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The purpose of this study was to identify and assess direct costs of distance education at the institutional level within the North Carolina Community College System (NCCCS) in accordance with the System-level mission of reducing barriers to higher education within North Carolina. Through a quantitative analysis of distance education expenditures, this study provides insight into the cost of each of these expenditures to individual institutions and to the NCCCS as a whole. Data provided in this study were used to develop a model through which community college administrators may assess the cost of distance education at their respective institutions in a clear and consistent fashion.

Data were collected through a survey of the population, which included chief financial officers and directors of distance education at the fifty-eight community colleges in North Carolina. The survey instrument consisted of electronic, paper, and phone surveys which collected data on thirty-seven research questions and elicited data on personnel, equipment, and support services costs. Responses were received from forty-four institutions.

Results of the study indicated that medium-sized institutions spent more on distance education per full-time equivalent student than their small or large-sized counterparts. Additionally, urban institutions had higher expenditures on distance education than rural institutions. Finally, distance education programs typically costs $878.44 more per full-time equivalent student than was generated.

# DISTANCE EDUCATION FINANCIAL EXPENDITURES IN NORTH CAROLINA COMMUNITY COLLEGES

By

Chad A. Bledsoe

A Dissertation submitted to
the Faculty of The Graduate School at
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Approved by

Dr. Bert Goldman
Committee Chair

To my wife, my thanks for her love, support and encouragement. This process was made easier by her caring and assistance through many iterations of this dissertation. To my parents for their love, encouragement, and assistance in my educational endeavors; and for teaching me that;

> Nothing in the world can take the place of Persistence. Talent will not; nothing is more common than unsuccessful men with talent. Genius will not; unrewarded genius is almost a proverb. Education will not; the world is full of educated derelicts. Persistence and determination alone are omnipotent.
>
> Calvin Cooledge

APPROVAL PAGE

This dissertation has been approved by the following committee of the

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# CHAPTER I

# INTRODUCTION

The purpose of this study is to identify and assess direct costs of distance education at the institutional level within the North Carolina Community College System (NCCCS) in accordance with the System-level mission of reducing barriers to higher education within North Carolina. Through a quantitative analysis of distance education expenditures, this study provides insight into the cost of each of these expenditures to individual institutions and to the NCCCS as a whole. Data provided in this study were used to develop a model through which community college administrators may assess the cost of distance education at their respective institutions in a clear and consistent fashion (Appendix P). It will fill the gap in North Carolina Community College funding research by providing administrators accurate data and a model with which to assess distance education costs.

Chapter I outlines the background and history of distance education in the United States and defines common methods of instruction. This information will be used as the foundation of the study, which is further defined at the end of Chapter I.

## Background

Distance education has been part of the higher education system in the United States since the mid-nineteenth century (Rumble, 2001). This concept of educational delivery, at a distance, can loosely be defined as a separation in time and/or place

between instructor and student; with the delivery of instruction and feedback being conducted through a variety of techniques which can include the use of the internet, video, broadcast television, mailed correspondence, or a combination of various methods (O'Hanlon, 2001). Other terms used to represent this method of instruction include open learning, home study, self-study, and independent learning (O'Hanlon, 2001; Peters, 1993; Williams, Paprock, & Covington, 1999). While each of these methods varies slightly in its form of delivery or instruction, all require the separation of instructor and student (O'Hanlon, 2001; Peters, 1993; Williams, Paprock, & Covington, 1999). For the purpose of this study, the term distance education will be used to represent the methods described above and throughout the research.

Even with the relatively numerous methods of delivery that broadly define distance education, this segment of higher education has traditionally been outside the scope of many institutions. Difficulty in determining institutional cost of offering distance education coupled with the time required to exchange information have traditionally been prohibitive for these programs. However, in the mid-1990s the growth of distance education programs/courses accelerated because of the perpetuation of the internet and low cost personal computers, which opened new regional, national, and global markets for students who could not otherwise pursue higher education (Van Der Wende, 1996). An additional catalyst for growth in distance education was a rapid shift in global economies during the 1980s and 1990s through international trade agreements such as the North American Free Trade Agreement (NAFTA) and the formation of the European Union after the fall of the Soviet Union (Wright, 1997). Such changes altered

national economies, political systems, and gave rise to new knowledge bases which have redefined the concept of higher education and are requiring large portions of the workforce to return to college in an effort to gain or update work skills (Wright, 1997). These changes have forced colleges and universities to cater to varying student demographics including changes in age, employment status, and family duties (Kweik, 2001). Subsequently, colleges and universities have had to adapt to rapid growth and competition for fewer dollars relative to the number of students they enroll, causing institutions to adapt more of a corporate model in order to survive (Ryan, 2001).

As a result of these changes administrators have been considering distance education, not only to adapt to the rise in student enrollments, but also to compete with other institutions that are pursuing this method of instruction. A turning point in the acceptance of distance education as a method in educational delivery came in 1995 when Jones International University became the first totally online institution to seek regional accreditation in the United States (Olsen, 1999). Since that time, growth in distance education has been dramatic. During the 1990s the U.S. Department of Education's National Center for Education Statistics reported a student enrollment growth rate of 34% for distance education, which resulted in annual enrollments of approximately 1,661,000 students by the end of the decade (National Center for Educational Statistics, 2002). Additionally, 20% of the schools surveyed at that time were preparing to enter the distance education arena (O'Hanlon, 2001). By 2001, worldwide participation in distance education programs/courses topped 10 million students (Woodley, Tanewski, G., & De

Lange, 2001). By 2012 that total is expected to rise to over eighteen million students in the United States alone (National Center for Education Statistics, 2002).

In addition to the social and political elements that have contributed to the rise of distance education, one factor typically cited as a reason to supplement traditional educational delivery methods with distance education relates to the perceived cost savings associated with its delivery (Antonucci, 2001). Distance education has traditionally been seen by administrators as a way to not only increase access to education, but also as a way to save money for the institution. On the surface there are numerous benefits, including reduction in the number of classrooms, equipment, dorms, parking facilities, health services, and support services required to deliver distance education programs and courses (Antonucci, 2001). As administrators see costs increasing and federal and state support stagnating, they are being forced to adopt a business model to manage their costs effectively (Ryan, 2001). When one considers the amount of money spent on higher education each year, even a modest cost savings can have a dramatic effect on the system as a whole. According to the United States Department of Education, higher education budget requests for the 2005-06 fiscal year are expected to top 1.2 billion dollars. This figure does not include the amount spent annually by states; for North Carolina that figure is expected to be just under 3 billion dollars for the 2005-06 academic year. Nor does it include the amount spent by students, which is estimated to be approximately $50 billion. These figures combine to create a conservative estimate of over $200 billion spent nationally on higher education each year (National Center for Education Statistics, 2002).

One popular misconception of distance education is that the reduction in physical resources resulting from distance education delivery equates to savings in the cost of total educational delivery. Distance education financial analyses often outline the cost of web-based delivery equipment, but fail to recognize the ongoing and non-technical costs of offering distance education programs and courses. For example, typical startup costs for a single course range from $5,000 to $15,000 depending on the level of technology and interaction required (Carr, 2001). This along with the ongoing maintenance expenses and relatively short life of technology must be considered when assessing the total cost of distance education and its benefit to an institution.

## Distance Education Defined

Distance education may be defined through a number of delivery methods and using various terms. As described in previous sections of this study, all such methods and definitions revolve around the central concept of a physical separation of instructor and student (O'Hanlon, 2001). The following paragraphs will define various distance education delivery methods, and synthesize those definitions into a single working definition for this study. These terms are grouped by delivery method and include an overarching definition of distance education, terms related to correspondence-based delivery, audio and video delivery methods, and those methods incorporating computers and the internet.

## Distance Education Styles

As stated above, distance education is defined in the literature using a variety of terms which describe the methods associated with its delivery. These terms, while

descriptive, can be confusing when attempting to determine the actual cost of offering distance education programs. With the expansion of distance education using numerous and ever increasing delivery methods, a variety of new and often trendy terms have been introduced to the distance education field that fade from popular literature as quickly as they arrive. For this reason, administrators choosing to assess distance education should begin with the concept of separation of student and instructor and then identify the method of delivery which will classify distance education at their specific institution.

While all definitions of distance education incorporate the concept of a separation in time or place between instructor and student, each differs slightly depending on the level of instructor/student interaction or the delivery method used (O'Hanlon, 2001). Definitions used to describe distance education center on the independence of the student in the learning process. They include independent study, an instructional method that constitutes the "liberation of the student from the fetters of school or college routine" (Harry, John, & Keegan, 1993, pg 15). Another term commonly used to show the independence of distance education is self-study, which is a mode of learning where there is openness and self-direction in the learning process and where the student does not consider education as the primary focus of his/her life (Peters, 1993, p.17; O'Hanlon, 2001, p. 1; Kaye, 1981, p. 18; Garrison & Shale, 1990, p. 24; Holmberg, 1977, p. 9; Berg, 2002, p. XVII). Similar in definition to the concept of self-directed study, the term open learning, which emphasizes the freedom and "openness" associated with distance education has become popular in literature emerging from the United Kingdom (Peters, 1993, p.13; Williams, Paprock, & Covington, 1999, p.2).

Distance education is a broad term that can be used to encompass the variety of specific delivery methods used today. It can be defined as a situation where students are not in physical contact with the instructor and are required to learn without the benefit of real-time personal instruction. (Peters, 1993, p. 17; O'Hanlon, 2001, p.1; Kaye, 1981, p. 18; Garrison & Shale, 1990, p. 24; Holmberg, 1997, p. 9) Key characteristics used to define distance education include separation between student and instructor, administration of education by an educational institution, use of various instructional media, communication between student and teacher, and often a focus on non-traditional students (Berg, 2002, p. XVII).

For the purpose of this study the concepts of distance education, self-study, open learning, and other related terms will be combined and referenced as distance education. This combination of terms will provide readers with a consistent distance education terminology and is appropriate because it is the term used by the institutions included in this survey. In the following paragraphs distance education will be further defined through delivery methods in use today. While no one institution is likely to use all of the delivery methods listed below, their description will prove useful to administrators trying to identify what delivery methods are currently used. These terms are broken down into three categories, which include correspondence education, tele-education, and online delivery of distance education. These categories encompass the most widely used distance education delivery methods.

### *Correspondence Education*

Early definitions of the concept of distance education centered on the practice of correspondence education, which became popular in the United States early in the nineteenth century. Correspondence education is defined as an educational delivery method that "uses print to provide instruction, examination, and feedback from students in the learning process" (Harper, 1971, p. 8). While still in use, this method of delivery has declined largely because of the time delay for communication and the relatively low cost of providing instruction through the internet (Harry, John, & Keegan, 1993). Since correspondence study requires a process where the "teacher and learner send letters instead of talking to each other", it is not practical in today's society (Harry, John, & Keegan, 1993, p. 12). Older methods of distance education, such as correspondence study, were considered asynchronous learning environments. In these situations, the "learner and instructor transmit messages one way and receive responses after a lengthy delay" (Williams, Paprock, & Covington, 1999, p. 4).

### *Tele-Education Delivery*

Tele-education is a method of distance education delivery that involves one-way communication through the use of some form of recorded audio or video media (Sumner, 2000). Students watch/listen to audio/video at their convenience and then complete written assignments and return them to the instructor through the mail. This method of distance education became popular during the 1960's and reached its height of popularity during the mid 1980's. Forms of tele-education include the use of radio, television, or VHS/DVD/cassette taped presentations (Garrison & Shale, 1990, p. 45; Chute,

Thompson, & Hancock, 1999, p. 220). These forms of distance education were popular in regions where large populations could be reached through television or radio (Garrison & Shale, 1990). Recent advances in tele-education involve the use of satellite broadcasts and interactive two-way video presentations using advanced tele-communication networks (NCCCS Fact Book, 2006). While these advances allow for a more interactive learning process, they have become less important to the educational system because of advances in online delivery methods.

### *Online Delivery Methods*

Online delivery of distance education involves the use of the internet and computers to deliver education to students. These courses employ settings where "all work is done online" (Finkelstein, Frances, Jewett, & Bernhard, 2000, p. 44). This method became popular during the early 1990's as low cost personal computers and access to the internet became available to the general public (Peters, 1993).

The concept of online delivery of distance education may be classified using a variety of definitions. Two popular terms used in the United States are web-based instruction and online learning, both of which refer to a method of education in which "information (is) presented to the learner, (and) changes the way in which the learner interacts with the information" through the use of the internet (O'Hanlon, 2001, p.3). These definitions help outline the primary advantage of online methods of instruction; synchronous learning environments where two-way, real-time, communication can occur between instructor and student (Williams, Paprock, and Covington, 1999, p.4). Other terms popular in current literature include computer assisted distance education, which

"refers to computer applications that facilitate rather than provide instruction; uses computer conferencing, electronic mail, networks, facsimile, teletex and videotext, and other electronic delivery systems to facilitate learning" (Verduin & Clark, 1991, p. 77). Computer-based training refers to an instructional method that involves "disks, CD-Rom's, laser disks, personal computer training via the bulletin board system, electronic mail, computer-mediated conferencing, audio graphics, and two-way interactive audio/video transmissions" (Williams, Paprock, & Covington, 1999, p. 4). One additional term used by The NCCCS Office is virtual learning, which involves education provided "through web-based technology" (NCCCS Fact Book, 2006, p. 30).

In summary, each of these methods of distance education delivery include the basic definition of separation of student and instructor, but allows for synchronous communication through the use of computers and the internet. By far, online distance education delivery is dominate within the industry and will account for a majority of the costs included in distance education at an individual institution.

## Problem

This study examines the issue of determining and assessing direct costs associated with distance education programs at community colleges in North Carolina. Through this analysis, a model will be developed to aid administrators in assessing these costs and will help them to determine the viability of offering distance education programs/courses at their respective institutions. The following paragraphs outline the current problem facing community colleges in North Carolina and outline the purpose, research questions, and methodology associated with this study.

Distance education serves an important role within the higher education system in this country and specifically within the community college system in North Carolina. While institutions of higher learning serve society through the goal of providing advanced education to citizens, the mission of community colleges is often tailored to the specific needs of a community. Traditionally, community colleges emphasize the concepts of open access, economic development, community enhancement, and even developmental education (Ayers, 2002). These concepts cater to a non-traditional demographic of the student body attending North Carolina Community Colleges. NCCCS students tend to be 63% female, 66% Caucasian, 26% African American, have an average age of approximately thirty years, and typically are seeking a two-year degree (NCCCS Statistical Fact book, 2005). While devoted to the concept of general education, community colleges traditionally customize their programs and offerings to support the needs of their communities. Such institutions are often quick to develop new curricula to support workforce development and to tailor programs to meet industry needs (NCCCS Distance Learning Strategic Plan, 2004). This often means developing courses and programs tailored to a student body that has additional demands from family, friends, and work. These concepts and values may be seen in the NCCCS mission statement:

> "The mission of the North Carolina Community College System is to open the door to high-quality, accessible educational opportunities that minimize barriers to post-secondary education, maximize student success, and improve the lives and well-being of individuals by providing:
>
> - Education, training and retraining for the workforce, including basic skills and literacy education, occupational and pre-baccalaureate programs.
> - Support for economic development through services to and in partnership with business and industry.
> - Services to communities and individuals which improve the quality of life.
>
> (North Carolina Community College System Home Page, 2006)"

The NCCCS mission, as well as the mission of specific community colleges throughout the nation, benefit from distance education's flexibility as an educational tool by allowing faculty to develop courses that can be taken anytime and anywhere by anyone who has the technical capabilities to participate in the course (NCCCS Distance Learning Strategic Plan, 2004).

While the flexibility of distance education as an educational delivery tool makes it valuable in many circumstances, it is often perceived as a cheap method of adding students while reducing facility and personnel costs (Antonucci, 2001). Distance education has been seen as a "cash cow," which can be milked for cost savings or even profits, by administrators (Antonucci, 2001). On the surface the benefits are numerous. Institutions do not have to devote classrooms, equipment, dorms, parking, health services, or numerous other services to distance education students. By providing instruction and content in this manner, the common belief is that institutions will profit, or at least reduce expenses, by offering distance education programs and courses (Antonucci, 2001; Carnevale, 2001).

The benefits and cost savings incurred by offering distance education courses and programs can be significant when compared to the cost of traditional classroom instruction (Carnevale, 2005). However, the distance education method of instruction has given way to new cost elements; those items specifically tied to distance education which are often recurring in nature and may be in addition to the costs already necessary to operate traditional programs and courses. Operating distance education programs is advantageous for an institution because it frees students from the bonds of time and

location. By offering such courses and programs, faculty can attract a new class of student who can not attend during the traditional day schedule or because the distance is too great to travel. Unfortunately, this also means that the institution not only attracts students from anywhere in the world, but it also attracts competition from institutions that cater to these students (Foshay, 2002). In particular, for-profit institutions have grown from a little-recognized segment of the educational system to a legitimate competitor within the mainstream educational environment (Sumner, 2000). This influx of new competitors, both nationally and internationally, is forcing the educational community to re-think the nineteenth-century model of education and is drawing more institutions into distance education, regardless of the costs involved (Kwiek, 2001).

As administrators examine the potential for growth by providing distance education courses and programs, they must also begin to examine the distinct costs associated with this method of instruction so that a true comparison can be made between distance education costs and the expense of traditional educational delivery methods. Current research in the field of distance education shows that this method of delivery is often viable only as an economy of scale where the fixed costs of starting such a program are high, but the cost of adding additional students is relatively low (Carr, 2001; Foshay, 2002). In such circumstances a change in only a few students enrolling can make the difference between a profitable program and one that takes resources from the institution (Carr, 2001). This same principle is seen in other business settings; for example, airline companies often vary pricing schemes to increase the number of passengers because the primary expenses associated with each flight revolve around the plane, pilot, and

maintenance staff; the cost of additional passengers is relatively low and helps offset those fixed costs. In 2001, the National Education Association (NEA) issued a report noting that in most cases online instruction is more expensive than traditional education (Carr, 2001). The National Education Association also reported that there is a significant fixed cost associated with distance education programs and courses. The breakeven point for distance education is quite high. The high cost of computer equipment, software, and other fixed costs can make such programs costly and susceptible to enrollment fluctuations (Carr, 2001). An additional report on the cost of distance education issued by the Sloan Institution in 2001 concluded that many institutions are losing money on distance education (Carr, 2001). For example, administrators at Pace University estimated its losses to distance education in 2000 totaled $47,365 and at University College of the University of Maryland, administrators estimated that a class size of fifteen in the institution's MBA program would cost the institution $22,399 to operate, while a class size of twenty would produce a net profit of $61,838 (Carr, 2001). Additionally, the cost associated with a distance education program's startup costs are estimated between $5,000 and $15,000, not accounting for ongoing costs (Carr, 2001). To make assessment of direct costs even more difficult, the definition of distance education is often blurred as administrators, faculty, and staff take advantage of many of the delivery methods to support traditional instruction as new technology becomes available. This blending of traditional classroom and online delivery methods has made assessment of distance education costs difficult for administrators who are trying to assess the viability of this delivery method.

As administrators examine the cost associated with offering distance education programs and courses, they need to examine three main categories of costs that make distance education financially unprofitable. These include the personnel, technology, and cost of support services (Carr, 2001). Examples of personnel costs include the training of faculty, staff, and students, online tutorials for those involved in distance education, resource centers, and even help lines to answer questions (Chute, Thompson, & Hancock, 1998). Technological costs involve the computers and software necessary to offer online courses, communication lines and equipment, technical support, and teaching resources (Chute, Thompson, & Hancock, 1998). Finally, support services involve all services provided to traditional students being converted to a model suitable for delivery to distance education students. This can include counseling services, learning resources and libraries, resource centers, tutoring, and student activities (Chute, Thompson, & Hancock, 1998).

As the role of education evolves in the United States, college administrators must adapt to increased competition for students and reduced federal, state, and local support as a total portion of higher education budgets (Johnstone, 2001; Johnstone, 2001; Unknown, 2001). This shift is forcing administrators to more closely examine institutional expenditures and adopt business-driven decision-making processes to manage their institutions (Dwyer, 1999).

The need to properly manage college-wide expenditures is of particular importance to community colleges which typically have fewer grant and endowment resources and which are still subject to shrinking budgets, growing enrollments, and

increased competition from for-profit institutions (MGT of America, 2001). As a result of these challenges, the North Carolina General Assembly and the NCCCS have begun to examine the actual costs associated with distance education programs and courses in an effort to determine the true cost and potential benefits of Offering distance education courses (MGT of America, 2001).

While the need to fully asses the cost of distance education at the institutional level is important to the fiscal well-being of an institution, few administrators in the NCCCS can fully explain costs associated with distance education and little literature is available to aid them in assessing the cost associated with its delivery. For that reason, it is imperative that research be conducted on the actual cost of delivering distance education courses and programs. This topic is currently under examination within the NCCCS. The system-wide Distance Learning Strategic Plan for 2003-09 outlines the need to address continued increases in enrollment in distance education programs and courses as well as costs associated with its delivery through specific goals within the Distance Learning Strategic Plan. Of the eight goals developed to guide the System's efforts, two form the basis of the research for this study. First among the goals was the need to "provide financially sustainable hardware and software necessary to operate distance education courses and support services" (NCCCS, 2004, p.10). Of equal importance is the eighth goal which outlines the need to begin developing a cost structure to measure expenses associated with distance education delivery (NCCCS, 2004).

## Purpose

Current literature in the field of distance education identifies the effect of an economy of scale, which involves a high initial cost, but low ongoing expense and requires the enrollment of more students to be cost effective when using distance education as well as the need to properly manage costs associated with online instruction. Based upon a request by the researcher to chief financial officers within the NCCCS for information about whether administrators were analyzing the cost of distance education at their respective institutions, it is evident that few institutions within the NCCCS assess the costs associated with offering distance education courses and programs at the institutional level (Community College Research and Planning Organization, personal e-mail communication, April 18, 2006). As costs rise and available funds continue to become difficult to obtain, it will be imperative for administrators to properly manage distance education expenditures, in order to maximize the benefit to students.

For this reason, this study aims to identify and assess direct costs of distance education at the institutional level within the NCCCS in accordance with the System-level mission of reducing barriers to higher education within North Carolina. Through a quantitative analysis of distance education expenditures, this study provides insight into the cost of each of these expenditures to individual institutions and to the NCCCS as a whole.

## Objectives

Two goals guide this study. The first is to develop a synthesis of current costs related to distance education. Secondly, these costs will serve as the basis to develop a model administrators can use to assess the cost of distance education at their respective institutions. This study will address the following three specific research questions derived from the objectives listed above:

I. What expenditures do administrators consider to be a direct cost of offering distance education in North Carolina community colleges?
II. What proportion of institutional expenditures are attributed to the operation of distance education courses and programs within the North Carolina Community College system?
III. What is the return on investment of offering distance education courses and programs in North Carolina community colleges?

