainment and cumulative increases in degrees.

**How Baccalaureate Programs Began in Florida at Community Colleges**

Virginia’s goal of increasing degree completion of students with partial credits toward a college degree through an effective new pathway is very similar to the position Florida was facing before 2001. Virginia wants to enhance the higher education system through on-line classes, new instructional models and pathways to degree attainment, and increase degree attainment in growing job areas such as STEM, healthcare, and advanced manufacturing. The State Council of Higher Education for Virginia (SHEV) has learned of issues similar to those that plagued Florida before 2001 are experienced in Virginia. An overarching theme that was learned by SHEV is that affordability, proximity to educational programs, the traditional method of course scheduling are barriers for the nontraditional student, adult learners (State Council of
Higher Education for Virginia 2012). SHEV also learned that while Virginia has a relatively high educational attainment rate overall when compared to other states it has a rather lower attainment rate in rural regions of the state, economically distressed urban areas, and a disparity among various demographic groups (State Council of Higher Education for Virginia 2012).

Florida chose to research and invest in a new method of offering baccalaureate education based upon similar reasons.

The process for Florida to begin offering baccalaureate degrees through public two-year colleges began in 1998. During 1998 and 1999, the State Board of Community Colleges, the Postsecondary Education Planning Commission, and the Senate Education Committee recognized that baccalaureate degree access was a major problem in Florida and that the community college was a possible option to address this problem (Florida Department of Education 2005). During this time period, Florida was ranked forty-sixth among the 50 states pertaining to student access to earning a baccalaureate degree (Furlong 2005, 103). The demand for new teachers in Florida during this time was outpacing the number of education majors being produced by state and private universities (Florida Department of Education 2005). The projection for the need of new teachers was 20,000 teaching positions would need to be filled between 2005 and 2020 while the State University System was pointing toward a ten-year decline in individuals earning education baccalaureate degrees (Florida Department of Education 2005). There was also a projection that the state would need over 41,000 nurses by 2011 yet Florida’s nursing education programs did not have capacity to serve all the students seeking admission (Florida Department of Education 2005). Florida also realized that many nontraditional students were geographically bound to attend the local community college and not move beyond the associate’s degree due to family and employment responsibilities (Florida
In 1999, the Florida Legislature passed legislation which allowed community colleges to seek approval to grant baccalaureate degrees in areas of high demand (Florida Department of Education 2005). The Postsecondary Education Planning Commission also studied the establishment of a state college system but they felt it was premature in 1999 (Florida Department of Education 2005). In 2001, the Florida Legislature passed Senate Bill 1162 and formed Florida Statute 1007.33. This established a process for community colleges to seek approval through the State Board of Education to grant baccalaureate degrees in limited areas. This same Bill re-established St. Petersburg Junior College as St. Petersburg College and provided the authority for this institution to grant baccalaureate degrees in nursing, education, and information technology (Florida Department of Education 2005). From 2001 to 2005, a few community colleges sought the authority to establish baccalaureate degree programs. Chipola College, Miami Dade College, Okaloosa-Walton College (now Northwest Florida State College), Edison College, and Daytona State College were successful in obtaining the authority to create baccalaureate degree programs (Florida Department of Education 2005). These legislative actions would be the method for more student access and degree attainment until 2007.

In 2007, the idea of a state college system reemerged since the 1999 decision not to have a state college system based upon a study conducted by the Pappas Consulting Group (Floyd et. al. 2009, 196). The Pappas Group stated that the creation of a state college system would create a method for a cost-effective pathway to a baccalaureate education (Floyd et. al. 2009, 196). The Pappas Group made the recommendation to keep the open access admission to students like community colleges (Floyd et. al. 2009, 196). Another Bill was sponsored in 2008 because
Florida was not satisfied with the percent of baccalaureate degrees that were being produced in the workforce under the current community college system (Floyd et al. 2009, 196). Florida Senate Bill 1716 was passed into law effective July 1, 2008, and it created the Florida College System, expanding the community college access by establishing 9 pilot state colleges to offer baccalaureate degrees, and establishing a Florida College System Task Force (Floyd et al. 2009, 196-199). The task force was to provide reports to the Governor and other legislators on the transition and on June 30, 2010 the task force dissolved and the Florida College System became permanent in the state system of higher education (Floyd et al. 2009, 199). The nine authorized baccalaureate colleges have grown to twenty-two from the original twenty-eight community colleges as of February 2012 (Florida Department of Education 2012). Florida has evolved and leading the way in implementing the community college baccalaureate. Virginia can use Florida as a model to investigate what implementation methods have been most successful in creating new pathways to degree attainment in a cost-effective manner.