In order to answer these questions, current literature will be reviewed to identify individual elements which constitute a direct cost associated with offering distance education programs. Then the financial system governing North Carolina Community Colleges will be reviewed to develop an outline of the accounting process of the state community colleges. Once these elements have been identified, a survey of all fifty-eight North Carolina community colleges and the system office will be conducted to identify relevant costs associated with distance education. The survey methodology associated with this study will consist of a synthesis of current literature, the development of a pilot survey to be conducted at one institution, the administration of a survey of North

Carolina Community Colleges, and an analysis of that survey to develop a model for administrators to use when assessing distance education costs at their respective institutions.

## Assumptions

Prior to reviewing current literature on the total cost of operating distance education programs and courses, it is important to outline three assumptions and limitations that will guide this research and potentially affect its ability to be generalized to other settings. First, this study will examine institutions within the NCCCS. Since this system is limited to fifty-eight institutions with a centralized governing body and a standardized accounting system, it is prudent to include this entire group to insure consistency in responses from institutions and in application of the model to be created. Second, only online distance education methods will be included in this study. Although the NCCCS recognizes eight distance education delivery methods, internet-based delivery or online instruction constitutes the largest portion of distance education course offerings. During the 2004-05 academic year online instruction accounted for 84% of the instructional methods used system-wide. Any analysis of distance education delivery methods not conducted using online delivery is unlikely to yield viable or reliable information due to the rapid growth of online delivery and the reduction of courses offered using other methods of distance instruction. Such information might limit the ability of administrators to generalize findings to their institution because of the relatively few number of institutions using delivery methods other than those offered online (NCCCS Distance Learning Curriculum Report by College, 2006). Other forms of

distance education including correspondence education, tele-courses, and video course usage have been on a consistent decline during the past decade and will likely be phased out of this educational system within the next one to two decades (National Center for Educational Statistics, 2002). Finally, this study will examine tangible costs related to distance education as they relate to the mission of the community college. It will not address in-tangible costs such as service to community, time savings to students, access to courses and programs, or service to special populations. While these elements will be reviewed to assess any potential direct costs, the goal of this study is to examine monetary costs of distance education. Through an analysis of the direct costs related to distance education programs and courses, this research will serve the academic community by providing a model through which administrators may make informed decisions about the viability of their distance education offerings and allow for an accurate comparison between these programs and traditional educational delivery methods.

## Research

Subsequent chapters in this study will discuss the key elements associated with assessing the cost of distance education programs, present the methodology that will be used to conduct the study, assess the outcomes of the research, and provide recommendations for future research projects. Specifically, Chapter II will outline the mission of the community college and how it relates to distance education goals and objectives from the perspective of financial expenditures. Second, the financial accounting system of the NCCCS will be reviewed to identify the primary budgetary

costs incurred by North Carolina community colleges. Finally, current literature on direct and indirect costs of distance education will be synthesized in order to identify those elements of distance education that constitute direct costs associated with offering such programs and to identify indirect costs which should be considered by administrators when choosing to offer distance education at a specific institution.

Chapter III will outline the methodology used to conduct this study. This chapter will review procedures for administering a survey of North Carolina community colleges, including the development of a survey instrument, administration of a pilot survey, determination of an appropriate population and its sampling, and procedures to conduct the actual survey.

Chapter IV will report the results from the survey of North Carolina community colleges. Information derived from these results will then be condensed into a model through which administrators may assess the direct costs associated with the distance education program at their individual institution. Finally, Chapter V will discuss the impact of this study on the field of distance education and identify future research projects that may be conducted to enhance understanding of the costs of distance education programs at community colleges.

# CHAPTER II

# LITERATURE REVIEW

## Introduction

The purpose of this study is to identify and assess direct costs of distance education at the institutional level within the North Carolina Community College System (NCCCS) in accordance with the System-level mission of reducing barriers to higher education within North Carolina. Through a quantitative analysis of distance education expenditures, this study provides insight into the cost of each of these expenditures to individual institutions and to the NCCCS as a whole. Data provided in this study were used to develop a model through which community college administrators may assess the cost of distance education at their respective institutions in a clear and consistent fashion (Appendix P). It will fill the gap in North Carolina Community College funding research by providing administrators accurate data and a model with which to assess distance education costs.

Chapter II includes eight sections. First among these is a brief history of distance education in the United States which provides background information on the field of distance education. This history is useful in defining growth in distance education and outlining a variety of delivery methods used to provide distance instruction to students. Second, the North Carolina Community College System's financial planning process is reviewed to identify system-wide budgetary practices, terminology, and cost structures.

This information will be used in Chapter III to categorize distance education cost elements and aid administrators in assigning them to specific budget codes. The next three sections review current literature in the field of distance education to identify elements that represent direct, indirect, and intangible costs of offering distance education. The first two will form the foundation for determining distance education costs while an explanation of intangible costs provides a framework for identifying indirect costs. Additionally, current state documents describing known costs associated with distance education in North Carolina will be reviewed and synthesized. Section five provides a review of current information related to the known costs of distance education in North Carolina community colleges which are synthesized to provide an overview of current research being conducted within the state. Section six provides an overview of the community college mission as it relates to corporate pressures placed on administrators during times of limited fiscal freedom. A review of the institutional mission helps emphasize the role of distance education to local communities and provides an understanding of community college objectives related to expenditure of federal, state, and local funds. An analysis of corporate influences on distance education helps identify changing trends in the field caused by the use of business models which are applied to the management of distance education programs in higher education settings. This information will be useful to administrators, because corporate models used to assess the cost of online training programs are prevalent in business-related literature, and they provide a basis for analyzing costs in higher education. Additionally, this section outlines potential positive and negative effects of the application of purely fiscal financial models

when assessing the viability of distance education programs. The final section identifies the gap in current research on community distance education and identifies how this study will fill that void. Together these sections provide a comprehensive overview of the value of distance education to the North Carolina Community College System (NCCCS), the method of financial analysis conducted within the system, and a synthesis of generally accepted cost elements within the field of distance education. They form the foundation for the survey instrument that will be developed to assess current costs associated with distance education programs being offered in North Carolina community colleges.

## History of Distance Education

Historically, distance education has had a limited role in higher education in the United States and subsequently has not garnered much attention from administrators because of its limited financial and enrollment impact. Today administrators find themselves in a rapidly changing situation concerning the cost of offering distance education programs. Those costs have grown substantially as more distance education courses are offered, but the tools being used to provide online courses have not been completely integrated into traditional modes of instruction. This “middle ground” of growth without complete immersion into other aspects of teaching presents a problem for community colleges in North Carolina. How do administrators separate the costs of distance education from those of traditional classes and insure that they are making the most efficient use of resources while meeting their educational mission?

The following paragraphs outline the growth of distance education in higher education in the United States. This brief history shows how distance education is evolving, what technologies administrators should consider as they examine distance education costs, and how new technologies are emerging and increasing the cost of providing distance education.

While the foundations of distance education in the United States may be traced back to the early to mid-1800s, they have not traditionally had a significant impact on the cost of providing education to students (Rumble, 2001). During the past one and a half centuries distance education has evolved into a powerful force in higher education. This growth can be broken down into three generations, each centering on the primary method of instructional delivery. They include correspondence education, the use of radio and video, and the use of computers and the internet, to provide instruction (Sumner, 2000).

Distance education has had a long, if not illustrious history, in the United States. The first recorded form of distance education was correspondence study. This method of educational delivery involved the use of the postal system to mail lectures to students and for instructors to receive assignments; it is heavily based upon the English extension course movement of the 1700s (Gilbert, 2001). Starting as a form of non-credit course offered as early as 1728 in the north eastern United States, correspondence study primarily served as a form of mail order instruction often allowing women access to educational materials and allowing men who could not otherwise afford or attend higher education institutions to study topics such as agriculture (Gilbert, 2001). Correspondence study gained popularity as a way to earn college credit in the early 1840s (Rumble,

2001). Correspondence schools became popular as the United States postal system began to stabilize and because postal rates were relatively inexpensive, 1 penny during that time (Rumble, 2001). This alleviated strain on a limited higher education system and allowed students who could not afford to travel great distances to have some access to higher education. As the United States began to modernize its infrastructure, including mail delivery, railroad systems, and shipping lanes, correspondence study served a small niche in the educational system, reaching individuals across the country as far west as California (Peters, 1993; Garrison & Shale, 1990). The first higher education institution to adopt correspondence study was Illinois Wesleyan University in 1873 (Berg, 2002). By the height of its popularity after World War I, correspondence education was being offered at approximately forty-five institutions nationally and served almost two million students (Berg, 2002). However, by the end of World War II, this method of delivery began to decline due to technological advances (Garrison & Shale, 1990). Today, few correspondence study programs are available in the United States; most have fallen prey to more technologically advanced delivery methods.

Tele-education is a term coined to include all modes of distance education delivery that involve the use of either audio or video not delivered over the internet. This method of delivery evolved after World War II when radio and television became available to large segments of the United States population (Garrison & Shale, 1990). The convenience of delivery, lower cost relative to correspondence study, and a sense of personal interaction made this method of distance education preferable to correspondence study. Over the years, tele-education evolved from simple radio and television broadcasts

to include VHS/DVD delivery, satellite broadcasts, and a variety of other multimedia delivery methods. The key distinction between this method of distance education delivery and others presented in this section is that it involved little use of printed materials, but it still lacked the synchronous communication available through internet-based delivery methods (Garrison & Shale, 1990). This method of delivery reached its peak in the United States during the late 1950s with two-hundred and forty-two television stations broadcasting college-level courses (Garrison & Shale, 1990). However, by the 1980s tele-education had peaked and with the introduction of the personal computer educational institutions began to shift delivery to primitive computer-based instructional methods (Garrison & Shale, 1990; Berg, 2002). Today only a few forms of tele-education survive. Two-way televised instruction is still popular in many universities, and community colleges still occasionally broadcast courses over local cable networks. However, as explained in the following paragraphs, the bulk of distance education is now provided using computers and the internet.

In the early 1990s the United States experienced a boom in technological advances. Two of those advances had a significant impact on distance education. First, with the growth in personal home computers since the mid-1980s came an unparalleled access to information for individuals (Peters, 1993). That access to low-cost PCs combined with access to the internet, which became publicly available in 1995, allowed instructors and students to have two-way communication almost instantly (Sumner, 2000). This combination of factors led to a method of cheap, reliable, two-way

communication and has allowed distance education to grow exponentially during the last decade, becoming integrated into America's higher educational system (Sumner, 2000).

The most significant changes affecting distance education over the past forty years dealt with the application of technological advances in instructional delivery. The use of computers and the internet has allowed instructors to move away from a passive, lecture-driven delivery method to one that is interactive and engaging. Along with those changes, perceptions about distance education have begun to change, and now this delivery method is being sought after (Rumble 2001). These changes have manifested in a variety of ways. The most significant of these changes is the concept of a college or university offering exclusively distance education courses and programs. One such institution, Jones International, became the first distance education institution to become regionally accredited by the North Central Association of Colleges in 1999 (Stallings, 2000; Olsen, 1999). Jones International is now among the largest institutions in the world offering solely distance education programs and courses; others include the University of Phoenix and Open University of the United Kingdom (Foshay, 2002). In addition to the growth in distance education, traditional colleges and universities in the United States are legitimizing this method of instruction. Institutions across the nation, including Duke, Harvard, and Stanford, are now offering distance education courses (Olsen, 1999).

As noted previously, until recently the historical impact of distance education on the higher education system in the United States has been minimal (Garrison & Shale, 1990). However, as society has moved into the technology age, long-held concepts of communication and interaction have changed. With technological advances came

globalization, which has helped tear down walls between nations. International agreements such as the North American Free Trade Agreement (NAFTA) and the formation of the European Union have helped interconnect societies on a scale never before seen (Turpin, Iredale, & Crinnion, 2002). These agreements have opened new doors and have created a demand for knowledge (Wright, 1997). As a result, the educational community has had to rethink the ninetieth-century model of higher education (Kweik, 2001). Not only do educators have to deal with issues related to the differing backgrounds of their students, but they must now compete for those students on a global scale (Kweik, 2001). Administrators have been forced to adapt more of a corporate funding model and are beginning to look at economies of scale when considering what programs and courses to offer (Maasschellein & Simons, 2002).

Changes in technology, communication, and the effects of a global economy have been significant on the United States population. Along with the advantages of the twenty-first century have come dramatic changes in the industries that drive the United States economy. As a result, individuals have to retrain more often than at any other time in history. This demand for new skill sets along with an influx of immigrants is fundamentally altering the demographics of a traditional college student. Differences in educational background and ability, age, sex, and race, along with differing educational goals are changing the population educators must serve. The traditional definition of a college student, (white, young, and full-time) is no longer sufficient. More students are starting their collegiate education later in life or returning to college because of changes in their career. Many come from diverse backgrounds and often are working full-time and

supporting a family (Cohen, 2003). This change in demographics and increased demand for education has forced administrators to examine new delivery methods to alleviate the burden placed on institutional facilities and to develop a more flexible curriculum for students who cannot attend college full-time. These factors have led to a boom in distance education offerings.

Over the past two decades there has been growth in both the delivery of distance education courses and in acceptance of this instructional method by traditional institutions of higher education (Williams, Paprock, & Covington, 1999). Increases in distance education offerings are evidenced in enrollment growth over the past decade. By 2001, only six years after the internet became available to the public, distance education enrollments worldwide were over 10 million students (Gilroy, 2001). During that same year, North Carolina's community colleges enrolled more than 44,000 distance education students (MGT of America, 2001). By 2003 more than one-third of United States higher education institutions offered some form of distance education course and were enrolling over 1.3 million students (NCES, 2002). In 2005, North Carolina community college enrollments in distance education reached 238,697 and generated the full-time equivalent (FTE) of 25,141 full-time students (NCCCS, 2006).

The fundamental shift in distance education technology from an asynchronous environment with an extended delay in time between communication to a synchronous environment has led to a boom in distance education popularity. As administrators begin to examine distance education costs at the institutional level, they need to take into account the cost of varied and possibly duplicated technologies. Having outdated

technology can be a drain on institutional resources and weaken the sustainability of distance education programs.

## NCCCS Financial Procedures

When examining costs related to distance education in North Carolina community colleges, it is important to examine the funding structure for individual institutions and the system as a whole. The following section defines key terms associated with the North Carolina Community College System, provides a brief overview of the funding structure within the system, and outlines issues and challenges associated with college level funding.

North Carolina community colleges operate in a semi-autonomous environment and are governed by a system office located in Raleigh, North Carolina. The primary source of funding is provided by the state, which operates on a fiscal year beginning in July. Each institution is funded based upon the number of full-time equivalency (FTE) students generated. An FTE is defined as 16 hours of coursework taken, multiplied by 16 weeks, and again multiplied by 2 semesters (Briggs, 2006). This formula is applied to the number of courses taken at the individual institutions, and colleges are funded on the previous year's FTE enrollment. This measure is used to determine the college's continuation budget which provides for the daily operations of the institution. Additionally, college presidents may request budget monies for the purposes of expansion, capital improvement, or technology improvements (Briggs, 2006). Facility maintenance budgets are provided by the county in which the institution resides.

Each year, college presidents prepare requests for their individual institutions; and submit those requests to the system-level president, who in turn submits statewide requests to the governor's office and the legislature. These requests are reviewed, and a funding bill is approved. At that point, individual institutions are awarded annual revenues, categorized as either salary, equipment, or supply dollars (Briggs, 2006). Appendix C outlines the annual budget allocations sheet provided to each institution. This information is then used to determine the budget for an individual institution.

Major challenges faced at the state level include increased personnel and operating costs, as well as ever increasing demands for new equipment and technology. Additionally, the cost of starting new programs and competition for students are growing in importance to individual institutions and the system as a whole (Briggs, 2006). These issues will continue to affect funds available for distance education programs and must be considered before resources are devoted to its implementation.

## Direct and Indirect Costs and Savings of Distance Education

As discussed in previous sections of this study, distance education has emerged as an innovative and challenging method of instructional delivery primarily because of the decreasing cost of its delivery. Cost savings in facilities, personnel, and the potential to reach new markets has driven institutions to embrace distance education (King, 2001). Savings promoted by distance education advocates have been appealing to administrators and faculty who have led institutions to embrace distance education in the face of demands for efficiency, shrinking budgets, and the need to educate a growing number of students with fewer resources per student (King, 2001; Shea, 2001). However, building

an academic equivalent to traditional educational programs can prove difficult when costs are hard to calculate and educational delivery methods are numerous (Barron, 2002; Antonucci, 2001).

In general, distance education costs can be grouped into three categories including personnel costs, technology, and support services (Carr, 2001). Costs can be defined as expenses associated with the offering of distance education programs or costs associated with not offering such programs. Additionally, the majority of these expenses affect three main constituencies: students, faculty, and administrators at an institution. Unfortunately, efforts to accurately calculate the actual cost of distance education programs in North Carolina community colleges are hindered by a number of factors. These include the wide variety of accounting and budgetary methods used by individual institutions, the blending of technology into traditional classrooms, and a general lack of consensus concerning what elements constitute the cost of distance education. The following sections outline costs, as defined in current literature, associated with distance education delivery. They are divided into two categories; direct and indirect costs. Direct costs are defined, for this study, as those elements that have a direct financial link to the delivery of distance education at an institution. Indirect costs are defined as those elements, such as increased dropouts, that are not directly tied to the delivery of distance education, but may constitute savings or expenses to the institution as a result of its use.

### *Direct Costs*

As stated previously, direct costs of distance education are specifically connected to the cost of distance education courses and programs. These costs can be assigned to

one of four specific categories. These categories include equipment costs, personnel costs, the cost of providing student services to individuals participating in distance education programs, and the cost of administering distance education courses and programs. The following section outlines direct costs, as defined in current literature, associated with each of these major categories.

*Equipment Costs*

Among the most clearly defined costs of offering distance education are expenses associated with equipment, software, and telecommunications necessary to provide services to students. While hardware and software costs continue to drop at a rapid pace, they still constitute a significant portion of the cost of distance education. For example, initial startup costs associated with distance education courses and programs are relatively high (Moore, 1993; Gross, Gross, & Pirkl, 1998). Computers, servers, networking technology, computer programs, training, support services, course data, access to online information, and program development constitute a significant expense. Often startup costs for distance education courses can be as high as $5,000 to $15,000 if no infrastructure has been developed (Moore, 1993; Carr, 2001). If the distance education course incorporates non-internet-based delivery such as video, satellite, broadcast television, or audio, these costs can increase exponentially (Gross, Gross & Pirkl, 1998). Fortunately, after start-up costs have been met, the cost of adding additional students to distance education courses and programs are relatively low (Moore, 1993; Gross, Gross & Pirkl, 1998). Therefore, institutions that offer distance education programs should offer several degrees and courses to offset the initial cost. Adding those additional courses

constitutes a low variable cost in relation to the high fixed cost of start-up (King, 2001; Bates, 2000).

Once hardware and software have been purchased, so the institution can begin offering distance education programs and courses, the majority of equipment costs are stable for three to five years or until upgrades are otherwise necessary. Exceptions to this stability in costs are maintenance and telecommunications expenses. A primary concern for information technology administrators is that software and equipment upgrades can increase maintenance costs. Frequent updates, continued faculty development, technical support services, course design, and training can increase program costs (Wonacott, 2001) Additionally, distance education delivery through telecommunication service providers is often based upon the amount of communication flowing between instructor and student and can be volatile as costs rise and participation in distance education courses increases (Ryan, 2001).

Understanding that the profit-making potential of distance education lies with the ability of an institution to serve many students and profit through an economy of scale, administrators must look at areas where costs are distributed to faculty, staff, and students as the institution benefits from reduced expenses associated with offering distance education courses and programs. An institution can benefit from costs savings associated with not having to add additional support personnel, facilities, or support services (Foshay, 2002; Taylor, 2002). Additionally, the institution may benefit from the efficiency and effectiveness associated with distance education delivery (Dwyer, 1999). The technology required to deliver these courses can be centrally managed and

monitored, so administrators are constantly aware of the resources being used and the activity of employees. Such centralized control allows administrators to more accurately predict future enrollments and costs for the institution (Taylor, 2002). Unfortunately, one result of this centralization of resources and control is that it often requires participants to increase their technological skills and resources, constituting an increased cost to the individual. For example, faculty often need increased support, development tools, equipment to convert lecture materials to electronic format, and access to more powerful computers resources (Finkelstein, Frances, Jewett, & Scholz, 2000; O'Hanlon, 2001; Milheim, 2001). In addition to faculty, students must often upgrade or purchase computers and high speed internet connections in order to participate in distance education courses, and often they have to purchase software programs that would normally be free in college labs (Bates, 2000; Kastinas & Moeck, 2002). Finally, some institutions have begun to assess fees for distance education students in an effort to offset increasing technology costs associated with offering online programs (Finkelstein, Frances, Jewett, & Scholz, 2000). These fees, while small, add to the costs of this method of instruction.

One final cost savings associated with distance education is the reduction in facilities necessary to operate such programs. Since the majority of space necessary to operate distance education programs and courses is located in the area necessary to house computer equipment, administrators can save money by not having to expand other facilities (Taylor, 2002). While similar support services must be provided to distance education students, administrators do not have to devote additional funds to the

construction of classrooms, residence halls, parking, health service centers, support facilities, or other structures (Shea, Motiwalla, & Lewis, 2001; Milheim, 2001; Antonucci, 2001; Carnevale, 2001; Foshay, 2002; Taylor, 2002).

*Personnel*

A second direct cost associated with distance education is the cost of training and employing personnel to operate and maintain the distance education environment. Paying faculty to develop distance education courses is often expensive because of the time necessary to convert courses taught in a traditional lecture or lab format into one that can be transmitted to students anywhere in the world (Finkelstein, Frances, Jewett, & Scholz, 2000). Course development costs would make teaching some courses cost prohibitive, and as a result, faculty are rarely fully compensated for distance education development. Typically, such compensation might come in the form of a course reduction or released time for faculty who are willing to develop distance education courses (Berg, 2002; Finkelstein, Frances, Jewett, & Scholz, 2000; Bates, 2000). In addition to the cost associated with distance education course development, administrators must deal with the cost of paying faculty to teach the courses. Since distance education is often used as a method to save resources, some administrators choose to also use it as a method to reduce salary costs. The primary method to achieve this goal is to employ adjuncts or instructional assistants to manage distance education courses. (Berg, 2002; Shea, Motiwalla, & Lewis, 2001; Milheim, 2001). While these practices are not beneficial to the faculty and can lower the quality of instruction, they are often seen as a savings for the institution and are used to improve the fiscal situation at a college or university.

In those instances where full-time faculty are called upon to develop and/or teach distance education courses, several costs can be traced to their efforts. The most noted and direct cost associated with faculty development is the cost of training faculty members in the use of the technological tools and delivery methods associated with distance education. This initial training is imperative, because a poorly designed course with insufficient focus on student needs can lead to high attrition rates and failure for the course or even for the program (Cone, 2001). Teaching and learning in the distance education environment differs from that in a traditional classroom setting. Distance education requires an independent mentality and a desire to learn. Traditionally, much of what students learn is done through indirect means (Woodley, Tanewski, & De Lange, 2001). Individuals hear a student talking in class, their professor diverges from the book, or they read information in other resources. Distance education only provides for a limited number of interactions using the material at hand (Beard & Harper, 2001). If a student has trouble assimilating the information or using technology to access it, he/she is immediately at a disadvantage in the distance education environment. To combat this issue, faculty must train in the technological products necessary to properly develop and teach distance education courses (Finkelstein, Frances, Jewett, & Scholz, 2000). Along with the new environment of distance education comes new methods for conveying information (King, 2001; Carswell, Thomas, Petre, Price & Richards, 2000). Faculty must rethink teaching styles and develop new skills that fit with the distance environment (Bates, 2000; Peterman, 2000). Anyone who believes that distance education simply means putting assignments into a digital format and placing them online is in for a

surprise. Distance education is a twenty-four hour a day classroom where students enter and leave at varying intervals and where they demand constant attention and need to be monitored for stress, lack of comprehension, or likelihood to withdraw from the class (Young, 2002). In order to operate in this environment faculty must be properly trained and supported to insure success for the students (Wonacott, 2001; Hobbs, 2002). To achieve this goal, faculty must be given released time or another form of compensation along with proper training to motivate them to participate in distance education courses and programs (Berg, 2002).

*Student Services*

In addition to the need to properly instruct students who participate in distance education courses and programs, administrators must concern themselves with the need for support services. In general, and often prescribed by regional accrediting agencies, students should be able to receive the same support services and have access to comparable resources available to their traditional counterparts (SACS, 2006). These services fall into one of two categories. First are services necessary to make distance education student's experiences comparable to those of their traditional counterparts. Institutions where distance education is provided must make such support services available at a distance. These services include registration, financial aid access, advising, transfer credit, library resources, and counseling (Milheim, 2001). Services exempted would include access to athletics and medical services; these would usually require students to come to the campus (Milheim, 2001). The second type of service necessary to distance education students includes online tutorials for taking distance education

courses, help centers, online research assistance, resources centers, and technical support (Chute, Thompson, & Hancock, 1999). These resources are necessary to aid student in completing distance education courses.

*Administration of Distance Education*

When assessing the cost and profitability of distance education courses and programs, administrators must examine a wide variety of issues and intangible elements to determine whether it is a fiscally sound opportunity to pursue. One of the most important and difficult elements to asses is the ability to reach new markets, attract new students, and aid those students in successfully completing their educational goals. The following section examines major issues associated with these efforts and the potential financial impact for the institution.

One of the most important impacts of distance education, from an institutional perspective, is the ability to reach students who would not normally enroll at the institution either because they were not in close proximity or could not devote the required time to attend traditional courses (Dwyer, 1999). It also propels the institution into a global market for students that, if properly managed, can increase enrollments, increase exposure for the institution, and add additional resource streams (Dwyer, 1999; Carneval, 2001; King, 2001).

Along with the ability to reach new students comes the necessity to assist them in their educational pursuits. Faculty and administrators face new challenges when dealing with distance education students and must be prepared to meet those challenges. Factors include the amount of attention required for each student and the resulting instructor to

student ratio, costs of providing alternate methods of instruction, and the attrition rate in distance education courses.

Increasing class size is sometimes seen as a method of increasing profitability of distance education courses. Using lower paid adjuncts or lab assistants to support instruction by attending to the details of a distance education course can increase its profitability. Also, simply increasing the faculty-to-student ratio because of the lack of physical limitations can increase profitability. These measures lower the human resources cost per course (Berg, 2002; Shea, Motiwalla, & Lewis, 2001; Milheim, 2001). As the cost of human resources is the most prevalent expense in higher education, it is naturally the target of cost reductions. Faculty might be compensated for increased faculty-to-student ratios by receiving a course reduction or another form of released time; rarely are they compensated financially (Berg, 2002; Finkelstein, Frances, Jewett, & Scholz, 2000; Bates, 2000).

Another cost of distance education, as previously defined in the review of the history of this method of instruction, relates to the medium used to conduct the course. When administrators are assessing the direct costs of distance education, they must track the elements associated with its delivery. More specifically, they should ask themselves what items must be purchased in order to get information to and from the students. Outlined in previous sections, these costs can be categorized along with the method of instruction. They include correspondence education, audio/video presentation, teleconferencing, virtual classrooms, and computer-based distance education (Harper, 1971; Sumner, 2000; Dwyer, 1999; Garrison & Shale, 1990; Deal, 2002). In order to

properly assess the cost of distance education, administrators must track these costs throughout the entire cycle of the course.

Finally, the concept of attrition must be examined when considering the profitability of distance education courses and programs. Participating in distance education courses is more demanding than being in traditional classrooms. Frequent contact with students is essential to the success of the course (Carr, 2000; O'Hanlon, 20001; Antonucci, 2001). Failure to engage students can lead to higher than average attrition rates. Dropout rates for distance education courses are between 40% and 50%, rising to as much as 80% in some fields (Carr, 2000). Such high attrition results in lost potential revenue from students who could have otherwise succeeded in traditional courses and lost future revenue from those who will not continue their education.

*Closing Remarks*

While direct costs are easier to identify and track for distance education courses and programs, they are becoming increasingly difficult to differentiate from technological costs associated with traditional course delivery. As a result, administrators will often have to assign a proportion of those costs to distance education and a proportion to traditional courses based upon enrollment in each type of class. Chapter III outlines procedures for assigning proportions of each cost to distance education.

### *Indirect Costs*

Indirect costs, as defined above, constitute expenses to the institution from offering distance education or from failing to offer it. The following section outlines indirect costs associated with distance education as defined in current literature. These

elements relate to growth prospects for the institution and indirect equipment and technological expenses. Such costs are difficult or impossible to accurately calculate, and administrators may have to depend on estimates or incomplete data to assess their impact.

*Institutional Growth*

One of the most compelling reasons to start distance education programs is the ability to tap into new markets and attract students who would not otherwise attend the institution (Taylor, 2002; Carr, 2000). While enrollment is easy to track at some institutions, it presents a challenge for North Carolina community colleges. Often students who enroll in distance education courses at the community college level are doing so because they cannot attend the institution at a certain time, not because they live far away. This means that simply tracking enrollments by location is often not effective for a community college. Administrators at such institutions must rely on surveys or admissions data to assess the increased market saturation resulting from distance education programs. Other, indirect costs/profits relate to lost/gained market share, an increased ability to collaborate with institutions around the world to grow programs, more access to corporate training and research, and access to a global economy. These elements, while difficult to accurately assess, increase the marketability of distance education programs and offer the potential to increase institutional enrollments.

In addition to the ability to reach new markets, distance education programs and courses aid faculty and staff at smaller institutions in reaching their constituents by converting low enrollment programs to a distance education format in an effort to increase enrollment (Armstrong, 2000). In such circumstances, smaller institutions

require fewer course offerings to reach the populace. Faculty may only have the resources to offer one section of a particular course. In this situation, any student who cannot fit that course into his/her schedule, for whatever reason, is denied the opportunity to take the course. By using a distance education format, the obstructions of time and course conflict are removed, thereby increasing potential enrollments (Armstrong, 2000). Such methods are also used to combine multiple sections of the same course when each has particularly low enrollments; thereby reducing the overall cost of offering a particular class.

Problems resulting from the implementation of distance education courses or programs can also be unpredictable and difficult to asses. Among these problems, cannibalization of other programs/courses and high dropout rates were mentioned in current literature as indirect and potentially direct costs of offering distance education. Cannibalization of other courses or programs is difficult to accurately calculate and can have a significant impact on the viability of both distance and traditional programs. In such scenarios, the decision is made to offer distance education courses, which in turn attracts some new students and some students who would otherwise attend traditional classes. If not properly managed, such circumstances can lower the student/instructor ratio to a point where overall costs increase (Antonucci, 2001). The second, and more concerning issue, relates to student dropout from distance education courses. Along with the freedoms available in a distance education environment comes an increased need for independence and responsibility on the part of the student. Students who procrastinate find out too late that they are behind in the course and cannot make-up the work in the

time allotted (O'Hanlon, 2001). In such instances, students often find that they have missed the point to withdraw from a course or simply give-up and receive a failing grade. According to a 2001 study on dropout, the national rate of non-completion for distance education students stands at approximately 50% (O'Hanlon, 2001). Depending on the type of institution with which this figure is compared; distance education student dropout rates are higher on average than those of traditional students. To compound the problem, dropouts are difficult to assess, because they disappear into cyberspace and little literature exists on the demographic make-up of distance education students.

*Technology and Equipment*

As discussed previously, the equipment and resources necessary to offer courses and programs present a large initial and ongoing cost of distance education. While these costs are often easily tracked, they continually blend into the traditional learning environment by their use in conventional classroom settings. This blending of uses between both traditional and distance offerings makes it difficult to truly define the cost of a distance education delivery tool. Therefore, equipment and resource costs often constitute both a direct and an indirect cost to the institution. Among these costs, three stand out in the literature as significant, including the variety of teaching and learning styles available in distance education environments, technical problems, and access to distance education resources.

One of the most challenging aspects of offering distance education courses and programs is that along with new technology comes the need for new methods of conveying information to students (King, 2001; Carswell, Thomas, Petre, Price, &

Richards, 2000). This causes faculty to rethink their teaching styles and develop new skills that fit within the distance education environment (Bates, 2000; Peterman, 2000; Wilson, 2002). While many of the developmental costs associated with new instructional methods can be tracked, the cost in lost time and additional preparation required to teach distance education courses translates into a loss of productivity that is hard to accurately track.

One of the more difficult cost/profitability elements to track in the distance education environment is enrollment. The most cited benefit of distance education noted in current literature is the increased flexibility of scheduling available to students. Typically, distance education courses allow students to work at their own pace, start and stop classes as they wish, and work in a comfortable environment (Williams, Paprock, & Covington, 1999; Woodley, 2004; Tricker, Rangecroft, & Long, 2001; Barron, Brette, & Barclay, 2002). Having access twenty-four hours a day, seven-days a week is tempting to students who have busy schedules and who would not otherwise be able to attend higher education institutions (Milheim, 2001). Unfortunately, from a budgetary standpoint, this increase in profit available through an increased market also allows students who would otherwise take traditional courses to have more freedom in their schedules by taking distance education courses.

Other cost elements indirectly related to distance education include an increase in the time necessary to communicate with students. Anonymity provided by distance education has been noted to increase communication between instructors and students who are otherwise shy or unwilling to ask questions in class (Carswell, Thomas, Petre,

Price, & Richards, 2000). This increase in communication may indirectly benefit the institution by increasing retention and increasing costs because of the time and equipment necessary to interact with more students. Another cost savings that may be attributed to distance education is an increased standardization of course delivery that naturally occurs when developing distance education content (Taylor, 2002; Finkelstein, Frances, Jewett, & Scholz, 2000). Putting courses in a distance education format allows faculty and administrators to convert courses with low enrollments into a format not restricted to a specific time or day, thereby helping to increase potential enrollments and offer courses that would not otherwise be available as often (Armstrong, 2000).

The need to improve and increase communication with distance education students has led to a number of direct costs associated with course delivery; however, some of those costs are inherently difficult to track and are fading into the background because they are also used in traditional course delivery. The distance education environment has spawned a variety of content delivery methods; many of these are finding their way into traditional classes as course supplements (Taylor, 2002). While students note an increased preference for the use of these tools in traditional classes, both they and the faculty member need to be trained or oriented to the technology being used (Carswell, Thomas, Petre, Price, & Richards, 2000; Moore, 1993). This creates a cost element that varies based upon one's technical skill and background, making it a difficult item to track.

A final indirect cost of distance education is student access to college resources. As discussed in previous sections, there are a number of direct costs associated with the

delivery of online instruction, student support services, and access to research materials. However, the cost to the student accessing these services is often difficult to track. Essentially, the cost of computers, internet access, and commuting increase the cost to students and reduce their use of support services (Antonucci, 2001).

### *Intangible Costs*

Intangible costs are elements that cannot be tied to a budget line item, but may affect the profitability of programs. This section outlines sociological benefits/detriments of offering such programs in order to provide administrators with an appreciation of the impact of offering distance education at the institution.

One reason distance education is attractive to community college administrators in North Carolina is the ability to adapt this delivery method to a changing environment. Part of many community college mission statements, which will be discussed in more detail in following sections, include the goal of adapting to community needs. Essentially, a North Carolina community college must have the ability for faculty and staff to modify or change programs depending on the needs of the community. Distance education programs and courses are more easily modified than traditional ones and can be quickly adapted to changing requirements (Peterman, 2000).

Research on faculty and student perceptions of distance education has yielded interesting results concerning the pace of most distance education courses. Faculty report they prefer the ability to teach at the students' pace rather than having to adapt teaching to a standardized timeline and to the middle of the learning curve (Taylor, 2002). Students note that the ability to work on homework and lectures on their own schedule is

preferable to attending courses at a set time (Taylor, 2002). While this information may not be a direct cost of offering distance education programs, it does accentuate student/faculty preference, and increased satisfaction relates to continued enrollment in the course and program.

*Sociological Benefits/Detriments*

Distance education programs and courses continue to grow exponentially and the intangible benefits and detriments of its implementation that indirectly affect the financial impact of this delivery method are increasingly important. The following paragraph outlines the sociological costs of distance education as defined in current literature. These elements include the type of student enrolled in distance education courses, students' ability and commitment to their education, and effects of the distance environment on student learning and course participation.

One reason for the growth of distance education in this country is that it is attractive to a segment of the population who would not otherwise be able to attend an institution of higher education. While distance education is appealing to some traditional full-time students attending college, it is more attractive to individuals who are either employed full-time or who have families. This translates to a benefit of offering distance education programs and courses. These students, as a whole, tend to be older and more mature than their counterparts in traditional classroom settings. Faculty and students participating in distance education courses note that the distance education atmosphere is often more professional and that students seem to be invested in their education (Tricker, Rangecroft, & Long, 2001; Milheim, 2001). These facts may be evidenced through

attrition rates in distance education courses. Those students who are not committed to their coursework tend to fall behind quickly and remove themselves from the class, allowing faculty to focus their efforts on students who are truly interested in learning (Milheim, 2001).

Along with student effort, student ability is a major determinate of success in distance education courses, especially when it relates to the technical ability necessary to complete distance education courses taught through the internet. Unfortunately, the changing environment and increasing number of distance education courses has led to a lack of proper orientation materials that would allow students to assess their abilities before entering the distance education environment. When courses are being developed, faculty often do not account for the background of the students taking the course. Consideration of a student's goals, social and educational background, incentives, and motivations is essential to course retention (Berg, 2002). In a comprehensive study on instructional models related to distance education retention, Francis Dwyer discussed the importance of a student's prior knowledge and experience as essential variables for future learning (Dwyer, 1999). Such knowledge is important in a distance education environment due to the independent nature of the coursework. Dwyer notes that students who are only interested in retaining enough subject matter to pass a course are not motivated to thrive in the distance environment (Dwyer, 1999). In order to be successful, such students must immerse themselves in the subject matter and understand the purpose of the subject and its importance to their education (Dwyer, 1999). Elements affecting student ability to complete coursework include family background, individual attributes,

and pre-college schooling. Additionally, goal commitment and institutional commitment are elements crucial to success (Woodley, Tanewski, & DeLange, 2001). A lack of exposure to technology and comfort using computers and the internet are detriments to success in modern distance education environments (Milheim, 2001). Unfortunately for students, having spent most of their lives in a classroom absorbing facts or pieces of information, many panic at the freedom and responsibility associated with distance education (Li, 2003). This translates into increased dropouts and a net reduction in revenue for the institution.

One intangible cost and income-generating element associated with the rise in distance education relates to the time required to complete a course. The most cited benefit, and the reason students choose it as a method of instruction, is the flexibility of scheduling distance education courses and the perceived reduction in time necessary to complete such courses (Williams, Paprock, & Covington, 1999; Woodley, 2004; Tricker, Rangecroft, & Long, 2001; Barron, Brette, & Barclay, 2002). Other commonly cited reasons for taking distance education courses include a reduction in travel time, flexibility in scheduling, and independence (Sullivan, 2001; Beard & Harper, 2001). Having access to courses twenty-four hours a day, seven days a week, also allows students to work any time and as long as they wish in a course (Milheim, 2001). This flexibility is an incentive for non-traditional students to pursue advanced degrees and increases enrollments at an institution (Milheim, 2001; Peterman, 2000). A common perception by students entering distance education courses is that they have to spend less time in the classroom; and while this perception has led to an increase in distance

education enrollments, most distance education courses require more time than their traditional counterparts (Beard & Harper, 2002).

The perception of a savings in time is attractive to a wide variety of students and lends itself to the greater concept of education at a convenience, an idea that is attractive to non-traditional students and educators who want to grow enrollments by targeting individuals who do not believe they have the time to devote to achieving an advanced degree. The freedom to attend class and complete coursework at one's convenience is the most cited reason for participating in distance education courses and programs. (Williams, Paprock, & Covington, 1999; Woodley, 2004; Tricker, Rangecroft, & Long, 2001; Barron, Brette, & Barclay, 2002). Common benefits cited by distance education students include the feeling of freedom associated with the distance education environment and the ability to interact with older and more mature students who are committed to their education (Milheim, 2001).

While the distance education environment does allow for more freedom and independence than traditional methods of instruction, this freedom has a number of side effects including isolation, loss of personal connection, and a lack of communication that can cause students to withdraw from courses, leading to a loss of revenue for the institution. These issues contribute to the high attrition rate previously noted for distance education courses and represent a loss in future income for the institution if not properly addressed.

The first myth that is dispelled as students enter a distance education course is that it is easier, because of the lack of specified time commitments, than traditional courses.

The fact remains that it takes a significant amount of effort for faculty to prepare coursework for online instruction and additional work for students to consume that information (Finkelstein, Frances, Jewett, & Scholz, 2000). Unfortunately, this information must often be assimilated and interpreted by the student. The lack of interaction limits the variety of ways information may be conveyed and causes students to have to work in isolation, often without the support structures available in traditional classroom settings. Students who enter the distance education environment for the first time often express excitement over the delivery method, but soon find that they are responsible for an increased portion of learning and must accomplish tasks individually; as a result, many suffer from a sense of isolation and lack of guidance in the course (Li, 2003). Additionally, they fail to integrate themselves into the academic community and eventually dropout, citing difficult or confusing coursework as the most common reason (Woodley, Tanewski, & De Lange, 2001). It is this sense of isolation and lack of face-to-face interaction with instructors and classmates that results in a higher-than-average dropout rate for distance education courses and a higher cost to the institution (Rumble, 2001; Beard, Harper, 2002; Perreault, Waldman, Alesander, & Zhao, 2002). In his 2001 study, Rumble found that the sense of isolation experienced by some distance education students leads to a feeling that the technological and often canned methods of instruction associated with its delivery lead to a dehumanization of the educational experience (Rumble, 2001). As a result, students who are not comfortable working independently will eventually withdraw from the course (Woodley, 2004; Delahoussaye, Zemeke, & Miller, 2001; Zheng & Smaldino, 2003; O'Hanlon, 20001; Moore, 1993; Woodley,

DeLange, & Tanewski, 2001; Carswell, Thomas, Petre, Price, & Richards, 2000; Heerema & Rogers, 2001).

Due to the isolated nature of distance education it is important for instructors to develop courses, presentations, and assignments with an understanding of the students' goals, social and educational backgrounds, incentives, and motivations for participating in the distance education environment (Berg, 2002). For example, students who tend to be reserved in a class may find the independence and anonymity associated with distance education refreshing or preferable to the traditional environment (Sullivan, 2001).

While each of the issues noted in this section are difficult to quantify when assessing the cost of distance education, they have a definite impact on profitability. The loss of students who dropout and the resulting potential future earning or losses can quickly add up for an institution and affect its reputation. Distance education course and program profitability are so closely tied to enrollments that institutions should be sure not to sacrifice initial assessment of the target audience for short-term savings in time and effort. Knowing the socio-economic background of students is closely tied to their success and the success of distance education programs.

*Quality*

While the growth of distance education programs and courses has been extensive in the United States, several barriers still bring its value and acceptance as a mode of instructional delivery into question. First among these issues is the acceptance of a degree offered online or through some other form of distance education. Although difficult to calculate, degree reputation has a significant impact on what a student has spent on

his/her education and on potential future earnings as a result of obtaining a degree. While the field of distance education is gaining in popularity and reputation, degrees from certain institutions are not considered acceptable or valuable in the workplace (Rumble, 2001). In particular, degrees from non-accredited or for-profit institutions have little value when compared to degrees obtained from traditional institutions.

The concept of academic integrity also raises concerns about distance education courses and programs. When teaching at a distance, there is little guarantee that the student enrolled in a particular course is the one submitting assignments (Deal, 2002). Additionally, the enforcement of academic integrity, an issue that already consumes much time for a faculty member, is increasingly challenging in a distance education environment. Questions about intellectual property rights, plagiarism, and outright forgery now consume faculty members' thoughts as they teach distance education courses (Finkelstein, Frances, Jewett, & Scholz, 2000; Bates, 2000; Milheim, 2001; Gross, Gross, & Pirkl, 1998). Unfortunately, in a distance environment, it is difficult to know whether the work submitted by a student contains his/her original thoughts or whether the enrolled student even did the work.

Along with new technology comes the need for new methods to convey information (King, 2001; Carswell, Thomas, Petre, Price, & Richards, 2000). Faculty must rethink their teaching styles and develop new skills that fit with the distance education environment (Bates, 2000; Peterman, 2000). This creates a cost in lost time and additional preparation required to conduct distance education, but also presents an opportunity to learn new styles of instruction and to enhance teaching. Potential benefits

that can result in increased enrollments are often present in a distance education environment. As a result of the instructional styles utilized in most distance education courses, students have an increased freedom in their coursework and freedom to work at their own pace, rather than at the pace of the rest of the class (Williams, Paprock, & Covington, 1999; Woodley, 2004; Tricker, Rangecroft, & Long, 2001; Barron, Brette, & Barclay, 2002). Additionally, this form of interaction allows for twenty-four hours a day, seven-days a week access to coursework and the instructor (Milheim, 2001). Unfortunately, increased access and the open environment often lead to situations where students simply remove themselves from contact with the instructor, thereby increasing the likelihood of dropout. One contrast to this statement is that students who are shy or unwilling to speak in a traditional class setting tend to be more open in distance education courses where they can use message boards and e-mail to communicate (Carswell, Thomas, Petre, Price, & Richards, 2000; Moore, 1993). Additional costs affecting teaching and learning in distance education environments relate to the amount of effort required to compose notes or lecture materials for distance environments. The time required for faculty and students to prepare for distance education courses is greater than that for traditional classes where a portion of communication can be done orally (Finkelstein, Frances, Jewett, & Scholz, 2000; Wilson, 2002).

Along with the increased need for technical skill, varying technical ability of participants, and the variety of delivery methods available raises an increased need for technical support, students often enter the distance education environment without the proper technical skills necessary to complete a course. Being unfamiliar with the time

requirements, communication methods, research skills, or basic computer skills can lead to technical difficulties (Carswell, Thomas, Petre, Price, & Richards, 2000; Woodley, 2004). As recently as 2001, national dropout rates for distance education courses averaged approximately 50% (O'Hanlon, 2001). To reduce this high attrition rate, faculty and staff must create orientation and training programs to increase the skill sets of their students; so they become more comfortable with the intricacies of distance education (Berg, 2002).