Florida Law

Florida Statute 1007.33 establishes the Legislatures intent for the Florida College System and regulations on determining how colleges can obtain access to establishing baccalaureate degree programs. The statute states that the Legislature recognizes the role that public and private higher educational institutions play in improving the quality of life and economic status of the state and the citizens (The Florida Senate 2011a). The Legislature also acknowledges the economic development needs and educational opportunity needs of nontraditional students and their need for local access to baccalaureate programs (The Florida Senate 2011a). This is why this legislation is expanding the access to baccalaureate degree programs through the Florida College System institutions (The Florida Senate 2011a). The legislation states that institutions in
the Florida College System that offer any type of baccalaureate degree must maintain their primary mission. The primary mission institutes the following requirements: responding to the postsecondary educational needs of the community and career degree education, open admission access to associate’s degrees and workforce education programs, provide remedial education, outreach to underserved populations, comply with all provisions of the statewide articulation agreement in reference to two-year and four-year public degree granting institutions, cannot award graduate credit, cannot participate in intercollegiate athletics beyond the two-year level, and cannot terminate an associate’s degree program in order to offer a baccalaureate program (The Florida Senate 2011a). Some of these requirements are similar to those that match the mission of two-year colleges in Virginia.

There are several requirements institutions must accomplish to be allowed to establish a baccalaureate degree program. The process has many checks-and-balances with the State University System of Florida and the Independent Colleges and Universities of Florida (The Florida Senate 2011a). This process has specific time parameters for filing proposals and for the respective organizations to answer the proposal (The Florida Senate 2011a). The Florida College System institution must supply the following criteria in the proposal: description of the planning and implementation process timeline, an analysis of workforce demand and unmet educational needs of the program on a district, regional, or statewide basis; identify the facilities, equipment, library, and academic resources used for the program; a cost analysis of creating the program compared to alternative proposals; the admission requirements, curriculum, faculty credentials, student to teacher ratios, and accreditation plan; and an action plan if the program is terminated (The Florida Senate 2011a). The System institution must also seek baccalaureate accreditation through the Commission on Colleges of the Southern Association of Colleges and Schools.
The goal of this statute is to meet educational needs but not to duplicate existing curriculum in the universities if needs are being met.

The second Florida State Statute that is of importance is 1009.23. This legislation establishes certain tuition and fee structures for the Florida College System (The Florida Senate 2011b). The tuition and fees apply to college credit instruction in the associate’s and baccalaureate degree programs (The Florida Senate 2011b). The Florida Legislature sets out in this statute that tuition and out-of-state fees for upper level courses (baccalaureate) must reflect that Florida College System institutions have a less expensive cost structure than universities in the State University System of Florida (The Florida Senate 2011b). This statute does not set a limit on the cost (expenditure) that is incurred by the Florida College System institution that is incurred from offering baccalaureate programs from state funding. This statute has several sections that provide tuition and fee structures for various types of students. There are resident and nonresident students classified in this statute.

This statute can be difficult to interpret. It has language in it for the institutions and programs that were originally approved for baccalaureate degree conferral in 2001, language for a tuition and fee structure for other institutions that were established with baccalaureate programs after the Florida College System was formed, and those that will be formed in the future (The Florida Senate 2011b). The original Florida College System institutions and programs have tuition and fee rates set by the institution’s board of trustees (The Florida Senate 2011b). The fee established for all other baccalaureate institutions in the Florida College System is set at $87.42 per credit hour for resident students (The Florida Senate 2011b). Nonresident students’ total tuition and out-of-state fee per credit hour cannot be more than 85% of the sum of the tuition and the out-of-state fee at the nearest state university (The Florida Senate 2011b).
Even though the tuition and fee rates are established by this statute for resident students, a provision in 1009.23 allows for each institution’s board of trustees to establish tuition and out-of-state fees that can vary no more than 10 percent below and 15 percent above the total combined standard tuition and fees, the amount of tuition established to resident students and nonresident students (The Florida Senate 2011b). There are other provisions for the board of trustees of each institution to set fees for activities, technology, and capital improvements but there are percentage limits for these fees (The Florida Senate 2011b). This statute allows the tuition of resident students to be more affordable than the public universities which helps in being more cost-effective.
Chapter 5
Summary, Conclusions, and Recommendations

This chapter restates the purpose of the study, the research questions, summarizes the research findings, states a conclusion, and makes recommendations for law and policy actions and future research studies. This exploratory case study on the cost-effectiveness of baccalaureate degrees at two-year colleges only reveals significant information on a few programs in a new phenomenon that is evolving in higher education. The hope is that these findings, conclusions, and recommendations will be used by Virginia’s Governor and Legislators and encourage future research.