## Distance Education Cost Elements Statewide

In addition to the cost elements defined in the literature available nationally, North Carolina Community College System Office administrators have defined cost elements of specific importance to the fifty-eight colleges within the state. Currently, there are three primary forms of distance education recognized and supported within the North Carolina Community College System. These include internet (online) courses, tele-courses (Broadcast technologies), and two-way video courses offered through the North Carolina Information Highway (NCCCS System Fact Book, 2006).

Supporting these delivery methods has required a significant amount of resources and support from both the community college system level and from individual institutions. The primary contact at the state level is the Associate Vice President for Learning Technology at the North Carolina Community College System Office. the Associate Vice President leads efforts to modernize the state's distance education infrastructure and promote new technologies to insure that the state is at the forefront of future innovations. In an interview, he identified the following elements as critical to the

assessment of distance education cost at the institutional level. First is the amount of data sent over institutional communication pathways. Defined as broadband data, the Associate Vice President noted that most new and innovative communications require a large amount of bandwidth to deliver. Second is the cost of collaborative tools necessary to deliver course content. These may include video services, course delivery tools, and collaboration tools. Finally, the Associate Vice President emphasized the need for adequate support services, as defined previously in the literature, for successful course completion. These three broad elements should cover the major costs of distance education delivery and should be examined as administrators and faculty examine the use of distance education at their respective institutions (Randall, 2006).

The relative importance of assessing the cost of distance education in the North Carolina Community College System can be evidenced through current enrollments. During the 2005-06 academic year, statewide curriculum enrollments (as noted in NCCCS Annual Table #1) totaled 268,433 students (Appendix A). The specific breakdown of enrollment by distance education delivery method, as noted in the NCCCS Distance education enrollments for the 2004-05 academic year, is as follows: Students participating in at least one internet-based course totaled 138,565; 13,595 students participated in tele-courses; 3,862 participated in tele-web courses; 8,681 participated in two-way video delivery; 16,221 participated in at least one hybrid course; and 54,327 participated in traditional courses that were supported by at least one form of distance education delivery (NCCCS Strategic Plan for Distance Learning, 2004). Institutional level FTE generated for the same timeframe is shown in Appendix B. This level of

participation in distance education in North Carolina community colleges underlines the need to properly assess and manage the fiscal costs associated with its delivery. Failure to recognize the importance and cost of distance education will affect enrollment at the institutional level, and failure to properly allocate resources will adversely affect student learning in today's global environment.

## Fiscal Effects of Distance Education on Community College Mission

Previous sections of this chapter identified direct and indirect costs of distance education and reviewed fiscal policies of the North Carolina Community College System. That information serves as the basis for Chapter III, which outlines this study and provides the foundation for identifying elements that constitute costs associated with distance education in a North Carolina community college.

Before any such study is conducted it is important for an administrator to first consider desired outcomes associated with the application of a fiscal cost-centered model to an educational program. This study relies upon concepts and processes closely related to corporate cost analyses. Prospective analysts should first consider the purpose of the educational programs being studied and the potential negative effects resulting from the cost of an application of a purely corporate model of distance education. To that end, the following sections outline the mission of the community college in higher education and examine potential negative effects of the application of corporate models in an educational setting. This information should assist administrators studying distance education costs by providing background information about the role of the community

college in educating students and identifying possible pitfalls when analyzing the benefits of programs and courses.

When considering the economic viability of a distance education program, it is important to first examine the mission/purpose of the institution and the role it serves in the community. While each higher education institution has its own mission statement tied to its role in its community and its value to constituents, most have a common theme that relates to core educational processes.

Traditionally, the mission of higher education institutions has been to promote individual and societal growth through the transmission of a core set of values. These values are providing students with the skills to become positive contributors to their society and preparing individuals for a career after finishing their education. Additionally, many institutions, especially universities, employ faculty who conduct scholarly research for the betterment of society and for the benefit of their community. (Cohen, 1998). These characteristics have been shielded, at least in part, from governmental and corporate influences. The term academic freedom has been at the heart of institutions' missions for as long as colleges and universities have operated in this country and should be considered when examining fiscal issues associated with offering programs and services (Gaff, 1997).

While most community college mission statements typically embody the elements listed above, certain differences are present, especially with respect to four-year institutions. In particular, little scholarly research is done at the community college level; and therefore, it represents an inconsequential drain on resources. Additionally,

community college programs are often tailored to a specific service area and are tied more closely to the needs of the community. Community colleges typically emphasize open access to programs, economic development, community enhancement, and developmental education (Ayers, 2002). While devoted to the concept of general education, community colleges typically provide customized programs to support the needs of workforce development. These concepts of community enhancement and job training are often not strictly profitable to the institution, and for that reason administrators must examine the potential benefits to the community when considering the profitability of a program.

The community college emphasis on customizing educational programs to suit community needs allows for a great deal of flexibility in program development and is beneficial to students pursuing specific skills to enhance their employability. This part of the community college mission allows for a particularly beneficial fit between service to students and distance education course delivery. Distance education courses tend to be flexible and can be easily customized to fit individual needs. Subsequently, community colleges tend to create close partnerships with business to offer these programs and generate additional enrollment for college programs.

Such close relationships, however, tend to result in a more corporate atmosphere where industry guides program development either directly or indirectly, and institutions become reliant on the ever-increasing need to generate more enrollment. Some of the most damaging effects that can occur when administrators begin making programmatic decisions based upon fiscal concerns are a downsizing of humanities and the arts, lost

focus on student needs, and an increasing emphasis on higher education as a mode of career advancement rather than an emphasis on pursuit of knowledge (Giroux, 2003; Monson, 1967; Rahmani, 2004). The negative effects of such perceptions may be seen in administrators who view their institutions as corporations of learning and treat education as a machine that produces students ready for the workforce instead of better citizens.

While such financial pressures are not limited to any specific type of institution or educational delivery method, distance education is often touted as a method to alleviate financial pressure on an institution (Carr, 2001). As competition for federal and state dollars (particularly in the form of student financial aid) increases, administrators are attempting to find ways to compete by increasing enrollments while maintaining or reducing costs. As a result, some administrators are applying corporate models of management to higher education institutions in an effort to react quickly to a changing environment (Levin, 2001).

In addition to rising costs, shrinking support from state and federal governments, and competition on a global scale, institutions must now adapt to a larger non-traditional base of students entering college, competition from for-profit institutions, and increasing demand for higher education. This combination of factors has made the business of higher education more competitive and is forcing administrators to adapt a corporate culture (Giroux, 2003; Miller, 2003; Rahmani, 2004). Adoption of corporate management models can indeed be beneficial to an institution and increase the efficiency of program delivery; but if faculty, staff, and administrators are not careful, it can be detrimental to the institution. Often with the implementation of corporate processes comes the potential

for centralized management and the loss of traditional forms of democratic leadership common in institutions of higher education. Power can shift from faculty to administration. This can remove those making critical programmatic decisions from daily contact with constituents (Giroux, 2003; Miller, 2003; Rahmani, 2004; Berg, 2002).

The effect of corporate influences on distance education became evident in the mid-1980s when businesses began to use distance education to reduce travel costs associated with corporate training programs. The implementation of such programs allowed corporate managers to tailor employee training to their needs, often eliminating any semblance of liberal arts training. In a rush to adapt, community colleges also began to customize training to business needs (Berg, 2002). The effects of such a transition can still be debated.

The role of incorporating corporate managerial and fiscal policies into educational institutions may be primarily illustrated in two modes of thought. First, the application of such models allows an institution to be more nimble with respect to changing market demands and increasing competition in an increasingly global environment (Berg, 2002; Levin, 2001). This can be particularly beneficial to institutions that have limited resources or a large number of competitors. The second mode of thought is more cautious and is shared by faculty, staff, and administrators who fear that a corporate atmosphere is at odds with the concept of a liberal arts college education (Giroux, 2003; Rahmani, 2004). This concern is equally viable when one considers that the role of educational institutions is not to be fiscally profitable, but to educate citizens who are seeking to better themselves.

Any administrator wishing to apply fiscal models, as the one presented in this study, should first be clear on desired programmatic outcomes. He/She should not expect distance education to be a profit-making venture, but rather one that increases student access to education.

## Current Research Studies

### *Problem*

Research within the field of college/university financing is prevalent in current literature. Numerous studies have been conducted on institutional funding, the cost to students, and total cost of providing education. However, little has been done in the area of detailed cost reporting (Wellman & O'Brien, 1999). The reason stems from a disconnect between calls for additional reporting from government and difficulty in providing detailed costs at the institutional level (Wellman & O'Brien, 1999). In a service related industry, like education, reporting accurate cost measures is difficult. Institutions have multiple revenue streams that change constantly, provide services that span a variety of departments, and have programs that use a disproportionate number of resources (Wellman & O'Brien, 1999; Middaugh, 1997). Accurately assigning costs at the program or course level is a complex issue at any institution, but is compounded when administrators wish to compare different institutions, often in different states, which use a variety of accounting methods (Middaugh, 1997).

In addition to the complexity associated with assessing the cost of such services, individuals and groups often differ on the definitions of cost and profitability. When referring to cost does it mean cost per credit hour, cost per student, cost with respect to

time spent, etc. (Wellman & O'Brien, 1999)? Also, how are costs compared; across program, among institutions, or from state-to-state? Finally, how are cost elements defined? These issues have made it difficult to measure the profitability of educational endeavors and have lead researchers to attempt to find common ground on which to assess educational cost.

*Purpose of Current Research*

It is the lack of consistency in reporting models that has limited the ability of administrators to meaningfully compare costs and assess the success of their efforts (Milam, 2007). In addition to demands for information from federal and state governments, there have been two organizations championing calls for more detailed reporting on educational costs. They are the National Center for Higher Education Management Systems (NCHEMS) and the National Association of College and University Business Officers (NACBO) (Milam, 2007). These organizations are leading efforts to address issues of public perception, increasing tuition and fees, and a changing financial aid situation in the country. Addressing these issues depends on the demands of the audience. Administrators are interested in cost over a specified period of time while the public may be more interested on the cost of a total project or endeavor (Maher, 2002). Additionally, administrators must concern themselves with startup and ongoing costs of educational delivery (Maher, 2002). Typically, the way these are examined will have a significant effect on the perceived profitability of a program.

Within these organizations and among others studying the field of higher education costs, there have emerged two primary focuses in educational expense. The

first involves simply examining institutional costs such as price, funding, financial aid, technology, etc. (Milam, 2007). This approach is direct and often localized at the institutional level. The second approach involves using a more business oriented model which examines issues such as net price, performance, cost accounting, benchmarking and peer comparisons (Milam, 2007). These studies typically involve a longitudinal approach, which compares programs or institutions over a definable period of time (Mertens, 1997).

Longitudinal studies are more prevalent in current research because they allow administrators to assess efficiency and effectiveness compared to their peers at other institutions (Mertens, 1997). This provides a common ground for decision-making and is important when administrators have to justify their efforts to political bodies. The challenge for administrators and the public is accurately and consistently assessing costs so comparisons can be made among programs and between institutions. To meet this challenge it is important for institutions to be evaluated on a consistent set of cost elements, which is the focus for this study.

Much as been covered in this chapter about cost elements and their use in distance education cost analyses; many of these are listed in cost research for the institution as a whole. The following paragraph provides an overview of the main cost elements being examined in educational accounting. Most parallel elements identified earlier in Chapter II as areas to examine in the proposed survey.

Cost elements outlined in this study parallel those outlined in current research by providing broad categories of costs and attempting to narrow those costs to specific

items. Major categories identified by NACUBO include instructional costs, student services, institutional and community costs, and financial aid (Milam, 2007). Other researchers identify equipment, overhead, capital, support staff, consumables, research, public service, fellowships, and travel among major category variables (Taylor, 1984; Rumble, 2002; Taylor, 1986; Wellman & O'Brien, 1999). Not all of these broad categories are applicable to every institution; especially with respect to distance education in North Carolina Community Colleges. Still, categories are similar to those identified in previous paragraphs. Like most states North Carolina has specific elements combined to meet its accounting processes; a problem that is the main contributor to the difficulty of institutional comparison.

In addition to identifying a consistent set of elements to study, it is noted that researchers should also be clear about the type of costs they are assessing so non-reoccurring costs are not mistakenly included in an annual assessment. In his work on the assessment of online education, Michael Maher explains the need to differentiate between startup and reoccurring costs (Maher, 2002). He notes that startup costs should be amortized over the life of the product. Additionally, he makes a strong argument for the concept of determining the cost of institutional capacity when assessing distance learning (Maher, 2002).

One critical point necessary for effective reporting and analysis of institutional costs is for individual elements to be consistent across departments, institutions, and states. This is a primary focus for researchers, administrators, and the public. Before meaningful analyses can be conducted three things must happen. First, curriculum codes

for programs must be standardized to provide common ground for assigning costs. Second, a set of generally accepted accounting practices for higher education must be developed to insure consistency in reporting. Finally, support both verbally and financially must be provided to undertake this complex and expensive task.

*National Studies*

Current research in the field of distance education costs and profits is minimal and primarily limited to program level costs analyses. However, as higher education costs continue to increase, administrators will be asked to account for their expenditures in more detail. Already, public option about higher costs affecting access to higher education has caused the federal government to investigate the issue and to begin collecting data on educational costs (Pennington, 2007). National demand for information about expenditures within higher education institutions has led to calls from the Department of Education for accountability; a notable example of this is the Spellings report, which calls for cost transparency, improved productivity, and a restructuring of the federal financial aid system (Pennington, 2007).

Most higher education cost studies typically look at program costs. These reports use cost calculations, statistical modeling or cost behavior modeling to develop a picture of the income-to-expense ratio for a particular program (Pennington, 2007). By conducting such studies administrators can determine how cost effective they are at providing services to students. It is determining where costs originate and what program/service they should be attached to that is causing difficulty at the institutional level. Currently, there is no national community college model for conducting studies that

allow administrators to assess the cost of providing programs/services at their respective institutions. Additionally, there is no national study of distance education costs in two-year institutions.

To date the most comprehensive national study benchmarking community college costs is entitled the "Kansas Study" (Kansas Study, 2007). The Kansas study is a variation of a 1992 research project entitled the Delaware Study, which benchmarked data from colleges and universities across the nation (Delaware Study, 2007). The purpose of the Kansas Study is to allow administrators to "compare [their] institution's cost of delivering a student credit hour of instruction with national and peer group benchmarks, by academic discipline" over a specified period of time (Kansas Study, 2007). This study is sponsored by the Fund for the Improvement of Postsecondary Education (FIPSE) and is designed to benchmark college instructional, faculty, and service costs on a national basis (League TLC Innovation Express, 2007). Its contribution to current literature in the field is to provide a resource for community college planners who previously did not have any standardized data set to use for cost comparisons with other institutions. The Delaware Study was a comprehensive effort to develop national benchmarks on financial data for institutions in the United States (Delaware Study, 2007).

*North Carolina Research*

No national or state study has been done that allows North Carolina Community Colleges to accurately benchmark their financial data in a detailed fashion, to compare with other community colleges and determine the profitability of program offerings. The

North Carolina Community College System does not participate in the Kansas study. (Ewell, 2007). However, some North Carolina institutions participate in national studies that allow benchmarking of services; these include the Community College Survey of Student Engagement (CCSSE) (Ewell, 2007). Other national studies include the National Community College Benchmark Project (NCCBP) and the Department of Education's Integrated Post Secondary Data Collection System (IPEDS) (Delaware Study, 2007). The gap in current community college benchmarking studies is that the data available only provide a superficial examination of costs and lack the ability to glean data about the cost of distance education, Additionally, those studies that provide data often do not provide enough detail about individual services to assign costs to distance education delivery and none examine the cost of offering distance education courses and programs.

In recent years the North Carolina Community College System has embarked on an ambitious effort to expand distance education offerings to community college students within the state. After a decade of growth, administrators are beginning to examine the results of their efforts. In November of 2000 the North Carolina Community College System Office released a report on the cost of distance education in state community colleges. While comprehensive, this study focused primarily on funding issues with distance education, not institution or program level cost effectiveness (NCCCS, 2000). The main topics of this study were tuition, technology fees, and course surcharges (NCCCS, 2000). So far distance education studies in North Carolina community colleges have not examined the institutional/program level in their analyses because attention has

been focused at the system level in an effort to garner public support for distance education funding.

*Proposed Research*

The study proposed for this research project will fill an important gap in current reporting by providing administrators with an accurate model to assess institution level costs of providing distance education. Additionally, it differs from the Kansas and Delaware studies because it examines institutional level costs instead of program level ones. Also, this study is limited to institutional costs associated with distance education delivery. This is the next logical step in NCCCS distance education research as it will build upon state-level funding research and begin to examine institutional level effects of past efforts. It fills a gap in current literature and meets a need for North Carolina community college administrators by examining distance education costs. This will allow administrators within the state system to determine profitability of distance education courses/programs and allow state legislators to see if current funding levels are adequate to meet institutional needs. Information provided in this research may then be compared to other institutions statewide and allow administrators to determine the cost effectiveness of their institution's distance education offerings.

# CHAPTER III

# METHODOLOGY

## Introduction

The purpose of this study is to identify and assess direct costs of distance education at the institutional level within the North Carolina Community College System (NCCCS) in accordance with the System-level mission of reducing barriers to higher education within North Carolina. Through a quantitative analysis of distance education expenditures, this study provides insight into the cost of each of these expenditures to individual institutions and to the NCCCS as a whole. Data provided in this study were used to develop a model through which community college administrators may assess the cost of distance education at their respective institutions in a clear and consistent fashion (Appendix P). It will fill the gap in North Carolina Community College funding research by providing administrators accurate data and a model with which to assess distance education costs.

This chapter outlines the research questions, population surveyed, research design, instrumentation used for the study, a description of how data were collected, and description of how data were analyzed.

## Research Questions

In order to determine the direct cost of offering distance education courses and programs in North Carolina community colleges, it is necessary to determine what

expenditures are directly involved in offering distance education and how much impact those expenditures have on the ability to offer such courses and programs. In order to obtain this information three research questions were asked.

I. What expenditures do administrators consistently assign as direct costs of offering distance education in North Carolina community colleges?
II. What proportion of institutional expenditures are attributed to the operation of distance education courses and programs within the North Carolina Community College System?
III. What is the return on investment of offering distance education courses and programs in North Carolina community colleges?

## Research Population

This study provides data that are specifically related to the direct cost of providing distance education to students within the NCCCS. Fifty-eight individual institutions make-up this system and are governed by a central office located in Raleigh, North Carolina (NCCCS, 2006). The fifty-eight colleges comprise the targets included in this study. Due to the fact that this study is limited to the costs of distance education in North Carolina community colleges, a well-defined group, all fifty-eight institutions were surveyed for this study. Two individuals within each institution have access to the information relating to distance education. One of these individuals is the institution's chief financial officer. He/She has knowledge of accounting and budgetary procedures and a staff to provide data relating to the cost of providing distance education at the college. The college's distance education director has knowledge of the resources and

facilities necessary to offer distance education at the institution. For the purpose of this study, the chief financial officer and the distance education director within each institution were sent surveys to determine which expenditures are relevant to offering distance education in North Carolina community colleges. Thus, the total population surveyed was one-hundred and eighteen.

## Research Design

The research design of this study was quantitative in nature and consisted of a survey administered to the target group of one-hundred and eighteen administrators. The survey was developed by synthesizing current literature on the expenditures considered essential to distance education.

After the survey was developed, it was piloted at one of the fifty-eight community colleges by administering it to the director of distance education and the college controller who reviewed the content of the survey instrument and provided feedback to the researcher to insure that the survey content was relevant to assessing the research questions. The researcher made revisions to terminology used in survey questions and the final survey was prepared for distribution. A final draft of the survey and procedures for conducting the study were submitted to the University of North Carolina at Greensboro Institutional Research Board for approval before conducting the study. After the Institutional Research Board determined that they did not need to oversee the survey it was sent to the one-hundred and sixteen respondents.

## Instrumentation

The instrument used for this study was a survey containing commonly-referenced expenditures of distance education costs, categorized by the type of cost (Appendix D). The survey consisted of thirty-seven questions as well as space in each section for the respondent to add costs not previously defined in current literature. Respondents were asked to provide basic demographic information about their institution. Then they were asked to respond to each of the items on the survey, indicating what proportion of each item was directly related to distance education. Finally, respondents were asked on the survey to note the total amount expended annually for each item.

## Data Collection

The president of each institution was contacted by a letter mailed through the postal service. The letter was designed to elicit the president's support for the project so that his/her college would participate in the survey (Appendix E). The letter to the president outlined the purpose of the study, support for the research, and an explanation of the process. Chief financial officers and distance education directors were sent e-mail requests to submit information through a linked website. The e-mail described the researcher who was conducting the study, the purpose of the study, the reason for collecting the information, the value of the study, the need for their assistance, the handling of information in accordance with institutional research standards, and the procedures for completing the electronic survey. After one week non-respondents were again asked to participate through the use of paper-based surveys mailed to them two

weeks after the initial contact. Finally, after an additional two weeks, non-respondents were contacted by phone and asked to verbally participate in the survey.

## Data Analysis Procedures

Once surveys were returned to the researcher, results were transcribed into a data file and were analyzed using the SPSS statistical analysis program. A frequency analysis was performed on demographic data to provide information on average enrollment, average full-time equivalency, distance education student demographics, and institutional budget. Using this information and guidelines provided by researchers at the NCCCS office, colleges were categorized by size into large, medium, or small institutions based upon demographics provided by the North Carolina Community College System Office.

In order to answer question number I of this research project, the following analyses were conducted:

1. A frequency analysis was performed to determine, by college, the overall percentage of spending devoted to each category item on the survey.
2. A frequency analysis was performed to determine average spending for each category item, per FTE, based upon the size of the institution.
3. A frequency analysis was performed on distance education expenditures by category item based upon the region, urban vs. rural, of each institution.

To determine the proportion of cost attributed to distance education as stated in question number II, the following analyses were conducted:

1. The cost of each of the seven categories identified in the survey was compared to the cost of those categories for the system as a whole.

2. The cost of each of the seven categories identified in the survey was categorized by the college's designation as urban or rural and was compared to the system as a whole.
3. The cost of each of the four major categories identified in the survey was categorized by the college's size and was compared to the system as a whole.

In order to examine the return on investment of offering distance education at North Carolina community colleges as stated in question III, the following analyses were performed:

1. The number of distance education students was compared to the total student population of each institution to determine the percent of the student population who participates in distance education.
2. The actual dollar amount attributed to each expenditure for as reported by survey respondents was compared to the average dollar amount for that expenditure for the system as a whole.
3. The cost of each category was compared to the relative full-time equivalency (FTE) generated in distance education for the institution and the North Carolina Community College System as a whole to determine the average expenditure per element and the profitability of distance education across the system.
4. Spending on distance education at each institution was examined to determine if there was a difference in funds devoted to distance education compared to traditional education delivery based upon the size of the institution and its classification as rural or urban.

5. The return on investment, net income less net expenses, for each institution was examined to determine if, when compared to traditional course offerings, the return on investment for distance education offerings was higher or lower based upon the size of an institution or its classification as rural or urban.