Purpose of the Study

The purpose of this study was to determine if an alternative method of offering and conferring baccalaureate degrees was cost-effective and would it provide a new pathway for degree attainment and growth as a policy to enhance the Virginia Higher Education Opportunity Act of 2011. This exploratory case study used the State of Florida’s public higher education systems as a sample. Florida has been instrumental in evolving the community college baccalaureate degree phenomenon. Researching existing programs at institutions that are continually advancing the community college baccalaureate establishes an appropriate sample of data.

The exploratory case study method was used to analyze new programs at existing organizations during certain time periods. The researcher evaluated the cost-effectiveness of nursing and education baccalaureate programs by comparing them through a sample of universities within the State University System of Florida and a sample of colleges within the Florida College System. This method of analysis assisted the researcher in ascertaining whether
this baccalaureate pathway would increase degree growth cost-effectively and provide a policy option to the Act. The Act has ten purposes to be followed and implemented. This study takes some of these purposes into consideration. One of the purposes tied to this study is to take advantage of the correlation between higher education and economic growth. Economic development is dependent on the synergies of new knowledge and human capital which is a correlation between higher education and the achievement of significant economic growth (Becker 2008). Some of the other purposes are affordable access, conferring 100,000 more degrees between 2011 and 2025, increase degree completion of students with partial credits, and promote new cost-effective pathways to degree attainment. All of this led to the central research question: Will Virginia offering baccalaureate degrees at two-year public colleges cost-effectively increase the number of graduates?

Summary of the Findings

Florida was concerned about how to improve higher education to allow more citizens to have the opportunity to reach degree attainment. Florida also recognized that certain job fields would be drastically under staffed without offering a new pathway to baccalaureate degree attainment because the universities could not produce the amount needed. Several state organizations collaborated and consulted with an outside group to formulate a college system that could provide baccalaureate opportunities but still meet the needs of individuals through the mission of community colleges. This collaboration also needed the support of lawmakers in Florida. The legislators and governor showed support through new statutes and funding.

Florida Legislators passed two laws that were instrumental in the development and evolution of community college baccalaureate degree programs. In Statute 1007.33, the Legislature specifically states that they recognize the role higher education plays in economic
development and the need for educational opportunities for nontraditional students to earn baccalaureate degrees locally (The Florida Senate 2011a). This statute established baccalaureate degree programs at community colleges and created the Florida College System. This statute articulates that the mission of these colleges will not change in relation to open admission access, workforce development, associate’s degree programs, remedial courses, or state transfer agreements (The Florida Senate 2011a). It also establishes the criteria to which Florida College System institutions must adhere and include in their proposal of a baccalaureate degree program (The Florida Senate 2011a). This legislation serves as a model for other states to change their higher educational structure to meet the needs of the workforce and the State’s economy. Florida Statute 1007.33 would be beneficial to Virginia when drafting legislation to implement this new pathway of degree attainment.

Florida Statute 1009.23 is the second piece of legislation that is significant to the Legislature assuring that the cost of offering community college baccalaureate degrees would be affordable. This statute sets tuition rates and only allows the board of trustees for each institution to fluctuate between certain percentages when implementing fees (The Florida Senate 2011b). The tuition and fees paid by students is a part of the cost measure of this study because it is part of the total expenditure per student credit hour that the colleges and universities calculate to measure their cost to offer baccalaureate programs. This piece of the cost measure is important to the overall cost-effectiveness of the programs and institutions. This provides a model for the Virginia General Assembly and other State Legislatures trying to identify how to contain cost to make higher education more cost-effective.

The production of 100,000 more degrees can be accomplished by providing more funding to existing four-year universities or implement the community college baccalaureate to meet the
purposes in the Act: create a new pathway to degree attainment, increase degree attainment for individuals with partial credits (nontraditional students), assists in producing 100,000 cumulative degrees, and accomplish this in cost-effective manner. The goals of the Act stimulate a cost measure and an effectiveness measure for a cost-effectiveness analysis which is an evaluation used to study educational programs (Lent 1979, 27).