## Summary

The purpose of this study was to examine the common elements that define distance education costs in North Carolina community colleges, to determine how those costs are proportioned across institutions, and to determine the return on investment by providing distance education in the aforementioned institutions within the NCCCS. Results of the survey are described in Chapter IV, and implications for the North Carolina Community College System as well as suggestions for future research are outlined in Chapter V.

# CHAPTER IV

# ANALYSIS OF FINDINGS

## Introduction

The purpose of this study was to identify and assess direct costs of distance education at the institutional level within the North Carolina Community College System (NCCCS) in accordance with the System-level mission of reducing barriers to higher education within North Carolina. Through a quantitative analysis of distance education expenditures, this study provides insight into the cost of each of these expenditures to individual institutions and to the NCCCS as a whole. Data provided in this study were used to develop a model through which community college administrators may assess the cost of distance education at their respective institutions in a clear and consistent fashion (Appendix P). It will fill the gap in North Carolina Community College funding research by providing administrators accurate data and a model with which to assess distance education costs.

To fully utilize the data presented in this study, one must have an understanding of North Carolina community colleges, their financial processes, and distance education efforts undertaken during the 2005-06 academic year. North Carolina community colleges have a long history of service to rural populations. They were started because of a 1950 study by the North Carolina Department of Public Instruction outlining the need for accessible post-secondary education in the state. In 1957 the North Carolina General

Assembly provided funding for a statewide system of industrial education centers to train adults for industry. Out of a 1963 initiative grew the Department of Community Colleges. By 1966 there were forty-three institutions across the state (NCCCS History, 2008). Today, there are fifty-eight community colleges in North Carolina.

Throughout the history of North Carolina community colleges, access has been a central theme governing administrative decisions. Therefore, the use of distance education to provide seven-days-per-week, around-the-clock access to higher education is a natural fit with the community college mission. This form of educational delivery continues to gain popularity and is often touted as a way to increase access to higher education and reduce the cost of its delivery.

This chapter reports the results of a survey distributed to North Carolina community college chief financial officers and distance education coordinators concerning the cost of distance education at their respective institutions and to the system office (Appendix D). The survey collected information on college demographics as well as information relative to the three research questions outlined in Chapter III.

## Survey

The researcher developed a survey containing thirty-seven questions about commonly-referenced expenditures of distance education costs, categorized by the type of cost (Appendix D). Space was available in each section for the respondent to add costs not previously defined in current literature. Additionally, respondents were asked to provide basic demographic information about their respective institutions. They were further asked to respond to each item on the survey, indicating what proportion of the

element was directly related to distance education. Finally, respondents were asked on the survey to note the total amount their respective institutions expended annually for each item.

## Survey Results

The researcher administered a survey to each chief financial officer and each director of distance education at the fifty-eight community colleges in North Carolina (see Appendix D). Thus, a total of one-hundred and sixteen (116) individuals were surveyed. Responses to questions in this survey were collected from an online form, paper survey, and phone survey. Each person in the survey received an electronic invitation to participate in an online survey. Non-respondents were contacted one week later through postal mail and asked to submit a paper survey. After two weeks, non-respondents were contacted by phone and asked to participate in an oral survey. Respondents were asked identical questions on each of the survey methods used to conduct this study.

One factor affecting survey responses was that chief financial officers and distance education coordinators only responded to survey questions directly related to their respective areas. As a result, survey responses were either submitted as one response, or individual sections were submitted separately. Only one set of administrators submitted two complete surveys; and in that case, responses matched one another. Due to the way respondents completed the survey, the researcher decided that survey responses would be combined for each of these two respondents into a single survey. Therefore, the survey population was condensed from one-hundred and sixteen (116) to fifty-eight (58)

institutions. Of the fifty-eight institutions, administrators at forty-four responded to the survey, resulting in a response rate of 76%. The remaining fourteen institutions' respondents either chose not to participate in the survey or routinely did not collect enough information to enable the administrators to answer survey questions at all.

During the first week of data collection, the researcher received responses from five institutions through the online survey. In the second week of data collection, the researcher received an additional seven paper surveys. After three weeks of open data collection, the researcher personally contacted the remaining non-respondents through the telephone and collected thirty-two more responses. Thus, a total of forty-four (44) institutions were used in this study.

## Demographics

Demographic data derived from the survey for the forty-four institutions that participated in the study are shown in Appendix F. Demographic data collected includes the following:

1. Institutional size
2. Institutional service area
3. Length of time
4. Number of programs
5. Institutional student unduplicated head count
6. Institutional full-time equivalency (FTE)
7. Institutional space
8. Student retention rate

9. Student fees

For the purpose of this study, the following definitions of demographic data apply:

1. **Institutional size** refers to the student unduplicated head count. Small-size institutions enroll fewer than 2,000 students annually, medium-size institutions enroll between 2,000 and 4,000 students annually, and large size institutions enroll more than 4,000 students annually (Brown, 2008).
2. **Institutional service area** refers to an institution's classification as an urban institution, serving students in cities or metropolitan areas; or as a rural institution, serving students in sparsely populated counties within North Carolina.
3. **Length of time** is the number of years that distance education has been offered at the institution.
4. **Number of programs** is the number of distinct distance education degree programs offered at the institution.
5. **Student unduplicated head count** means the number of individual students who took at least one course at a respective institution within the 2005-06 academic year.
6. **Full-time equivalency (FTE)** refers to the number of credit hours taken to equal one full-time student. In the North Carolina community college system, the equivalent of one full-time student is sixteen credit hours taken per student (North Carolina Community College System Fact Book,

2006). For example, two individuals taking eight credit hours each would equal one full-time equivalent student (1 FTE).

7. **Institutional space** refers to the total square footage of usable space for distance education and/or traditional education programs at an institution.
8. **Student retention rate** is the number of students who either complete their stated objective or return during the subsequent semester.
9. **Student fees** are charges to students, in excess of tuition, which are used to cover technology, parking, insurance, athletics, etc.

*Institution Size*

Of the forty-four institutions that responded to this survey, twenty-one (47.7%) were considered small-size, with student unduplicated head counts of fewer than 2,000 students. Sixteen (36.4%) were considered medium-size with an unduplicated head count between 2,000 and 4,000 students. Seven (15.9%) were considered large-size with unduplicated head counts of more than 4,000 students (see Table 1).

Table 1
Institution Size 2005-06

| Institution Size | | Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| | Large | 7 | 15.9 | 15.9 |
| | Medium | 16 | 36.4 | 52.3 |
| | Small | 21 | 47.7 | 100.0 |
| | Total | 44 | 100.0 | |

*Institutional Service Area*

Thirty-two (72.7%) of the administrators who responded to this survey stated that their institution was located in a rural service area. Twelve (27.3%) of the respondents stated that their institution was located in an urban area with a student population primarily situated in a city (see Table 2). Therefore, nearly three-fourths of the institutions represented in this study were considered to be rural. Approximately one-fourth are urban.

Table 2
Institution Service Area 2005-06

| Service Area | | Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| | Rural | 32 | 72.7 | 72.7 |
| | Urban | 12 | 27.3 | 100.0 |
| | Total | 44 | 100.0 | |

*Years Offering Distance Education Programs*

The forty-four institutions included in this study reported that distance education had been offered for a period of 3 - 24 years. Sixteen respondents (36.4%) reported their institution had been offering distance education courses and programs for fewer than ten years indicating that they chose to enter the distance education arena somewhat later than the majority of respondents to this survey. Fifty percent (22) of the forty-four North Carolina community colleges included in this survey have been offering distance education courses or programs since 1998. The start date for distance education programs resulted from the fact that the North Carolina Community College System undertook a

statewide substantive change effort to be accredited by the Southern Association of Colleges and Schools (SACS), at which time these colleges began offering distance education courses and programs (SACS COC, 2008). The six remaining institutions where distance education programs have been offered for a period of 11 - 24 years (totaling 13.6%) were typically offering either correspondence courses or televised classroom instruction (See Table 3).

Table 3
Number of Years Offering Distance Education
2005-06

| Years Offering Distance Education | | Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| 16 Respondents 34.6% | 3 | 1 | 2.3 | 2.3 |
| | 5 | 1 | 2.3 | 4.5 |
| | 6 | 2 | 4.5 | 9.1 |
| | 7 | 3 | 6.8 | 15.9 |
| | 8 | 4 | 9.1 | 25.0 |
| | 9 | 5 | 11.4 | 36.4 |
| | 10 | 22 | 50.0 | 86.4 |
| 6 Respondents 13.6 % | 11 | 2 | 4.5 | 90.9 |
| | 17 | 1 | 2.3 | 93.2 |
| | 19 | 1 | 2.3 | 95.5 |
| | 24 | 2 | 4.5 | 100.0 |
| | Total | 44 | 100.0 | |

*Number of Distance Education Degree Programs Offered*

By combining the number of institutions offering distance education courses/programs for a period of 10 – 24 years, the researcher found that twenty-eight (63.6%) of responding colleges have been offering distance education courses for at least the last decade (data summarized from Table 3). However, while all respondents indicated that their institution was offering distance education courses, relatively few

were offering complete degree programs through this method of instruction. Fifteen (34.1%) respondents stated that their college had no programs provided completely through distance education. Eight (18.2%) offered one distance education program, five (11.4%) offered four distance education programs, and four (9.1%) offered five distance education programs during the 2005-06 academic year. No other category of response generated more than two schools who indicated that they offered the particular number of programs (see Table 4).

Table 4
Number of DE Degree Programs Offered During 2005-06

| Distance Education Programs | | Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| | 0 | 15 | 34.1 | 37.5 |
| | 1 | 8 | 18.2 | 57.5 |
| | 2 | 2 | 4.5 | 62.5 |
| | 3 | 2 | 4.5 | 67.5 |
| | 4 | 5 | 11.4 | 80.0 |
| | 5 | 4 | 9.1 | 90.0 |
| | 6 | 1 | 2.3 | 92.5 |
| | 7 | 1 | 2.3 | 95.0 |
| | 11 | 1 | 2.3 | 97.5 |
| | 98 | 1 | 2.3 | 100.0 |
| | Total | 40 | 90.9 | |
| | No Response | 4 | 9.1 | |
| Total | | 44 | 100.0 | |

### *Unduplicated Head Count*

Institution-wide and distance education unduplicated head counts will be discussed in greater detail later in this chapter. However, for the purpose of providing demographic data, unduplicated head count is as follows: Unduplicated head count at the

forty-four North Carolina community colleges responding to this study for the 2005-06 academic year was between 525 and 24,388 students (North Carolina Community College System Fact Book, 2006). Seven of the forty-four respondents stated that their institution was considered small-size with an unduplicated head count of fewer than 2,000 students. Sixteen respondents stated that their institutions are considered medium-size, with an unduplicated head count between 2,000 and 4,000 students, and thirteen institutions were considered large-size with an unduplicated head count of more than 4,000 students. Unduplicated head count was not reported in eight of the survey responses. Additionally, one respondent reported that his/her institution offered ninety-eight distance education degrees. After an investigation of the reported number, the researcher confirmed that the respondent included diploma and certificate programs, which were not to be considered part of the survey. Therefore this response was removed from statistical analysis. (see Table 5).

Table 5
2005-06 Unduplicated Head Count

| | |
|---|---|
| No Response | 8 |
| 525 – 1,999 | 7 |
| 2000 – 4,000 | 16 |
| 4001 – 24,388 | 13 |
| Total | 44 |

Distance education unduplicated head count for North Carolina community colleges included in this study ranged between 329 and 7,322 students (Appendix F). Seven institutions reported a distance education student unduplicated head count of between 500 and 999 students. Six respondents reported a distance education

unduplicated head count of between 1,000 and 1,499 students. Two respondents reported distance education unduplicated head counts of greater than 4,000 students, two reported distance education head counts of between 1,500 and 1,999 students, and one respondent reported distance education unduplicated head count of less than 500 students. Twenty-six respondents failed to report any data for unduplicated head count (see Table 6). The majority (13) were reported to be between 500 and 1,499 students.

Table 6
2005-06 Distance Education
Unduplicated Head Count

| | |
|---|---|
| No Response | 26 |
| <500 | 1 |
| 500 - 999 | 7 |
| 1000 - 1499 | 6 |
| 1500 - 1999 | 2 |
| 2000 - 2499 | 0 |
| 2500 - 2999 | 0 |
| 3000 - 3499 | 0 |
| 3500 - 4000 | 0 |
| > 4000 | 2 |
| Total | 44 |

*Full-time Equivalency (FTE)*

In North Carolina community colleges, many students are unable or unwilling to attend college full-time because of commitments at home or work and choose distance education as an alternative to attending classes on campus (Sullivan, 2001; Beard & Harper, 2001). Therefore, the full-time equivalent (FTE) number of students is lower than unduplicated head count.

FTE for North Carolina community colleges included in this study was between 313 and 10,352 students (see Appendix F). Nine respondents reported that their institution's FTE was between 1,500 and 1,999 students. Eight respondents reported FTE between 1,000 and 1,499 students, while seven respondents reported FTE between 2,000 and 2,499 students. Seven respondents reported FTE of more than 4,000 students. Other FTE results were less evenly distributed, with no more than five institutions reporting in any single remaining category (see Table 7).

Table 7
2005-06 Total Institution FTE

| | |
|---|---|
| <500 | 1 |
| 500 - 999 | 5 |
| 1000 - 1499 | 8 |
| 1500 - 1999 | 9 |
| 2000 - 2499 | 7 |
| 2500 - 2999 | 1 |
| 3000 - 3499 | 4 |
| 3500 - 4000 | 4 |
| > 4000 | 7 |

Distance education full-time equivalent enrollments were less evenly distributed than total college FTE, with respondents reporting between 118 and 3,000 full-time enrollments in distance education (see Appendix F). Six respondents reported distance education FTE of fewer than 250 students. Three respondents reported a distance education FTE of between 250 and 299 students. Remaining FTE was scattered, with no more than two institutions reporting in each of the remaining categories (see Table 8).

One factor creating this disparity in FTE between traditional students (students taking courses on campus) and distance education students is that many traditional students take distance education courses as well as traditional classes. Subsequently, these students are counted as distance education attendees, but may be taking only one online course.

Table 8
2005-06 Distance Education FTE

| | |
|---|---|
| < 250 | 6 |
| 250 - 299 | 3 |
| 300 - 349 | 1 |
| 350 - 399 | 1 |
| 400 - 449 | 2 |
| 450 - 499 | 0 |
| 500 - 549 | 1 |
| 550 - 599 | 0 |
| 600 - 649 | 1 |
| 650 - 699 | 0 |
| 700 - 749 | 2 |
| 750 - 799 | 1 |
| 800 - 849 | 0 |
| 850 - 899 | 0 |
| 900 - 949 | 0 |
| 950 - 1000 | 0 |
| > 1000 | 1 |

### *Institutional Space*

Table 9 shows average total institutional space in square footage. As expected, the amount of square footage per institution increases with its size classification, with small-size institutions averaging 114,376 square feet, medium-size institutions averaging

213,009 square feet, and large-size institutions averaging 404,374 square feet (see Table 9).

Table 9
2005-06 Total Institutional Space

| Institution Size | Average Total Sqr. Ft |
|---|---|
| Large | 404,374 |
| Medium | 213,009 |
| Small | 114,376 |

Total square footage devoted to distance education did not follow the same pattern, proportionally, as total institutional square footage shown in Table 9. Small-size institutions had an average of 1,733 square feet devoted to distance education, medium-size institutions had an average of 2,805 square feet devoted to distance education, and large-size institutions had an average of 2,875 square feet devoted to distance education (see Table 10).

Respondents noted the two most common uses for distance education space on a college campus were to provide offices and Internet Highway classrooms, which offer the ability to broadcast live presentations over the internet to students at satellite campuses. On average, Internet Highway classrooms constitute approximately 1,000 square feet of space and offices account for approximately 250 square feet of space. Subsequently, most institutions were typically providing two Internet highway classrooms and two offices for distance education personnel. Since a basic amount of space used for office and classrooms is comparable among all institutions, the lack of large variations in distance

education space among large and medium-size institutions suggests that a limit has been found to the amount of classroom space needed to conduct distance education courses.

Table 10
2005-06 Distance Education Space Utilization

| Institution Size | Average Total Sqr. Ft |
|---|---|
| Large | 2,875 |
| Medium | 2,805 |
| Small | 1,733 |

### *College Retention*

One concern previously identified in the review of literature was the retention rate among distance education students compared to that of their traditional counterparts (Berg, 2002). College-wide retention rates derived from survey respondents, ranged from 50% to 81% (see Table 11). This pattern parallels that of the system as a whole, which has an average retention rate of 65.3% (NCCCS Fact Book, 2006).

Table 11
Overall Student Retention Rate by College
2005-06

| Retention Rate | | Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| | 50% | 1 | 2.3 | 2.3 |
| | 51% | 1 | 2.3 | 4.5 |
| | 57% | 1 | 2.3 | 6.8 |
| | 59% | 1 | 2.3 | 9.1 |
| | 60% | 3 | 6.8 | 15.9 |
| | 61% | 1 | 2.3 | 18.2 |
| | 62% | 3 | 6.8 | 25.0 |
| | 63% | 3 | 6.8 | 31.8 |
| | 64% | 3 | 6.8 | 38.6 |
| | 65% | 6 | 13.6 | 52.3 |
| | 67% | 8 | 18.2 | 70.5 |
| | 68% | 3 | 6.8 | 77.3 |
| | 69% | 1 | 2.3 | 79.5 |
| | 70% | 5 | 11.4 | 90.9 |
| | 71% | 1 | 2.3 | 93.2 |
| | 73% | 1 | 2.3 | 95.5 |
| | 74% | 1 | 2.3 | 97.7 |
| | 81% | 1 | 2.3 | 100.0 |
| | Total | 44 | 100.0 | |

For 2005-06, distance education retention rates ranged between 55% and 89% (see Table 12). When the average distance education retention rate (69.5%) is calculated from Table 12, it can be noted that distance education student retention among responding institutions is slightly higher than the system average of 65.3% for students enrolled in traditional and distance education courses. This suggests that distance education students are completing coursework and programs at a higher rate than their traditional counterparts.

The suggestion that distance education students are out-performing traditional students is explained by several reasons. First, it is possible that instructors are being

required to pay greater attention to their distance education students in the NCCCS due to increased emphasis on oversight for distance education classes. This oversight provides incentive to distance education instructors to favor their distance education students over their traditional students. Second, distance education students may be better prepared than students only enrolled in traditional courses. Distance education students typically select courses based on their interest and self-assessed ability to meet the technical requirements of the class. Additionally, some students are advised not to enter courses for which they do not have appropriate skills and have a low probability of successfully completing the work. This means that distance education students already have an advantage over traditional community college students at the point of course enrollment and as a result may be more adept at completing coursework.

Table 12
Distance Education Retention Rate
2005-06

| Retention Rate | | Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| | 55% | 1 | 2.3 | 4.3 |
| | 59% | 1 | 2.3 | 8.7 |
| | 63% | 2 | 4.5 | 17.4 |
| | 64% | 1 | 2.3 | 21.7 |
| | 65% | 1 | 2.3 | 26.1 |
| | 67% | 5 | 11.4 | 47.8 |
| | 68% | 3 | 6.8 | 60.9 |
| | 70% | 2 | 4.5 | 69.6 |
| | 71% | 2 | 4.5 | 78.3 |
| | 75% | 1 | 2.3 | 82.6 |
| | 76% | 1 | 2.3 | 87.0 |
| | 82% | 1 | 2.3 | 91.3 |
| | 86% | 1 | 2.3 | 95.7 |
| | 89% | 1 | 2.3 | 100.0 |
| | Total | 23 | 52.3 | |
| Missing | | 21 | 47.7 | |
| Total | | 44 | 100.0 | |

*Student Fees Assessed*

The survey asked respondents to report on the assessment of student fees charged in addition to tuition. Such student fees ranged from one dollar to thirty-two dollars for the institutions where student fees were charged. However, one respondent stated the $100.00 in fees included both tuition and the student fees. This was confirmed in a follow-up phone conversation between the researcher and the survey respondent. Thirteen (29.5%) of the individuals responding stated that their institutions charged full-time students a total of sixteen dollars ($16.00) in student fees. Six (13.6%) charged ten

dollars ($10.00). Finally, Thirteen (29.5%) did not indicate that they charge any student fees (see Table 13).

In addition to the amounts reported in Table 13, respondents noted that all students were assessed student fees regardless of their classification as traditional or distance education. No respondent indicated that any additional or special fees were assessed solely to distance education students. Two respondents noted that they were in the process of trying to eliminate student parking and activity fees for distance education students.

Table 13
Student Fees Assessed
2005-06

| Student Fees | | Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| | $.00 | 13 | 29.5 | 29.5 |
| | $1.00 | 1 | 2.3 | 31.8 |
| | $2.00 | 1 | 2.3 | 34.1 |
| | $3.00 | 1 | 2.3 | 36.4 |
| | $7.00 | 1 | 2.3 | 38.6 |
| | $10.00 | 6 | 13.6 | 52.3 |
| | $11.00 | 1 | 2.3 | 54.5 |
| | $14.00 | 1 | 2.3 | 56.8 |
| | $15.00 | 2 | 4.5 | 61.4 |
| | $16.00 | 13 | 29.5 | 90.9 |
| | $19.00 | 1 | 2.3 | 93.2 |
| | $30.00 | 1 | 2.3 | 95.5 |
| | $32.00 | 1 | 2.3 | 97.7 |
| | $100.00 | 1 | 2.3 | 100.0 |
| | Total | 44 | 100.0 | |

## Research Question I

Research Question I asked: What expenditures do administrators consistently assign as direct costs for offering distance education in North Carolina community colleges? In order to answer Question I of this research project, the following analyses were conducted:

1. A frequency analysis was performed to determine, by college, the overall percentage of spending devoted to each category item on the survey.
2. A frequency analysis was performed to determine average spending for each category item, per FTE, based upon the size of the institution.
3. A frequency analysis was performed on distance education expenditures by category item based upon the region, urban vs. rural, of each institution.

### *Question I - 1*

To address the issue of spending by category, the researcher tallied responses from each institution into an average expenditure and percentage of category cost. For a complete list of responses to these responses, refer to Appendix G and Appendix H. Table 14 shows the summary of responses to the questions concerning spending on distance education.

Totals and percentages listed in Table 14 show the average dollar amount spent on distance education by institutions in each category and the average percentage spending on each category that distance education represents. Average institutional expenditures and the proportion of average distance education expenditures those amounts represent are as follows: $1,336.74 (13.7%) on staff training; $1,374.44 (9.3%)

on faculty development; $19,600.47 (26.2%) on computer software; $36,180.78 (23.4%) on computer hardware; $4,191.56 (23.2%) on technology maintenance; $925.95 (32.5%) on telecommunications; and $81,848.99 (27.0%) on technical personnel (see Table 14).