The cost measure for the analysis was performed by using the total expenditure per student credit hour for two baccalaureate programs, nursing and education, from a sample of institutions in the State University System of Florida and the Florida College System. The cost analysis shows that the percent of difference in the total expenditure per student credit hour in nursing and education programs between the universities and colleges have continually increased over the three academic years. The largest percent of difference is in the education upper level baccalaureate courses. The percent of difference between the two types of institutions was 6.7%, 37.3%, and 52.5% for the 2008-2009, 2009-2010, and 2010-2011 academic years, respectively. The percent of difference between the two types of institutions for upper level nursing baccalaureate courses were 73.1%, 80.9%, and 80.7% for the three academic years, respectively. The cost analysis depicts that the total expenditure per student credit hour is less costly over a specified time period in nursing and education baccalaureate programs at colleges than at universities in Florida.

The effectiveness measure for the analysis was performed by evaluating the percent of increase or decrease of the total number of graduates from each program and each System. The number of graduates in the nursing and education baccalaureate programs at Florida College System institutions grew significantly between the academic years used for this study, 2008-2009, 2009-2010, and 2010-2011. There was another growth increase as well. The majority of
the sample institutions in the Florida College System that produced graduates in the first academic year of the study also saw an increase in the number of graduates each year thereafter, as seen in Tables 6 and 8. The universities in the State University System of Florida were decreasing in the percent of graduates for education during the academic years, as seen in Table 7. The nursing programs at the universities only saw a decrease in the 2010-2011 academic year, as seen in Table 5. The decreases in these programs do not assist the unmet need in these workforce areas. It should be noted that the universities do produce more graduates overall but the mission of the institutions in the Florida College System is not to compete with the universities in the State University System of Florida. Their mission, in part, is to offer an affordable baccalaureate education to local students and to help meet unmet workforce needs. This effectiveness measure depicts that the sample institutions in the Florida College System have continually increased the number of baccalaureate graduates in the nursing and education programs which is increasing the number of individuals attaining degrees over several years. This degree attainment is being completed by using a new pathway of educating students.

Florida’s goal was to allow local access to baccalaureate degrees and to offer these degrees in workforce areas where the needs were not being met (The Florida Senate 2011a). The 1999 study concluded that the State of Florida was in need of educators and nurses (Florida Department of Education 2005). The Pappas Consulting Group, in 2007, stated that creating the Florida College System would offer more baccalaureate programs and create a method for a cost-effective pathway to a baccalaureate degree (Floyd et al 2009, 196). The continuous increase in implementing these two programs at more Florida College System institutions and the increase in degree growth each year in the programs shows the effectiveness in providing education in
unmet workforce areas, the offering of baccalaureate programs locally to students, and the production of more baccalaureate graduates for the State of Florida.

Limitations of the Study

The study did incur a few limitations. One limitation is the method in which the data was retrieved from the colleges and universities in the State of Florida. The data used for this study was a mix of archived data available through the State University System of Florida and the Florida College System, and cost and degree data obtained through personal communications by e-mail and phone with individuals of these organizations or the individual institutions. The findings of this study were dependent upon the accuracy of the data provided to the researcher. The second limitation may be external validity. This study was based on how effective the cost would be to enhance a state policy. The limits on external validity may exist based upon states with different higher education policies. The last limitation could be foreseen by some as researcher bias. The researcher lives in Virginia and works for a public junior college that cannot offer baccalaureate courses because of current state law and a court injunction.

Regardless of these limitations, the researcher believes that this study will benefit further evolution of the community college baccalaureate and offer a policy option to improve the Virginia Higher Education Opportunity Act of 2011. The study will assist in the approach for higher education institutions and scholars to be broad in the evolution of reforming and innovating new pathways for undergraduate education attainment.

Conclusions

The conclusion of the cost-effectiveness analysis is that the nursing and education baccalaureate programs were a more cost-effective alternative. Florida Statute 1009.23 assists the community college institutions in having a lower cost based upon the limiting ability of
institutions or their board of trustees to raise tuition and fee rates. This part of the total expenditure data (cost measure) limits the ability of the overall total expenditure per student credit hour to be higher than the universities. From a government perspective, the ability to provide educational opportunities at a funding level lower than an alternative is a positive.