It is important to note that response rates varied among institutions, and not all administrators collected data on all items. Additionally, there was one area (Student Support Services) where no institution collected data. When queried about this lack of data, respondents indicated that their respective institutions did not provide specialized student support services to distance education students. Therefore, students who needed academic advising, counseling, tutoring, and financial aid would have to obtain those services by going to the campus and utilizing them in the same fashion as students in traditional courses. The one exception to this trend was the availability of technical assistance for distance education students. Distance educators were willing to provide phone support or web-based FAQ pages to assist students with course registration and ways to access course materials.

Table 14
Mean 2005-06 Spending on Distance Education

| Category | Number of Respondents "N" | Average Total Amount Spent at Institution on Distance Education | Distance Education Spending as an Average % of Total Spending on each Category |
|---|---|---|---|
| Staff Training | 6 | $ 1,336.74 | 13.7% |
| Faculty Development | 24 | $ 1,374.44 | 9.3% |
| Computer Software | 21 | $ 19,600.47 | 26.2% |
| Computer Hardware | 21 | $ 36,180.78 | 23.4% |
| Technology Maintenance | 21 | $ 4,191.56 | 23.2% |
| Telecommunications | 20 | $ 925.95 | 32.5% |
| Technical Personnel | 20 | $ 81,848.99 | 27.0% |

*Question I - 2*

To answer part two of Question I, a frequency analysis was performed to determine the average dollar amount of spending for each category item, per FTE, based upon the size of the institution (Appendix I and Appendix J). Total distance education expenditures per FTE were $88,957.45 for small-size institutions, $172,108.39 for medium-size institutions, and $345,470.14 for large-size institutions (see table 15). As will be shown later in this chapter, these figures represent a statistically significant difference for expenditures when compared among institution size.

Table 15
Mean 2005-06 Expenditures for Distance Education by Institution Size

| Category | Small | Medium | Large |
|---|---|---|---|
| Distance Education Staff Training | $ 712.41 | $ 1,961.08 | $0.00 |
| Distance Education Faculty Development | $ 571.99 | $ 2,063.57 | $ 2,019.62 |
| Distance Education Computer Software | $ 11,978.69 | $ 23,186.22 | $ 47,177.27 |
| Distance Education Computer Hardware | $ 20,571.29 | $ 40,597.17 | $ 94,354.54 |
| Distance Education Technology Maintenance | $ 2,752.62 | $ 4,387.36 | $ 11,322.54 |
| Distance Education Telecommunications | $ 432.69 | $ 1,592.10 | $ 1,887.09 |
| Distance Education Technical Personnel | $ 51,937.76 | $ 98,320.89 | $ 188,709.08 |
| Total | $ 88,957.45 | $ 172,108.39 | $ 345,470.14 |

Table 16 shows the average percentage of total institution-wide spending that is attributed to distance education by category sorted by institution size. These breakdowns clarify previous sections by providing a detailed view of spending for each category

sorted by institutional size. When these expenditures by institution size are compared, varying levels of support can be noted.

There are few noteworthy differences in expenditures based upon institution size. One exception is that no large institution had expenditures for distance education staff training. Medium-size institutions spent a larger percentage of funds on staff training (16.7%), faculty development (13.1%), computer software (26.9%), and telecommunications (45.8%) compared to large and small-size institutions. Small-size institutions spent more on computer hardware (24.5%), technology maintenance (25.5%) and technical personnel (28.4%) than medium and large-size institutions. Large-size institutions did not have any categories where their percentage of spending surpassed that of small-size institutions and only two, computer hardware and technology maintenance, where they surpassed medium-size institutions (see Table 16).

Table 16
Mean 2005-06 Percentage Expenditure for Distance Education by Institution Size

| Institution Size | Small | Medium | Large |
|---|---|---|---|
| Distance Education Staff Training | 10.7% | 16.7% | 0.0% |
| Distance Education Faculty Development | 6.7% | 13.1% | 6.3% |
| Distance Education Computer Software | 26.5% | 26.9% | 22.5% |
| Distance Education Computer Hardware | 24.5% | 22.4% | 22.5% |
| Distance Education Technology Maintenance | 25.5% | 20.1% | 22.5% |
| Distance Education Telecommunications | 27.5% | 45.8% | 22.5% |
| Distance Education Technical Personnel | 28.4% | 26.0% | 22.5% |

Finally, the average expenditure per FTE for distance education is higher at medium-size institutions ($392.95) than at small ($298.52) and large-size institutions ($282.48). Therefore, medium-size institutions are spending more on distance education per FTE than are large or small-size institutions (see Table 17).

Table 17
Mean 2005-06 Expenditures Per Distance Education FTE by Institution Size

| Institution Size | Small | Medium | Large |
|---|---|---|---|
| Distance Education Staff Training | $ 2.39 | $ 4.48 | $0.00 |
| Distance Education Faculty Development | $ 1.92 | $ 4.71 | $ 1.65 |
| Distance Education Computer Software | $ 40.20 | $ 52.94 | $ 38.58 |
| Distance Education Computer Hardware | $ 69.03 | $ 92.69 | $ 77.15 |
| Distance Education Technology Maintenance | $ 9.24 | $ 10.02 | $ 9.26 |
| Distance Education Telecommunications | $ 1.45 | $ 3.63 | $ 1.54 |
| Distance Education Technical Personnel | $ 174.29 | $ 224.48 | $ 154.30 |
| Total | $ 298.52 | $ 392.95 | $ 282.48 |

*Question I - 3*

To answer part three of Question I, a frequency analysis was performed on distance education expenditures and the percentage those expenditures represented of total spending for an institution, by category item, based upon the service area (urban vs. rural) of each institution. Appendices K and L present a full list of expenditures and the percentages of those expenditures devoted to distance education.

Table 18 shows average distance education expenditures for responding institutions, broken down by category and service area. Distance education spending on

staff training at rural institutions ($1,336.74) was higher than at urban institutions where no expenditures were reported ($0). Due to the fact that information could not be statistically assessed, no determination could be made about the difference in expenditures for distance education staff training when institutions were compared on service area. Spending on faculty development was higher at urban institutions ($1,489.43) than at rural institutions ($1,336.10). However, when an analysis of variance was run on this category, the results were not statistically significant (see Table 36). Spending on computer software was higher at urban institutions ($57,227.20) than in rural ones ($15,639.76). Expenditures on computer hardware were higher ($27,941.46) at rural institutions than at urban institutions ($13,734.53). Spending on technology maintenance was higher at urban institutions ($13,374.53) than at rural institutions ($3,187.04). Spending on telecommunications at urban institutions ($1,855.48) exceeded that of rural institutions ($761.92). Expenditures by urban institutions on technical personnel ($228,908.80) out-numbered expenditures by rural institutions ($65,509.01) (see Table 18). With the exception of the two categories discussed at the beginning of this paragraph all categories proved to have a statistically significant variation in means when they were compared using institutional service area.

Table 18

Mean 2005-06 Expenditures for Distance Education by Institution Service Area

| Institution Size | Rural | Urban |
|---|---|---|
| Distance Education Staff Training | $ 1,336.74 | $0.00 |
| Distance Education Faculty Development | $ 1,336.10 | $ 1,489.43 |
| Distance Education Computer Software | $ 15,639.76 | $ 57,227.20 |
| Distance Education Computer Hardware | $ 27,941.46 | $ 13,734.53 |
| Distance Education Technology Maintenance | $ 3,187.04 | $ 13,734.53 |
| Distance Education Telecommunications | $ 761.92 | $ 1,855.48 |
| Distance Education Technical Personnel | $ 65,509.01 | $ 228,908.80 |
| Total | $ 115,712.03 | $ 316,949.97 |

Table 19 shows the average percentage expenditure distance education represents by each category for the 2005-06 academic year by service area. Spending at rural institutions on staff training was 13.7%; urban institutions responding to this study reported no expenditures on this category. Spending on faculty development was greater (3.8% more) at rural institutions (10.3%) than at urban institutions (6.5%). Urban institutions spent 32.5% of their computer software budget on distance education compared to rural institutions, which only spent 25.6%. Urban institutions also spent more on computer hardware (32.5%) than rural institutions (22.5%). Urban institutions spent more on technology maintenance (32.5%) than rural institutions (22.2%). Rural institutions spent more proportionally on telecommunications (32.9%) than urban

institutions (30.0%). Finally, urban institutions spent more on technical personnel (32.5%) than rural institutions (26.3%) (see Table 19).

While it was expected that dollar amounts expended by urban institutions would be higher because of a larger number of service personnel, the fact that they have a larger percentage of expenditures on all categories except staff training, faculty development, and telecommunications suggests that urban institutions have better equipment, and better support services than rural institutions offering distance education courses and programs.

Table 19

Mean 2005-06 Percentage Expenditures for Distance Education by Institution Service Area

| Institution Size | Rural | Urban |
|---|---|---|
| Distance Education Staff Training | 13.7% | 0.0% |
| Distance Education Faculty Development | 10.3% | 6.5% |
| Distance Education Computer Software | 25.6% | 32.5% |
| Distance Education Computer Hardware | 22.5% | 32.5% |
| Distance Education Technology Maintenance | 22.2% | 32.5% |
| Distance Education Telecommunications | 32.9% | 30.0% |
| Distance Education Technical Personnel | 26.3% | 32.5% |

Finally, the amount expended per FTE for distance education services yielded differing results. It costs more for rural institutions to offer faculty ($3.56 per FTE) and staff training ($3.56 per FTE) and computer hardware ($74.51 per FTE) than it does for urban institutions ($0.00, $1.66 and $15.33 respectively). Urban institutions spent more

on computer software ($63.87 per FTE), technology maintenance ($15.33 per FTE), and technical personnel ($255.48) per FTE than rural institutions. Telecommunications cost almost the same amount to deliver at both rural ($2.03 per FTE) and urban (2.07 per FTE) institutions, a fact that can be explained by consistency in telecommunications/bandwidth needs at all North Carolina institutions (see Table 20).

Table 20

Mean 2005-06 Expenditures Per Distance Education FTE by Institution Service Area

| Institution Size | Rural | Urban |
|---|---|---|
| Distance Education Staff Training | $ 3.56 | $0.00 |
| Distance Education Faculty Development | $ 3.56 | $ 1.66 |
| Distance Education Computer Software | $ 41.71 | $ 63.87 |
| Distance Education Computer Hardware | $ 74.51 | $ 15.33 |
| Distance Education Technology Maintenance | $ 8.50 | $ 15.33 |
| Distance Education Telecommunications | $ 2.03 | $ 2.07 |
| Distance Education Technical Personnel | $ 174.69 | $ 255.48 |
| Total | $ 308.56 | $ 353.74 |

## Research Question II

Research Question II asked: What proportion of institutional expenditures are attributed to the operation of distance education courses and programs within the North Carolina Community College System? To answer this question, the following analyses were conducted:

1. The cost of each of the seven categories identified in the survey was compared to the cost of those categories for the system as a whole.
2. The cost of each of the seven categories identified in the survey was categorized by the college's designation as urban or rural and was compared to the institution as a whole.
3. The cost of each of the seven categories identified in the survey was categorized by the college's size and was compared to the system as a whole.

*Question II – 1*

The cost of each of the distance education spending categories identified in the survey was compared to the cost of education for system as a whole. Total 2005-06 operating expenses, as reported in the 2005-06 NCCCS Statistical Fact Book, for the forty-four institutions that responded to the survey were $746,512,117 (North Carolina Community College Statistical Fact Book, 2006). Distance education represents just 1.13% of total operating expenditures for the system. The relative proportions of total spending on distance education system-wide for each of the categories identified in this study are shown in Table 21. Distance education spending on technical personnel ($4,747,241.42 or 0.63592%) represented the largest expenditure for distance education as a proportion of total spending (see Table 21).

Table 21

Total 2005-06 Distance Education Expenditures by Category as a Percentage of Total Cost

| Category | Annual Dist. Ed. Cost | Percentage of Total Cost |
|---|---|---|
| Distance Education Staff Training | $ 77,530.92 | 0.01039% |
| Distance Education Faculty Development | $ 79,717.52 | 0.01068% |
| Distance Education Computer Software | $ 1,136,827.26 | 0.15229% |
| Distance Education Computer Hardware | $ 2,098,485.24 | 0.28111% |
| Distance Education Technology Maintenance | $ 243,110.48 | 0.03257% |
| Distance Education Telecommunications | $ 53,705.10 | 0.00719% |
| Distance Education Technical Personnel | $ 4,747,241.42 | 0.63592% |
| Total Distance Education Cost | $ 8,436,617.94 | 1.13014% |

*Question II - 2*

The cost of each of the distance education categories identified in the survey were analyzed and reported by the college's designation as urban or rural. On average in 2005-06 urban institutions spent proportionally more in five of the seven categories: faculty development (0.34% vs. 0.31%), computer software (13.23% vs. 3.61%), technology maintenance (3.17% vs. 0.74%), telecommunications, (0.43% vs. 0.18%), and technical personnel (52.91% vs. 15.14%). Rural institutions outspent their urban counterparts on staff training (0.31% vs. 0.0%) and computer hardware (6.46% vs. 3.17%) (see Table 22).

Table 22

Mean 2005-06 Expenditures for Distance Education by Institution Service Area as a Proportion of Institution-Wide Categorical Costs

| Institution Service Area | Rural | Urban |
|---|---|---|
| Distance Education Staff Training | 0.31% | 0.00% |
| Distance Education Faculty Development | 0.31% | 0.34% |
| Distance Education Computer Software | 3.61% | 13.23% |
| Distance Education Computer Hardware | 6.46% | 3.17% |
| Distance Education Technology Maintenance | 0.74% | 3.17% |
| Distance Education Telecommunications | 0.18% | 0.43% |
| Distance Education Technical Personnel | 15.14% | 52.91% |

*Question II - 3*

The cost of each of the seven distance education categories identified in the survey was first categorized by the college's size. Secondly, as summarized from Appendix F, the forty-four institutions in the study spent an average of $442,632.00 on distance education in 2005-06. Further analysis determined the percentage of the average ($442,632.00) spent in each category according to institutional size. Spending on distance education showed that proportional spending generally increased with the size of the institution except in one category, staff training. Additionally, costs, as a proportion of the $442,632.00 spent on distance education by responding institutions, leveled off in two categories faculty development and telecommunications (see Table 23). This trend is

expected due to the growth in the number of service personnel required compared to the size of the institution.

Table 23

Mean 2005-06 Categorical Expenditures for Distance Education by Institution Size as a Proportion of Average Institutional Distance Education Expenditures

| | Institution Size | | |
|---|---|---|---|
| Category | Small | Medium | Large |
| Distance Education Staff Training | 0.1% | 0.3% | 0.0% |
| Distance Education Faculty Development | 0.1% | 0.3% | 0.3% |
| Distance Education Computer Software | 2.0% | 3.8% | 7.8% |
| Distance Education Computer Hardware | 3.4% | 6.7% | 15.6% |
| Distance Education Technology Maintenance | 0.5% | 0.7% | 1.9% |
| Distance Education Telecommunications | 0.1% | 0.3% | 0.3% |
| Distance Education Technical Personnel | 8.6% | 16.2% | 31.1% |

## Research Question III

Research Question III asked: What was the return on investment of offering distance education courses and programs in North Carolina community colleges? In order to examine the return on investment of offering distance education at North Carolina community colleges, the following analyses were performed:

1. The number of distance education students was compared to the total student population of each institution to determine the percent of the student population who participates in distance education.

2. The actual dollar amount attributed to each expenditure as reported by survey respondents was compared to the average dollar amount for that expenditure for the system as a whole.
3. The cost of each category was compared to the relative full-time equivalency (FTE) generated in distance education for the institution and the North Carolina Community College System as a whole to determine the average expenditure per category and the profitability of distance education across the system.
4. Spending on distance education at each institution was examined to determine if there was a difference in funds devoted to distance education compared to traditional education delivery based upon the size of the institution and its classification as rural or urban.
5. The return on investment, net income less net expenses, for each institution was examined to determine if, when compared to traditional course offerings, the return on investment for distance education offerings was higher or lower based upon the size of an institution or its classification as rural or urban.

*Question III – 1*

To answer part one of Question III, the number of distance education students was compared to the total student population of each institution to determine the percentage of the student population who participated in distance education. Among all respondents to the survey, the average unduplicated college head count was 5,228 (see Appendix M). Furthermore, 39% (17) of the institutions surveyed tracked distance education enrollment separately from traditional student enrollment. Distance education head count for those

institutions averaged 1,329 students, indicating that 28.9% of all students at these institutions took at least one distance education course (see Appendix M).

*Question III – 2*

To answer part two of Question III, the dollar amount attributed to each expenditure for each of the seven categories was compared to the average dollar amount for that expenditure for the forty-four institutions responding to the survey.

Appendix N illustrates expenditures for each of the seven distance education categories per institution included in the survey. While there were minor differences in the average expenditures among colleges, no specific trend could be identified based upon institutional size or institutional service area. One factor that should be noted is the variation of data collected by individual institutions. No institution collected data on all categories listed in this survey.

*Question III – 3*

To answer part three of Question III, the cost of each of the seven distance education categories was compared to the relative full-time equivalency (FTE) generated in distance education for the institutions participating in the study and the North Carolina Community College System as a whole to determine the average expenditure per category of distance education and the profitability of distance education across the system.

Appendix O shows individual responses to question III, part 3. In this appendix, individual institutional expenses for distance education were compared to the FTE generated in each respective institution. As a result, reported expenses of distance

education offerings per FTE show that the average total direct costs related to distance education were $488.17 per FTE (see Table 24). This table does not take into account college administrative expenses, student support services, or faculty expenditures.

Table 24
2005-06 Mean Expenditure Per FTE

| Expense Category | Average Expenditure Per FTE |
|---|---|
| Distance Education Staff Training | $ 4.59 |
| Distance Education Faculty Development | $ 6.20 |
| Distance Education Computer Software | $ 63.02 |
| Distance Education Computer Hardware | $ 115.89 |
| Distance Education Technology Maintenance | $ 13.74 |
| Distance Education Telecommunications | $ 3.25 |
| Distance Education Technical Personnel | $ 281.48 |
| Total | $ 488.17 |

In order to determine the cost per FTE of distance education with any degree of accuracy, it is important to determine expenditures for student services, for faculty, and for administration. Since administrators do not collect the information that would allow them to identify cost differences among the three aforementioned areas, the average institution-wide expenditure for each area must be used as a basis for these costs.

Using this pretext, average statewide personnel costs for student services, for faculty, and for administration per FTE equals $5,562.27 when adjusted to remove costs associated with continuing education ventures (Appendix C). That was amount added to

direct costs of offering distance education programs which was $488.17. Statewide allocation per FTE for the 2005-06 academic year averaged $4,500.00 (NCCCS Formula Budget Computation, 2005). Additionally, each full-time, in-state student generated $672.00 in tuition. When average net costs ($5,562.27 + $488.17) are subtracted from average net income ($4,500 + $672) the results show an average net loss of $878.44 per full-time distance education student who is enrolled at North Carolina community colleges (see Table 25).

Table 25
Distance Education Profitability

| | | |
|---|---|---|
| Personnel and Student Services | $ | 5,562.27 |
| Direct Costs of Offering Distance Education | $ | 488.17 |
| | | |
| Average Statewide Allocation per FTE | $ | 4,500.00 |
| Student Tuition Fees | $ | 672.00 |
| | | |
| Distance Education Profitability | $ | (878.44) |

*Question III - 4*

Part four of Question III examines spending on distance education at each institution based upon the size of the institution to determine if there was a difference in funds devoted to distance education compared to traditional education delivery by its classification as rural or urban. Table 26 shows the average total spending on distance education based upon its classification as a rural ($123,173.50) or urban ($81,918.59) institution. Rural institutions spent $41,254.91 more than urban institutions on providing distance education during the 2005-06 academic year (see Table 26).

Table 26
Mean 2005-06 DE Expense By Service Area

| Institution Service Area | | Mean Expenditure |
|---|---|---|
| | Rural | $123,173.50 |
| | Urban | $81,918.59 |

When institutions were compared by size, medium-size institutions spent $9,264.40 more on distance education than their smaller counterparts and $31,587.31 more than their larger counterparts (see Table 27).

Table 27
Mean 2005-06 DE Expense By Institution Size

| Institutional Size | | Mean Expenditure |
|---|---|---|
| | Large | $89,016.27 |
| | Medium | $120,603.58 |
| | Small | $111,339.18 |

*Question III - 5*

Finally, when examining the overall profitability per FTE of offering distance education to institutions based upon service area and size, the return on investment (net income less net expenses) for each institution was examined to determine if the return on investment for distance education offerings was higher or lower based upon the size of an institution or its classification as rural or urban when compared to traditional course offerings. Table 28 shows that when institutions are compared according to service area, rural institutions show less of a loss per FTE than their urban counterparts (-$500.72 vs. -$778.80). Additionally, Table 29 shows that smaller institutions showed less of a loss (-

$434.14) than their medium and large-size counterparts (-$616.87 and -$675.87 respectively).

Table 28
Mean 2005-06 DE Profit By Service Area

| Institution Service Area | | Net Income | Mean Expense | Mean Loss |
|---|---|---|---|---|
| | Rural | $5,172.00 | $5,672.72 | -$500.72 |
| | Urban | $5,172.00 | $5,950.80 | -$778.80 |

Table 29
Mean 2005-06 DE Profit by Institution Size

| Institution Service Area | | Net Income | Mean Expense | Mean Loss |
|---|---|---|---|---|
| | Large | $5,172.00 | $5,847.87 | -$675.87 |
| | Medium | $5,172.00 | $5,788.87 | -$616.87 |
| | Small | $5,172.00 | $5,606.14 | -$434.14 |

## Statistical Analysis

In order to confirm that average expenditures reported in this study were statistically different, an analysis of variance (ANOVA) was performed on the seven cost categories identified in the research. An ANOVA was performed on each category (DE Staff Training, DE Faculty Development, DE Computer Software, DE Computer Hardware, DE Technology Maintenance, DE Telecommunications, and DE Technical Personnel) grouped by their designation as small, medium, or large-sized institutions, their designation as rural or urban institutions, and finally by a combination of those factors.

*Institutional Size*

*Distance Education Staff Training*

Due to the small number of responses to the question of distance education staff training costs, no statistical analysis could be performed on the available data. Respondents could not be grouped by institutional size in sufficient numbers to allow an analysis of variance on the three categories (small, medium, and large). As a result, differences in distance education staff training average dollar expenditures by institutional size can not be confirmed as statistically different without further study.