The State Council of Higher Education for Virginia recently learned that affordability, proximity to educational programs, and the traditional schedule of courses (during the day) are barriers for nontraditional students (State Council of Higher Education for Virginia 2012). They also learned that the attainment rate in rural areas of the state, economically distressed urban areas, and among minorities is low (State Council of Higher Education for Virginia 2012). Florida was very similar from 1998 to 2000 when they began looking at the option of the community college baccalaureate degree. Florida made a decision to educate students without affordable access, the means to travel for education, and meet the needs of the local workforce by passing Florida Statute 1007.33. I conclude from these similarities that the Commonwealth of Virginia is in need of enacting legislation similar to Florida Statute 1007.33 in order to meet the goals of the Act.

Overall, I conclude that the community college baccalaureate program is a cost-effective policy initiative to enhance the Act’s goals of a new pathway to degree attainment, affordable access, increase degree attainment for individuals with partial credits (nontraditional students), and assist in producing the 100,000 cumulative degrees. Florida Statutes 1007.33 and 1009.23 would serve as a model from a law perspective and a policy perspective. The Florida College System serves as a model for Virginia and other states wanting to enhance higher educational opportunities.
Recommendations for Law, Policy, and Future Research

The following recommendations are provided by the researcher:

1. The Virginia General Assembly and the Governor should authorize a pilot project for one two-year public college to offer a baccalaureate degree program and enact statutes similar to Florida.

2. The State Council of Higher Education for Virginia needs to research the specific job needs in geographical areas of Virginia and determine if higher educational needs are not being met in these workforce areas.

3. The Virginia General Assembly should authorize a study to be conducted on what the initial start-up costs would be for community college baccalaureate programs.

4. Researchers may want to further study the differences in accreditation implementation procedures and expenses in the United States for offering baccalaureate degrees at the community college level.

5. Researchers may want to study the successes of the bachelor of applied science and bachelor of applied technology degrees offered at community colleges.

In closing, the community college baccalaureate degree is continually evolving in a society that is attempting to create jobs and economic growth. Higher education is significantly tied to human capital and the growth of our economy. This new model of delivering higher education will continue to be researched as it continues to grow in more states and grow in larger numbers in the states where they already exist. This pathway for degree attainment opens doors to those students who may not have access to higher education whether it is because of affordability, travel, family, or career obligations. The Virginia Higher Education Opportunity Act of 2011 has strong purposes and principals but if new policy decisions and statutes are not
created to continue to support its goals then the Act is not affording our citizens the opportunities as it was intended.
Table 1

University Expenditure Data for Nursing

<table>
<thead>
<tr>
<th>University</th>
<th>2008-2009 Total Expenditure per Student Credit Hour</th>
<th>2009-2010 Total Expenditure per Student Credit Hour</th>
<th>2010-2011 Total Expenditure per Student Credit Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida Agricultural &amp; Mechanical University</td>
<td>$613.89</td>
<td>$592.78</td>
<td>$529.72</td>
</tr>
<tr>
<td>Florida Atlantic University</td>
<td>$376.87</td>
<td>$358.02</td>
<td>$349.65</td>
</tr>
<tr>
<td>Florida Gulf Coast University</td>
<td>$467.90</td>
<td>$440.00</td>
<td>$444.49</td>
</tr>
<tr>
<td>Florida International University</td>
<td>$381.67</td>
<td>$361.57</td>
<td>$402.92</td>
</tr>
<tr>
<td>Florida State University</td>
<td>$481.32</td>
<td>$429.63</td>
<td>$425.58</td>
</tr>
<tr>
<td>University of Florida</td>
<td>$472.87</td>
<td>$421.64</td>
<td>$479.56</td>
</tr>
<tr>
<td>University of North Florida</td>
<td>$369.71</td>
<td>$397.73</td>
<td>$422.44</td>
</tr>
<tr>
<td>University of South Florida</td>
<td>$285.53</td>
<td>$323.29</td>
<td>$345.66</td>
</tr>
<tr>
<td>University of West Florida</td>
<td>$584.32</td>
<td>$423.35</td>
<td>$320.64</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$4034.08</td>
<td>$3748.01</td>
<td>$3720.66</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>$448.23</td>
<td>$416.45</td>
<td>$413.41</td>
</tr>
</tbody>
</table>