*Distance Education Faculty Development*

As noted in Table 30, the analysis of variance shows that there was a significant difference ($F(2,21)=3.88$, $p=.037$) in the amount spent on faculty development categorized by institutional size. Specifically, small-sized institutions averaged $572.99, with a standard deviation of $276.46. Medium-sized institutions averaged $2,063.57 with a standard deviation of $1,854.38. Large-sized institutions averaged $2,019.62 with a standard deviation of $1,350.16. Upon a follow-up analysis, the researcher used Sheffe´'s Test to determine the means between which significant differences existed. It was found that there was a significant difference between small-sized/medium-sized institutions and small-sized/large-sized institutions, but not between medium-sized/large-sized institutions.

| Table 30 | | | | | |
|---|---|---|---|---|---|
| Distance Education Faculty Development Size ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 13,080,929.50 | 2 | $ 6,540,464.73 | 3.880000 | 0.037000 |
| Error | $ 35,358,518.20 | 21 | $ 1,683,738.96 | | |
| Total | $ 48,439,447.70 | 23 | $ 8,224,203.69 | | |

*Distance Education Computer Software*

Based upon institutional size, there was a significant difference (F (2,18)-5.93, p=.01) in spending on distance education computer software (see Table 31). Large-sized institutions spent an average of $47,177.27 with a standard deviation of $33,034.97. Medium-sized institutions spent an average of $23,186.22 with a standard deviation of $11,671.68. Small-sized institutions spent an average of $11,978.69 with a standard deviation of $11,231.30. Sheffe''s test was used to determine the means between which significant differences existed. It was found that small-sized institutions spent significantly less on computer software than medium and large-sized institutions. Sheffe''s test also showed that medium-sized and large-sized institutions significantly differed from each other and from small-sized institutions.

| Table 31 | | | | | |
|---|---|---|---|---|---|
| Distance Education Computer Software Size ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 22,628,273.12 | 2 | $ 11,314,136.56 | 5.930000 | 0.010000 |
| Error | $ 34,324,916.16 | 18 | $ 1,906,939.79 | | |
| Total | $ 56,953,189.28 | 20 | $ 13,221,076.35 | | |

*Distance Education Computer Hardware*

As Table 32 shows, average spending on distance education computer hardware was significant (F (2,18)= 5.12, p=.017). Large-sized institutions spent an average of $94,354.55 with a standard deviation of $6,6069.93. Medium-sized institutions spent an average of $40,597.17 with at standard deviation of $28,729.77. Small-sized institutions spent $20,571.29 with at standard deviation of $24,735.19. Sheffe''s test was used to determine the means between which significant differences existed. It was found that there was a significant difference between the amount spent on computer hardware among each of the three sized institutions.

Table 32

Distance Education Computer Hardware Size ANOVA

| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
|---|---|---|---|---|---|
| Between Groups | $ 93,804,766.03 | 2 | $ 46,902,383.01 | 5.120000 | 0.017000 |
| Error | $ 164,748,977.60 | 18 | $ 9,152,720.98 | | |
| Total | $ 258,553,743.63 | 20 | $ 56,055,103.99 | | |

*Distance Education Technology Maintenance*

Table 33 shows the analysis of variance of distance education technology maintenance based upon institutional size. Results show that there is a significant difference (F (2,18)= 4.91, p=.02) in average expenditures. Large-sized institutions spent an average of $11,322.55 with a standard deviation of $7,928.39. Medium-sized institutions spent an average of $4,387.36 with a standard deviation of $3,400.94. Small-sized institutions spent an average of $2,752.62 with a standard deviation of $2,911.32. Sheffe''s test was used to determine the means between which significant differences

existed. It was found that small-sized institutions spent significantly less on technology maintenance than either medium-sized or large-sized institutions. Sheffe''s test also showed that there was a significant difference between medium-sized and large-sized institutions and with each among small-sized institutions.

| Table 33 | | | | | |
|---|---|---|---|---|---|
| Distance Education Technology Maintenance Size ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 1,247,845.04 | 2 | $ 62,392,251.90 | 4.910000 | 0.020000 |
| Error | $ 2,285,821.14 | 18 | $ 12,699,006.40 | | |
| Total | $ 3,533,666.18 | 20 | $ 75,091,258.30 | | |

*Distance Education Telecommunications*

Results of the analysis of variance on distance education telecommunications showed a significant difference (F (2,16)=9.67, p=.0018) in expenditures based upon institutional size (see Table 34). Large-sized institutions spent an average of $1,887.09 with a standard deviation of $1,321.40. Medium-sized institutions spent an average of $1,592.10 with a standard deviation of $579.47. Small-sized institutions spent an average of $462.03 with a standard deviation of $472.63. Sheffe''s test was used to determine the means between which significant differences existed. It was found that small-sized institutions spent significantly less funds for distance education telecommunications than either medium-sized or large-sized institutions. Sheffe''s test showed that medium-sized and large-sized institutions did not differ significantly from one another in this expenditure category.

| Table 34 | | | | | |
|---|---|---|---|---|---|
| Distance Education Telecommunications Size ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 6,842,428.74 | 2 | $ 3,421,214.37 | 9.670000 | 0.001800 |
| Error | $ 5,658,753.34 | 16 | $ 3,533,672.08 | | |
| Total | $ 12,501,182.08 | 18 | $ 6,954,886.45 | | |

*Distance Education Technical Personnel*

Table 35 shows that average spending on distance education technical personnel was significantly different (F (2,17)= 4.75, p=.023) when compared on institution size. Large-sized institutions spent and average of $188,709.09 with a standard deviation of $132,139.85. Medium-sized institutions spent an average of $98,320.89 with a standard deviation of $62,493.78. Small-sized institutions spent an average of $51,937.76 with a standard deviation of $45,873.85. Sheffe''s test confirmed that the means among small, medium, and large-sized institutions were significantly different.

| Table 35 | | | | | |
|---|---|---|---|---|---|
| Distance Education Technical Personnel Size ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 345,789,000.00 | 2 | $ 172,895,000.00 | 4.750000 | 0.023000 |
| Error | $ 619,379,000.00 | 17 | $ 36,434,047.25 | | |
| Total | $ 965,168,000.00 | 19 | $ 209,329,047.25 | | |

*Institution Service Area*

*Distance Education Staff Training*

Due to the small number of responses to the question of distance education staff training costs no statistical analysis could be performed on the available data. Respondents could not be grouped by institutional service area in sufficient numbers to

allow an analysis of variance on the two categories (rural and urban). As a result, differences in distance education staff training average dollar expenditures by institutional service area can not be confirmed as statistically different without further study.

*Distance Education Faculty Development*

Table 36 shows the analysis of variance of distance education faculty development by service area (F (1,22)=.048, p=.83). Therefore no significant difference can be shown for distance education faculty development when compared based upon service area.

Table 36

Distance Education Faculty Development Service Area ANOVA

| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
|---|---|---|---|---|---|
| Between Groups | $ 105,796.17 | 1 | $ 105,796.17 | 0.048000 | 0.830000 |
| Error | $ 48,333,651.50 | 22 | $ 2,196,984.16 | | |
| Total | $ 48,439,447.67 | 23 | $ 2,302,780.33 | | |

*Distance Education Computer Software*

Average expenditures on distance education computer software showed a significant difference (F (1,19)= 23.2, p= .0001) when compared by institution service area (see Table 37). Rural institutions spent an average of $15,639.76 with a standard deviation of $11,084.13. Urban institutions spent an average of $57,227.20 with a standard deviation of $18,822.22.

| Table 37 | | | | | |
|---|---|---|---|---|---|
| Distance Education Computer Software Service Area ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 31,295,986.34 | 1 | $ 31,295,986.34 | 23.200000 | 0.000100 |
| Error | $ 25,657,202.93 | 19 | $ 1,350,379.10 | | |
| Total | $ 56,953,189.27 | 20 | $ 32,646,365.44 | | |

*Distance Education Computer Hardware*

Table 38 shows that average spending on distance education computer hardware was statistically different (F (1,19)= 20.9, p= .00021) when compared by service area. Rural institutions spent an average of $27,941.46 with a standard deviation of $24,602.29. Urban institutions spent an average of $114,454.40 with a standard deviation of $27,644.44.

| Table 38 | | | | | |
|---|---|---|---|---|---|
| Distance Education Computer Hardware Service Area ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 135,434,000.00 | 1 | $ 135,434,000.00 | 20.900000 | 0.000210 |
| Error | 123120127.3 | 19 | $ 64,800,067.00 | | |
| Total | $ 258,554,127.30 | 20 | $ 200,234,067.00 | | |

*Distance Education Technology Maintenance*

Results for the analysis of variance for distance education technology maintenance show that there is a statistically significant difference (F (1,19)= 25.2, P=.00007) in average spending based upon institutional service area (see Table 39). Rural institutions spent an average of $3,187.04 with a standard deviation of $2,704.44. Urban institutions spent an average of $13,734.53 with a standard deviation of $4,517.33.

| Table 39 | | | | | |
|---|---|---|---|---|---|
| Distance Education Technical Maintenance Service Area ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 2,013,085.10 | 1 | $ 2,013,085.10 | 25.200000 | 0.000070 |
| Error | $ 1,520,581.08 | 19 | $ 8,003,058.33 | | |
| Total | $ 3,533,666.18 | 20 | $ 10,016,143.43 | | |

*Distance Education Telecommunications*

Table 40 shows a significant difference (F (1,17)= 21.1, p=.00026) in spending on distance education telecommunications at North Carolina community colleges. Rural institutions spent an average of $761.92 with a standard deviation of $589.74. Urban institutions spent an average of $2,728.27 with a standard deviation of $131.80.

| Table 40 | | | | | |
|---|---|---|---|---|---|
| Distance Education Telecommunications Service Area ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 6,919,035.07 | 1 | $ 6,919,035.07 | 21.100000 | 0.000260 |
| Error | $ 5,582,147.01 | 17 | $ 328,361.59 | | |
| Total | $ 12,501,182.08 | 18 | $ 7,247,396.66 | | |

*Distance Education Technical Personnel*

As Table 41 shows, average spending on distance education technical personnel was significantly different (F (1,18)= 17.85, p=.00051). Rural institutions spent an average of $65,509.01 with a standard deviation of $50,169.89. Urban institutions spent an average of $228,908.80 with a standard deviation of $75,288.87.

| Table 41 | | | | | |
|---|---|---|---|---|---|
| Distance Education Technical Personnel Service Area ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 480,591,000.00 | 1 | $ 480,591,000.00 | 17.850000 | 0.000510 |
| Error | $ 484,577,000.00 | 18 | $ 26,920,954.91 | | |
| Total | $ 965,168,000.00 | 19 | $ 507,511,954.91 | | |

## Institution Size Compared to Service Area

During the course of this study, the researcher attempted to compare the means of the seven aforementioned categories based upon a combination of their classification as small-sized, medium-sized, or large-sized and their classification as rural or urban (i.e. Medium/Rural institutions). The results of these analyses were largely inconclusive due to the few institutions represented in each group. Specifically, no analyses could be performed on large-sized institutions or urban institutions. Of the remaining categories (Medium-sized/Rural and Small-sized/Rural) an analysis of variance was performed with two of the seven categories, faculty development and telecommunications, showed a statistically significant difference in the means.

When examining distance education faculty development a significant difference was found at the 5% confidence level among three means (see Table 43). Medium-sized/Rural institutions had an average Expenditure of $2,446.77 with a standard deviation of $2,103.39. Medium-sized/Urban institutions had an average expenditure of $1,169.44 with a standard deviation of $698.77. Small-sized/Rural Institutions had an average expenditure of $585.07 with a standard deviation of $287.80.

Distance education telecommunications had a statistically significant difference ($F(1,14) = 15.67$, $p = .001$) in means between Medium-sized/Rural and Small-sized/Rural

institutions (see Table 47). Medium-sized/Rural institutions had an average expenditure of $1,383.50 and a standard deviation of $305.60. Small-sized/Rural institutions had an average expenditure of $462.03 with a standard deviation of $472.63.

Analyses of variance run on the remaining cost categories shown in Tables 42, 44, 45, 46, and 48 did not show a statistically significant difference in the mean. Therefore the researcher could not conclude that there was a difference among the varying groups. The primary reason for this inability to draw conclusions came from the fact that the population size was small, and when broken down by size and service area had too few items to run appropriate statistical analyses. As discussed in Chapter V the researcher suggests continued data collection so that the data set may be increased.

Table 42
Distance Education Staff Training Size/Service Area ANOVA

| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
|---|---|---|---|---|---|
| Between Groups | $ 2,338,740.00 | 1 | $ 2,338,740.00 | 1.45 | 0.295000 |
| Error | $ 6,448,843.85 | 4 | $ 1,612,210.96 | | |
| Total | $ 8,787,583.85 | 5 | $ 3,950,950.96 | | |

Table 43
Distance Education Faculty Development Size/Service Area ANOVA

| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
|---|---|---|---|---|---|
| Between Groups | $ 16,841,705.40 | 3 | $ 5,613,901.80 | 3.31 | 0.040000 |
| Error | $ 30,565,885.80 | 18 | $ 1,698,104.80 | | |
| Total | $ 47,407,591.20 | 21 | $ 7,312,006.60 | | |

Table 44
Distance Education Computer Software Size/Service Area ANOVA

| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
|---|---|---|---|---|---|
| Between Groups | $ 290,864,209.00 | 1 | $ 290,864,209.00 | 2.52 | 0.130000 |
| Error | $ 1,849,980,403.00 | 16 | $ 115,623,775.00 | | |
| Total | $ 2,140,844,612.00 | 17 | $ 406,487,984.00 | | |

| Table 45 | | | | | |
|---|---|---|---|---|---|
| Distance Education Computer Hardware Size/Service Area ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 886,240,958.00 | 1 | $ 886,240,958.00 | 1.48 | 0.240000 |
| Error | $ 9,599,242,050.00 | 16 | $ 599,952,628.00 | | |
| Total | $ 10,485,483,008.00 | 17 | $ 1,486,193,586.00 | | |

| Table 46 | | | | | |
|---|---|---|---|---|---|
| Distance Educatioin Technology Maintenace Size/Service Area ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 2,443,245.28 | 1 | $ 2,443,245.28 | 0.32 | 0.580000 |
| Error | $ 122,455,875.00 | 16 | $ 7,653,492.16 | | |
| Total | $ 124,899,120.30 | 17 | $ 10,096,737.44 | | |

| Table 47 | | | | | |
|---|---|---|---|---|---|
| Distance Education Telecommunications Size/Service Area ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 2,918,789.05 | 1 | $ 2,918,789.05 | 15.67 | 0.001000 |
| Error | $ 2,607,306.70 | 14 | $ 186,236.19 | | |
| Total | $ 5,526,095.75 | 15 | $ 3,105,025.24 | | |

| Table 48 | | | | | |
|---|---|---|---|---|---|
| Distance Education Technical Personnel Size/Service Area ANOVA | | | | | |
| Source of Variation | Sum of Squares | Degrees of Freedom | Mean Squares | F test | P-value |
| Between Groups | $ 4,354,723,265.00 | 1 | $ 4,354,723,265.00 | 1.74 | 0.210000 |
| Error | $ 37,496,631,830.00 | 15 | $ 2,499,775,455.00 | | |
| Total | $ 41,851,355,095.00 | 16 | $ 6,854,498,720.00 | | |

## Closing

This study examined the cost of distance education in forty-four community colleges throughout North Carolina. Data were collected through a survey administered to chief financial officers and distance education coordinators. The colleges'

demographics were examined along with information collected on three specific research questions. Additionally, a model was offered by which community colleges can asses the cost of distance education at their institution.

Significant differences in expenditures were evident in several of the seven categories discussed in this chapter. Small-sized institutions were found to be spending much less on distance education than their medium or large-sized counterparts on faculty development, computer software, computer hardware, telecommunications, technical personnel, and staff training. Medium-sized institutions did not differ from large-sized institutions in the areas of distance education faculty development and distance education telecommunications. Finally, rural and urban institutions were all significantly different from each other in the areas of faculty development, computer software, computer hardware, technical maintenance, telecommunications, and technical personnel.

# CHAPTER V

# SUMMARY, DISCUSSION, CONCLUSIONS, AND IMPLICATIONS FOR FURTHER STUDY

The purpose of this study is to identify and assess direct costs of distance education at the institutional level within the North Carolina Community College System (NCCCS) in accordance with the System-level mission of reducing barriers to higher education within North Carolina. Through a quantitative analysis of distance education expenditures, this study provides insight into the cost of each of these expenditures to individual institutions and to the NCCCS as a whole. Data provided in this study were used to develop a model through which community college administrators may assess the cost of distance education at their respective institutions in a clear and consistent fashion (Appendix P). It will fill the gap in North Carolina Community College funding research by providing administrators accurate data and a model with which to assess distance education costs.

The researcher developed a survey which consisted of thirty-seven questions that was used to collect demographic data and financial information about distance education programs at North Carolina community colleges. Three specific research questions were also included in the survey instrument. The survey was administered to chief financial officers and directors of distance education at the fifty-eight community colleges in North

Carolina and to the two comparable administrators at the system office in Raleigh. Surveys were administered in an electronic form, in a paper format, and by a telephone survey. This chapter discusses data collected, the model developed to assess distance education costs, conclusions drawn, and recommendations for future research.

## Summary

In order to determine the direct cost of offering distance education courses and programs in North Carolina community colleges, it first was necessary to determine what expenditures were directly involved in offering distance education and how much impact those expenditures had on the institution's ability to offer courses and programs. In order to obtain this information, the researcher collected demographic data about institutions included in this study that related to three research questions:

1. North Carolina community colleges are typically classified as small with average enrollments of fewer than 2,000 students and define their service area as rural.
2. Distance education head counts predominantly range from 500 to 1,499 students, with the majority having fewer than 250 FTE.
3. The majority (twenty-eight) of the forty-four institutions included in this study have been offering some form of distance education for at least ten years and are currently offering an average of four degree programs through distance education.
4. In the 2005-06 academic year, average student retention rate was 69.5% for distance education students, which exceeded the national average distance education retention of 50% (O'Hanlon, 2001).

5. No special fees were identified as being charged solely to distance education students.
6. Distance education students made use of student support services in the same fashion as traditional students.

*Research Question I*

Question I asked: What expenditures do administrators consistently assign as direct costs of offering distance education in North Carolina community colleges? To answer this question data were collected on the cost of distance education spending for institutions included in the study based upon their size and service areas. Survey results show that community colleges routinely and consistently assign direct costs to seven distance education areas. They are staff training, faculty development, computer software, computer hardware, technology maintenance, telecommunications, and technical personnel. Additionally, three significant findings appeared in these data.

1. No institution devoted specialized funds for student support services exclusively for distance education students. Since SACS accredited institutions are required to make all services available to traditional and distance education students, this lack of emphasis on converting student support services into a distance education friendly format suggests that (a) distance education students are either close enough to the college campus to access services, or (b) they are not requesting such services (SACS COC, 2008).
2. With respect to institutional size, the researcher expected costs to increase as institutional size/enrollment increased. However, the data showed that medium-

size schools were spending more on staff training and software and had a greater total expenditure per FTE than their larger and smaller counterparts. This outcome supports current literature which states that distance education programs operate on an economy of scale where costs increase to a certain point and then level off (Carr, 2001; Foshay, 2002). This result suggests that medium-sized schools have increased their costs at a higher rate than respective increases in student enrollment.

3. Urban institutions tend to spend more on faculty development, computer software, technical maintenance, telecommunications, and technical personnel, which suggests that they may be providing a greater level of support than their rural counterparts. In contrast, rural institutions tended to spend more on staff training and computer hardware than did urban institutions. Higher expenditures per FTE on hardware by rural institutions are understandable, because there is a base level of technology which must be achieved before offering distance education.

*Research Question II*

Question II asked: What proportion of institutional expenditures are attributed to the operation of distance education courses and programs within the North Carolina Community College System? Results from data collected for Question II followed expected trends. Urban institutions spent proportionally more on distance education than their rural counterparts. It is evident that urban institutions tend to be larger and have more students than rural institutions. Additionally, spending on distance education tended

to increase with institution size. Again, spending on distance education followed expected trends which ran parallel to that of total institutional expenditures.

*Research Question III*

Question III asked: What was the return on investment of offering distance education courses and programs in North Carolina community colleges? Results from data collected for Question III provided valuable information on the profitability of distance education in North Carolina community colleges. North Carolina community college distance education student head count averaged 1,329 students for the 2005-06 academic year. The full-time equivalency (FTE) for that same year was an average of 512 per institution. This suggests that, on average, students took only one-third of a full-time load in distance education. Therefore, either community college distance education students are not typically enrolled full-time, or they are supplementing their education by taking both traditional and distance education courses.

In the 2005-06 academic year, rural institutions spent more total dollars on distance education than their urban counterparts (see Table 26). Medium-size institutions spent more on distance education than either small or large-size institutions (see Table 27). Results from this analysis show that, on average, pure distance education expenditures account for $488.17 per FTE generated by distance education. This additional expense, combined with administrative, support services, and faculty costs resulted in an average net loss of $878.44 per FTE for offering distance education in North Carolina community colleges. Additionally, small-size and rural institutions tend to be the most profitable (See Table 28 & 29), and medium-size institutions do not show

extensive or significant differences in profitability when compared to large institutions, a fact that further corroborates the theory that distance education operates on an economy of scale (Carr, 2001; Foshay, 2002).

This research elicited valuable data which can be used to assess the profitability of offering distance education courses/programs at North Carolina community colleges, and it can serve as a foundation for further study. Since distance education data collection is not mandated by the North Carolina Community College System Office. Colleges collect data by using a variety of methods and in varying levels of detail. Requests for data collection were affected by an institution's degree of emphasis on distance education, slight variations in institutions' accounting processes, and methods used by administrators in their data collection at each institution.

## Conclusions

Although data collection was challenging, administrators participating in the survey were helpful and worked diligently to provide accurate information. Several notable conclusions can be drawn from the information they provided.

The financial impact of offering distance education at North Carolina community colleges is significant and provides valuable insight into distance education profitability. Gross spending on distance education increases with the size and enrollment of the institution. Average system-wide distance education head count for 2005-06 was 1,329 students, which equated to an average of 512 full-time equivalent students. As a result, it is apparent that traditional community college students are often supplementing their education with one or more distance education classes.

On telecommunications services, urban institutions spent more dollars than their rural counterparts. Also, urban institutions spent more per FTE for telecommunications services. Administrators at medium-size institutions tended to spend more per FTE than did their counterparts at large or small institutions. Again, this corroborates the concept of economies of scale when offering distance education. On average, institutions lost $878.44 per distance education generated FTE, and medium-size colleges were the least profitable.

While distance education serves the NCCCS mission of providing affordable and accessible education to North Carolina citizens, it is not the often-touted "cash cow" (Antonucci, 2001). Administrators who wish to venture into the arena of distance education should take a close look at the cost of providing such services and develop a strategic planning process to minimize the cost of offering distance education at their respective institutions.

This study fills a gap in North Carolina community college distance education research by providing a first-ever look at the institutional and system-level cost of providing distance education. The findings of this study provide North Carolina community college administrators a clear picture of the true cost of distance education and how institutional size, service area, and enrollment affect distance education profitability. Administrators can now see what information is being collected concerning distance education costs at their respective and sister institutions and where gaps lie in current budgetary data collection. Finally, this research produced a model administrators can use at their institutions to identify distance education costs (Appendix P). The model

consists of an Excel spreadsheet which allows one to input dollar amounts collected from existing financial data at any North Carolina community college. It is user-friendly and requires a minimum amount of computation to determine distance education costs. This model allows for better financial analysis, improved planning, and proper allocation of institutional resources.