Table 2

Community College Expenditure Data for Nursing

<table>
<thead>
<tr>
<th>Community College</th>
<th>2008-2009 Total Expenditure per Student Credit Hour</th>
<th>2009-2010 Total Expenditure per Student Credit Hour</th>
<th>2010-2011 Total Expenditure per Student Credit Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edison State College</td>
<td>$0.00</td>
<td>$177.70</td>
<td>$136.80</td>
</tr>
<tr>
<td>Miami Dade College</td>
<td>$256.23</td>
<td>$189.33</td>
<td>$163.67</td>
</tr>
<tr>
<td>Northwest Florida State College</td>
<td>$385.30</td>
<td>$179.64</td>
<td>$156.69</td>
</tr>
<tr>
<td>St. Petersburg College</td>
<td>$192.00</td>
<td>$159.20</td>
<td>$245.53</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$833.53</td>
<td>$705.87</td>
<td>$702.69</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>$208.38</td>
<td>$176.47</td>
<td>$175.67</td>
</tr>
</tbody>
</table>
Table 3

University Expenditure Data for Education

<table>
<thead>
<tr>
<th>University</th>
<th>2008-2009 Total Expenditure per Student Credit Hour</th>
<th>2009-2010 Total Expenditure per Student Credit Hour</th>
<th>2010-2011 Total Expenditure per Student Credit Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida Agricultural &amp; Mechanical University</td>
<td>$469.52</td>
<td>$489.10</td>
<td>$702.87</td>
</tr>
<tr>
<td>Florida Atlantic University</td>
<td>$291.67</td>
<td>$274.57</td>
<td>$299.38</td>
</tr>
<tr>
<td>Florida Gulf Coast University</td>
<td>$282.79</td>
<td>$285.27</td>
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<td>Florida International University</td>
<td>$214.75</td>
<td>$222.37</td>
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<tr>
<td>Florida State University</td>
<td>$312.27</td>
<td>$309.17</td>
<td>$353.50</td>
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<tr>
<td>University of Central Florida</td>
<td>$237.27</td>
<td>$235.97</td>
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<tr>
<td>University of Florida</td>
<td>$207.13</td>
<td>$178.49</td>
<td>$157.63</td>
</tr>
<tr>
<td>University of North Florida</td>
<td>$283.72</td>
<td>$276.60</td>
<td>$300.98</td>
</tr>
<tr>
<td>University of South Florida</td>
<td>$219.78</td>
<td>$196.35</td>
<td>$200.95</td>
</tr>
<tr>
<td>University of West Florida</td>
<td>$185.37</td>
<td>$196.48</td>
<td>$208.62</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$2704.27</td>
<td>$2664.37</td>
<td>$2947.17</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>$270.43</td>
<td>$266.44</td>
<td>$294.72</td>
</tr>
</tbody>
</table>

Table 4

Community College Expenditure Data for Education

<table>
<thead>
<tr>
<th>Community College</th>
<th>2008-2009 Total Expenditure per Student Credit Hour</th>
<th>2009-2010 Total Expenditure per Student Credit Hour</th>
<th>2010-2011 Total Expenditure per Student Credit Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edison State College</td>
<td>N/A</td>
<td>$177.70</td>
<td>$136.80</td>
</tr>
<tr>
<td>Miami Dade College</td>
<td>$256.23</td>
<td>$189.33</td>
<td>$163.67</td>
</tr>
<tr>
<td>Northwest Florida State College</td>
<td>$385.30</td>
<td>$179.64</td>
<td>$156.69</td>
</tr>
<tr>
<td>St. Petersburg College</td>
<td>$192.00</td>
<td>$159.20</td>
<td>$245.53</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$833.53</td>
<td>$705.87</td>
<td>$702.69</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>$277.84</td>
<td>$176.47</td>
<td>$175.67</td>
</tr>
</tbody>
</table>
### Table 5

University Nursing Baccalaureate Graduates

<table>
<thead>
<tr>
<th>University</th>
<th>2008-2009 Total Graduates</th>
<th>2009-2010 Total Graduates</th>
<th>2010-2011 Total Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida Agricultural &amp; Mechanical University</td>
<td>75</td>
<td>71</td>
<td>71</td>
</tr>
<tr>
<td>Florida Atlantic University</td>
<td>226</td>
<td>259</td>
<td>216</td>
</tr>
<tr>
<td>Florida Gulf Coast University</td>
<td>91</td>
<td>73</td>
<td>48</td>
</tr>
<tr>
<td>Florida International University</td>
<td>211</td>
<td>220</td>
<td>208</td>
</tr>
<tr>
<td>Florida State University</td>
<td>189</td>
<td>220</td>
<td>133</td>
</tr>
<tr>
<td>University of Florida</td>
<td>210</td>
<td>187</td>
<td>159</td>
</tr>
<tr>
<td>University of North Florida</td>
<td>174</td>
<td>163</td>
<td>163</td>
</tr>
<tr>
<td>University of South Florida</td>
<td>273</td>
<td>276</td>
<td>238</td>
</tr>
<tr>
<td>University of West Florida</td>
<td>52</td>
<td>48</td>
<td>84</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,501</td>
<td>1,517</td>
<td>1,320</td>
</tr>
</tbody>
</table>

PERCENT of Increase or (Decrease) from prior year

N/A 1.1% (13%)

### Table 6

Community College Nursing Baccalaureate Graduates

<table>
<thead>
<tr>
<th>Community College</th>
<th>2008-2009 Total Graduates</th>
<th>2009-2010 Total Graduates</th>
<th>2010-2011 Total Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edison State College</td>
<td>0</td>
<td>0</td>
<td>82</td>
</tr>
<tr>
<td>Miami Dade College</td>
<td>0</td>
<td>73</td>
<td>78</td>
</tr>
<tr>
<td>Northwest Florida State College</td>
<td>0</td>
<td>12</td>
<td>26</td>
</tr>
<tr>
<td>St. Petersburg College</td>
<td>144</td>
<td>128</td>
<td>216</td>
</tr>
<tr>
<td>TOTAL</td>
<td>144</td>
<td>213</td>
<td>402</td>
</tr>
</tbody>
</table>

PERCENT of Increase or (Decrease) from prior year

N/A 47.9% 88.7%
Table 7

University Education Baccalaureate Graduates

<table>
<thead>
<tr>
<th>University</th>
<th>2008-2009 Total Graduates</th>
<th>2009-2010 Total Graduates</th>
<th>2010-2011 Total Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida Agricultural &amp; Mechanical University</td>
<td>92</td>
<td>80</td>
<td>75</td>
</tr>
<tr>
<td>Florida Atlantic University</td>
<td>494</td>
<td>509</td>
<td>480</td>
</tr>
<tr>
<td>Florida Gulf Coast University</td>
<td>168</td>
<td>175</td>
<td>168</td>
</tr>
<tr>
<td>Florida International University</td>
<td>382</td>
<td>355</td>
<td>356</td>
</tr>
<tr>
<td>Florida State University</td>
<td>515</td>
<td>450</td>
<td>324</td>
</tr>
<tr>
<td>University of Central Florida</td>
<td>1,002</td>
<td>952</td>
<td>930</td>
</tr>
<tr>
<td>University of Florida</td>
<td>258</td>
<td>256</td>
<td>227</td>
</tr>
<tr>
<td>University of North Florida</td>
<td>328</td>
<td>300</td>
<td>332</td>
</tr>
<tr>
<td>University of South Florida</td>
<td>754</td>
<td>793</td>
<td>753</td>
</tr>
<tr>
<td>University of West Florida</td>
<td>265</td>
<td>227</td>
<td>256</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4,258</td>
<td>4,097</td>
<td>3,901</td>
</tr>
</tbody>
</table>

PERCENT of Increase or (Decrease) from prior year N/A (3.8%) (4.8%)

Table 8

Community College Education Baccalaureate Graduates

<table>
<thead>
<tr>
<th>Community College</th>
<th>2008-2009 Total Graduates</th>
<th>2009-2010 Total Graduates</th>
<th>2010-2011 Total Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edison State College</td>
<td>0</td>
<td>15</td>
<td>96</td>
</tr>
<tr>
<td>Miami Dade College</td>
<td>70</td>
<td>123</td>
<td>194</td>
</tr>
<tr>
<td>Northwest Florida State College</td>
<td>0</td>
<td>16</td>
<td>29</td>
</tr>
<tr>
<td>St. Petersburg College</td>
<td>185</td>
<td>199</td>
<td>192</td>
</tr>
<tr>
<td>TOTAL</td>
<td>255</td>
<td>353</td>
<td>511</td>
</tr>
</tbody>
</table>

PERCENT of Increase or (Decrease) from prior year N/A 38.4% 44.7%
Bibliography