Several implications are apparent as a result of this study. Specifically, it sheds light on two macro issues facing North Carolina community college distance education programs. Because available data were sometimes limited, administrators do not always have a clear understanding of the costs associated with distance education. As a result, administrators need to research these costs and begin to assess such expenditures when weighed against other alternatives. They need to improve budgetary planning and cost tracking as it relates to distance education in North Carolina community colleges. Additionally, administrators need to use a research-based model for evaluating distance education profitability at their respective institutions and begin to examine program viability as it relates to the allocation of resources. Lastly, administrators need to assess the implications of a lack of available student support services for distance education students. This is important not only because comparable services are required by regional accrediting bodies, but also because providing such services improves retention rates and aids students in their pursuit of a degree.

The second macro implication of this study relates to the profitability of offering distance education courses and programs at North Carolina community colleges. As shown in this study, distance education programs at North Carolina community colleges

average a net loss of $878.44 per full-time enrolled distance education student. While program profitability is not the goal of these institutions, it is prudent to assess costs and, whenever possible, reduce expenses. Additionally, it is detrimental to institutional stability to allocate already scarce resources without first weighing other options. Administrators in the North Carolina Community College System should take a closer look at the viability of their programs. A significant amount of money is being devoted to a delivery method that only generates an average of four curriculum programs per institution. As previously revealed in this study, distance education programs operate on an economy of scale in which basic costs are fixed, and the expense of adding additional students is relatively low (Carr, 2001; Foshay, 2002). This fact has significant implications for medium-size and rural institutions, which typically bear the highest costs of providing distance education. Administrators at these institutions need to examine their programs to determine if they are operating at peak financial efficiency. Finally, from a statewide level, community college leaders should examine the distribution of funds, especially to rural and medium-size institutions so that parity in resource allocation can be achieved for all distance education students without reducing spending on traditional students.

## Suggestions for Future Research

This study yielded valuable data related to distance education at North Carolina community colleges. It revealed inefficiencies in the system of budgetary oversight at individual institutions and showed that distance education programs operate at an average net loss when compared to traditional methods of delivery. Several findings point to the

need for further research in the area of distance education. This researcher suggests that both quantitative and qualitative studies be undertaken to further address this very timely topic.

During the present study, the researcher noted that administrators provided significantly different levels of financial support for distance education at their individual institutions. Further research is needed to determine whether administrators have different perceptions of distance education compared to their perceptions of traditional delivery methods and the extent to which they value one delivery method more than the other.

Additionally, the researcher recommends that a longitudinal study be conducted to track distance education costs over time. Researching distance education costs for a period of three to five years would provide a consistent data set and insure continuity in reported data. This would allow administrators to have a consistent set of average costs from which to draw conclusions about the cost of distance education at their respective institutions.

The researcher further recommends that a study be conducted to identify additional cost elements of providing distance education. While administrators in the present study provided available data on cost elements listed in the survey, none offered additional items unique to their respective institutions. It is likely that such elements exist, and an in-depth institutional level analysis of distance education expenses would likely yield additional sources of cost, which in turn, would further impact the profitability of distance education.

It would also be important to analyze student services usage within distance education programs at North Carolina community colleges. Since this information is not currently being tracked and because it is vital to regional accreditation and student success, a study should be conducted that focuses on the use of student support services in distance education or the perception of an institution's quality as it relates to providing support services to distance education students.

Research should be conducted on the difference in cost of providing distance education between institutions offering complete programs through distance education and institutions that only offer individual courses. Such a comparison would examine whether institutions with a systematic approach to offering complete degree programs were more cost effective than those which only choose to offer individual courses, with no program level initiatives.

Research to determine whether community college administrators glean valuable information from program-level studies would further refine the merit of the model produced in this study and then provide detailed information, increasing the accuracy of distance education financial analysis. Such a study would examine the financial information associated with distance education among community college administrators as it relates to traditional methods of delivery.

Finally, a study should be conducted to identify and standardize data collection methods that would yield increasingly accurate results concerning the cost of distance education in North Carolina community colleges. Possibly such a study, modeled after

state university accounting processes, could help administrators gain a clearer view of the cost of providing distance education to their constituents.

## Closing Remarks

This study provided data concerning the cost of distance education. From this data a model was developed which will prove valuable in allowing community college administrators to accurately assess the direct cost of distance education at their institutions. This study filled a gap in North Carolina community college distance education cost research. However, there should be ongoing research to identify the financial benefits/detriments of offering distance education courses and programs. It is the researcher's opinion that such research will aid administrators in making sound decisions as they allocate limited resources to meet the needs of their students.

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# North Carolina Community College System

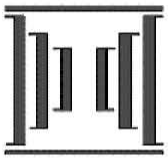
## Curriculum/Continuing Education Information System

### Curriculum and Continuing Education Student Enrollment by College

### Table 1 Annual

Reporting Year: 2005 - 2006 Last Refresh on : 11/2/2006

| | Curriculum | | | | | Continuing Education | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| College Name | Assoc | Dipl | Cert | Trans | Curr Sub | Basic Skills | Learn Lab | Occ RB | Occ Ext SS | FIT | HRD | NIT/EIT | SBC | Comm Svc | Non Occ SS | CE Sub | Total |
| Alamance CC | 3,935 | 451 | 525 | 1,409 | 6,203 | 3,003 | | 4,264 | 976 | 113 | 649 | 38 | 431 | 908 | 667 | 10,496 | 16,178 |
| Asheville-Buncombe TC | 4,450 | 372 | 207 | 3,593 | 8,452 | 3,348 | | 7,348 | 1,004 | 132 | 2,053 | 505 | 671 | 1,215 | 1,475 | 16,361 | 23,902 |
| Beaufort County CC | 1,362 | 152 | 66 | 329 | 1,879 | 1,062 | | 3,339 | 81 | 33 | 286 | 92 | 318 | 150 | 836 | 5,988 | 7,640 |
| Bladen CC | 1,542 | 103 | 53 | 303 | 1,987 | 614 | | 1,373 | | 64 | 617 | 93 | 122 | 58 | 392 | 3,116 | 4,837 |
| Blue Ridge CC | 1,603 | 143 | 240 | 833 | 2,737 | 1,286 | 15 | 4,752 | 402 | 243 | 2,228 | 217 | 216 | | 4,048 | 12,375 | 14,655 |
| Brunswick CC | 776 | 274 | 95 | 184 | 1,297 | 931 | | 2,859 | 290 | 30 | 371 | 63 | 143 | 36 | 1,264 | 5,722 | 6,881 |
| Caldwell CC and TI | 2,720 | 1,055 | 327 | 1,022 | 5,002 | 2,351 | 1 | 3,545 | 451 | 351 | 1,308 | 106 | 1,346 | 114 | 2,239 | 10,920 | 15,186 |
| Cape Fear CC | 6,902 | 454 | 730 | 1,688 | 9,591 | 3,413 | 1,922 | 7,838 | 528 | 57 | 1,616 | 764 | 574 | 750 | 2,979 | 19,320 | 26,358 |
| Carteret CC | 1,552 | 135 | 92 | 412 | 2,146 | 807 | | 2,765 | 1,046 | 12 | 434 | 8 | 1,350 | 84 | 352 | 6,582 | 8,375 |
| Catawba Valley CC | 4,541 | 314 | 414 | 1,377 | 6,536 | 3,198 | | 3,725 | 3,428 | 250 | 1,317 | 2,124 | 480 | 874 | 2,606 | 16,280 | 22,016 |
| Central Carolina CC | 3,383 | 684 | 868 | 1,572 | 6,304 | 4,366 | | 6,664 | 466 | 39 | 486 | 146 | | 647 | 394 | 12,664 | 18,338 |
| Central Piedmont CC | 13,939 | 518 | 498 | 9,877 | 24,388 | 10,641 | | 10,356 | 12,131 | 36 | 478 | 928 | 63 | 117 | 4,898 | 36,556 | 58,718 |
| Cleveland CC | 2,468 | 513 | 252 | 1,307 | 4,437 | 827 | | 2,988 | 75 | 25 | 1,330 | 83 | 601 | 332 | 817 | 6,864 | 10,712 |
| Coastal Carolina CC | 5,019 | 271 | 198 | 950 | 6,190 | 4,826 | | 8,446 | 709 | 287 | 393 | 489 | 862 | 273 | 2,883 | 17,879 | 23,036 |
| College of the Albemarle | 1,963 | 160 | 110 | 646 | 2,820 | 2,673 | | 3,277 | 146 | 77 | 84 | 71 | 1,346 | | 1,100 | 8,399 | 10,898 |
| Craven CC | 3,346 | 159 | 89 | 977 | 4,506 | 1,535 | | 4,457 | 326 | 71 | 402 | 488 | 284 | 487 | 963 | 8,561 | 12,650 |
| Davidson County CC | 2,772 | 380 | 337 | 600 | 3,934 | 3,055 | | 7,202 | 648 | 249 | 697 | 76 | 603 | | 766 | 12,552 | 15,874 |
| Durham TCC | 4,540 | 223 | 274 | 3,344 | 8,118 | 4,619 | | 7,269 | 2,137 | 105 | 2,103 | 1,386 | | | 655 | 17,373 | 24,849 |
| Edgecombe CC | 2,396 | 259 | 35 | 899 | 3,546 | 1,988 | | 2,522 | 111 | 24 | 1,406 | 17 | 966 | 78 | 23 | 6,288 | 9,648 |
| Fayetteville TCC | 8,299 | 590 | 162 | 3,639 | 12,250 | 5,667 | | 9,982 | 3,319 | 58 | 1,918 | | 754 | 1,741 | 317 | 22,050 | 33,092 |
| Forsyth TCC | 7,169 | 524 | 598 | 1,682 | 9,855 | 5,202 | | 8,942 | 2,721 | 855 | 4,479 | 1,045 | 1,358 | 417 | 1,956 | 24,986 | 33,620 |
| Gaston College | 5,353 | 385 | 270 | 1,202 | 7,139 | 2,999 | | 4,912 | 1,470 | 99 | 3,298 | 368 | 333 | 169 | 2,116 | 14,946 | 21,373 |
| Guilford TCC | 10,845 | 538 | 42 | 1,548 | 12,804 | 5,854 | | 9,376 | 2,100 | 173 | 2,138 | 88 | 520 | 693 | 5,963 | 25,508 | 37,333 |
| Halifax CC | 1,359 | 179 | 300 | 234 | 2,036 | 1,160 | | 2,707 | 462 | 66 | 219 | 64 | 595 | 151 | 66 | 5,224 | 6,978 |
| Haywood CC | 1,398 | 271 | 265 | 955 | 2,828 | 707 | 845 | 2,122 | 50 | 33 | 459 | 92 | 371 | 140 | 238 | 4,836 | 6,787 |
| Isothermal CC | 2,200 | 268 | 129 | 530 | 3,052 | 1,738 | | 1,858 | 232 | 77 | 776 | 224 | 307 | | 4,248 | 8,549 | 11,017 |
| James Sprunt CC | 935 | 351 | 158 | 491 | 1,858 | 805 | 107 | 2,668 | | | 348 | | 481 | 126 | 2,362 | 6,670 | 8,205 |
| Johnston CC | 2,934 | 189 | 844 | 2,312 | 6,188 | 1,839 | | 4,640 | 456 | 78 | 196 | 616 | 1,256 | 197 | 1,146 | 9,598 | 15,193 |
| Lenoir CC | 2,470 | 127 | 198 | 1,024 | 3,733 | 2,208 | | 5,050 | 18 | 53 | 1,138 | 15 | 820 | 241 | 1,637 | 10,403 | 13,618 |
| Martin CC | 846 | 79 | 24 | 344 | 1,277 | 859 | | 1,579 | 90 | | 382 | 12 | 222 | 303 | 10 | 3,177 | 4,354 |
| Mayland CC | 796 | 207 | 365 | 533 | 1,836 | 1,185 | | 2,437 | 184 | 5 | 593 | 93 | 436 | 114 | 828 | 5,318 | 6,690 |
| McDowell TCC | 993 | 283 | 180 | 301 | 1,717 | 934 | | 3,332 | 615 | 81 | 932 | 105 | 122 | 82 | 1,138 | 6,947 | 8,319 |
| Mitchell CC | 1,727 | 194 | 131 | 476 | 2,491 | 2,404 | | 2,863 | 1,262 | 197 | 1,093 | 417 | 443 | 99 | 987 | 9,014 | 11,177 |



# North Carolina Community College System

## Curriculum/Continuing Education Information System

### Curriculum and Continuing Education Student Enrollment by College

### Table 1 Annual

Reporting Year: 2005 - 2006 Last Refresh on : 11/2/2006

| | Curriculum | | | | | Continuing Education | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| College Name | Assoc | Dipl | Cert | Trans | Curr Sub | Basic Skills | Learn Lab | Occ RB | Occ Ext SS | FIT | HRD | NIT/EIT | SBC | Comm Svc | Non Occ SS | CE Sub | Total |
| Montgomery CC | 751 | 96 | 105 | 296 | 1,224 | 549 | | 1,710 | 341 | 3 | 151 | 25 | 214 | 41 | 38 | 2,938 | 3,949 |
| Nash CC | 2,360 | 94 | 216 | 1,183 | 3,788 | 1,743 | | 3,761 | 547 | 49 | 723 | 983 | 630 | 305 | 367 | 8,686 | 12,088 |
| Pamlico CC | 256 | 37 | 148 | 140 | 575 | 291 | | 587 | | | 128 | | 212 | 155 | 11 | 1,272 | 1,731 |
| Piedmont CC | 1,649 | 231 | 626 | 1,266 | 3,732 | 1,590 | | 1,898 | 212 | 47 | 949 | 193 | 473 | 101 | | 4,997 | 8,308 |
| Pitt CC | 6,110 | 252 | 286 | 1,914 | 8,310 | 2,781 | | 3,878 | 2,168 | 98 | 1,928 | 362 | 539 | 98 | 180 | 11,262 | 18,657 |
| Randolph CC | 1,835 | 551 | 113 | 651 | 3,085 | 1,811 | | 3,875 | 535 | 406 | 644 | 184 | 115 | 181 | 647 | 8,064 | 10,899 |
| Richmond CC | 1,710 | 61 | 102 | 270 | 2,107 | 2,188 | | 1,997 | 164 | 110 | 600 | 856 | 414 | | 30 | 5,969 | 7,893 |
| Roanoke Chowan CC | 908 | 98 | 108 | 153 | 1,249 | 755 | | 1,218 | 1 | 81 | 184 | | 384 | 163 | 16 | 2,707 | 3,813 |
| Robeson CC | 2,147 | 148 | 178 | 180 | 2,612 | 2,828 | | 5,185 | 285 | 309 | 2,226 | 215 | 399 | 388 | 169 | 11,330 | 13,537 |
| Rockingham CC | 1,547 | 224 | 551 | 468 | 2,692 | 1,240 | | 3,080 | 486 | 177 | 727 | 320 | 375 | 252 | 1,892 | 7,938 | 10,189 |
| Rowan-Cabarrus CC | 4,124 | 1,597 | 535 | 1,037 | 7,090 | 3,233 | | 6,322 | 1,776 | 113 | 476 | 227 | 501 | 109 | 540 | 12,039 | 18,521 |
| Sampson CC | 1,317 | 142 | 117 | 374 | 1,917 | 1,232 | | 2,540 | 105 | 321 | 1,235 | | 334 | 202 | 758 | 6,108 | 7,610 |
| Sandhills CC | 3,589 | 83 | 193 | 1,112 | 4,901 | 1,619 | | 4,218 | 536 | 36 | 415 | 92 | 872 | 313 | 554 | 8,031 | 12,491 |
| Southeastern CC | 1,723 | 176 | 216 | 551 | 2,589 | 1,320 | | 4,042 | 34 | | 1,372 | 75 | 1,195 | 857 | 15 | 7,861 | 9,733 |
| South Piedmont CC | 1,600 | 316 | 267 | 690 | 2,769 | 2,176 | | 2,513 | 633 | 129 | 1,798 | | 684 | 63 | 344 | 7,859 | 10,180 |
| Southwestern CC | 1,847 | 73 | 193 | 579 | 2,650 | 1,684 | | 3,075 | 516 | 23 | 491 | 34 | 403 | | 385 | 5,715 | 8,216 |
| Stanly CC | 1,737 | 107 | 332 | 874 | 2,988 | 1,513 | | 2,902 | 467 | 84 | 418 | 73 | 276 | 84 | | 5,453 | 8,022 |
| Surry CC | 2,265 | 703 | 142 | 1,070 | 4,079 | 1,655 | | 4,475 | 132 | 308 | 858 | 256 | 695 | 297 | 964 | 8,867 | 12,452 |
| Tri-county CC | 891 | 79 | 50 | 406 | 1,407 | 439 | | 1,675 | 398 | 5 | 45 | 141 | 1,124 | 568 | 128 | 4,149 | 5,341 |
| Vance-Granville CC | 3,870 | 529 | 430 | 823 | 5,550 | 2,737 | | 6,746 | 263 | 739 | 1,347 | 1,720 | 566 | 566 | 23 | 13,760 | 18,539 |
| Wake TCC | 13,588 | 680 | 1,099 | 2,370 | 17,465 | 7,985 | 3,986 | 18,342 | 2,756 | 327 | 3,031 | 1,933 | 1,118 | 2,737 | 327 | 40,125 | 53,556 |
| Wayne CC | 3,298 | 201 | 179 | 751 | 4,346 | 2,829 | 265 | 3,911 | | 297 | 1,775 | 30 | 539 | 130 | 686 | 9,386 | 13,229 |
| Western Piedmont CC | 2,701 | 93 | 169 | 814 | 3,689 | 2,455 | 176 | 4,636 | 1,023 | 149 | 679 | 59 | 281 | 285 | 1,455 | 10,339 | 13,566 |
| Wilkes CC | 2,406 | 129 | 65 | 976 | 3,513 | 1,577 | | 5,206 | 525 | 915 | 2,007 | 152 | 473 | 317 | 147 | 10,323 | 13,290 |
| Wilson Technical CC | 1,966 | 176 | 119 | 467 | 2,678 | 1,897 | | 3,845 | 422 | 144 | 211 | 69 | 295 | 346 | 160 | 6,961 | 9,331 |
| System Total | 180,019 | 17,636 | 15,566 | 64,958 | 268,433 | 136,170 | 7,315 | 232,198 | 51,787 | 8,832 | 60,155 | 18,782 | 31,290 | 19,111 | 62,023 | 576,259 | 801,676 |

****Unduplicated headcounts are reported in each cell. Rows and columns will not add up.****

# APPENDIX B

## NCCCS DISTANCE EDUCATION ENROLLMENT 2005-06

North Carolina Community College System – Continuing Education

**Distance Learning Course Offerings – Method of Instruction**

**FTE**

Reporting Year 2004

| College | Hybrid | Internet | Tele-Course | Tele-web | Two-way Video | Web-Supported | Other | Total FTE |
|---|---|---|---|---|---|---|---|---|
| Alamance CC | | 15.6 | | | | | | 15.60 |
| Asheville-Buncombe TCC | | 34.3 | | | | | 2.5 | 36.80 |
| Beaufort County CC | | 7.3 | | | | | | 7.30 |
| Bladen CC | | 0.1 | | | | | | 0.10 |
| Blue Ridge CC | | 26.6 | | | 3.5 | | 4.1 | 34.20 |
| Brunswick CC | | 10.7 | | | | | | 10.70 |
| Caldwell CC & TI | | 0 | | | 0.5 | | 17.9 | 18.40 |
| Cape Fear CC | | 34.2 | | | | | | 34.20 |
| Carteret CC | | 5.9 | | | | | | 5.90 |
| Catawba Valley CC | | 11.6 | | | | | | 11.60 |
| Central Carolina CC | | 12.9 | | | | | | 12.90 |
| Central Piedmont CC | 1.5 | 42.1 | 10.6 | | | 84.5 | 5.8 | 144.50 |
| Cleveland CC | | 3.5 | | | | | | 3.50 |
| Coastal Carolina CC | | 16.4 | | | 2.2 | | 3.2 | 21.80 |
| College of The Albemarle | | 52.6 | | | | | | 52.60 |
| Craven CC | | 17.6 | 0.1 | | | 0.8 | 23.1 | 41.60 |
| Davidson County CC | | 15.8 | | | | | 3.5 | 19.30 |
| Durham TCC | | 44.2 | | | | | | 44.20 |
| Edgecombe CC | | 5.9 | | | | | | 5.90 |
| Fayetteville TCC | | 12.7 | | | | | 0.2 | 12.90 |
| Forsyth TCC | | 61.2 | | | | | 5.3 | 66.50 |
| Gaston College | | 21.4 | | | | | 0.8 | 22.20 |
| Guilford TCC | | 33.4 | | | | | | 33.40 |
| Halifax CC | | 7.1 | | | | | | 7.10 |
| Haywood CC | | | | 4.9 | | | | 4.90 |
| Isothermal CC | | 6 | | | | | | 6.00 |
| James Sprunt CC | | 3.1 | | | | | | 3.10 |
| Johnston CC | | 9.9 | | | | | | 9.90 |
| Lenoir CC | | 3.5 | | | | | | 3.50 |
| Martin CC | | 1.3 | | | | | | 1.30 |
| Mayland CC | | 0.9 | | | | | | 0.90 |
| McDowell TCC | | | | | | | | |
| Mitchell CC | | 3.7 | | | | | | 3.70 |
| Montgomery CC | | 2.2 | | | | | | 2.20 |
| Nash CC | | 8.7 | 0.1 | | | | | 8.80 |
| Pamlico CC | | 0.7 | | | | | 0 | 0.70 |
| Piedmont CC | | 4 | | | | | | 4.00 |
| Pitt CC | | 4.8 | | | | | | 4.80 |
| Randolph CC | | 61.3 | | | | | | 61.30 |
| Richmond CC | | 4.8 | | | | | | 4.80 |
| Roanoke-Chowan CC | | 0.6 | | | | | 0.2 | 0.80 |
| Robeson CC | | 2.6 | | 0 | | | | 2.60 |
| Rockingham CC | | 15.2 | | | | | | 15.20 |
| Rowan-Cabarrus CC | | 8.2 | | | | | | 8.20 |
| Sampson CC | | | | | | | | |
| Sandhills CC | | 17.3 | | | | | | 17.30 |
| Southeastern CC | | 5.5 | | | | | | 5.50 |
| South Piedmont CC | | 11.9 | | | | | 0.2 | 12.10 |
| Southwestern CC | | 9.8 | | | | | 6.0 | 15.80 |
| Stanly CC | 1.5 | 116.3 | 0.2 | | | | 0.2 | 118.20 |
| Surry CC | | 8.6 | | | | | | 8.60 |
| Tri-County CC | | 1.1 | | | | | 4.6 | 5.70 |
| Vance-Granville CC | | 9.3 | | | | | | 9.30 |
| Wake TCC | | 37.8 | | | | | | 37.80 |
| Wayne CC | | 5 | | | | | | 5.00 |
| Western Piedmont CC | | | | | 0.1 | | 1.8 | 1.90 |
| Wilkes CC | | 10.6 | | | | | | 10.60 |
| Wilson TCC | | 9.4 | 0.6 | | | | 1.6 | 11.60 |

| Report Year: | Hybrid | Internet | Tele-Course | Tele-web | Two-way Video | Web-Supported | Other | Total FTE |
|---|---|---|---|---|---|---|---|---|
| **2004:** | **3.0** | **877.2** | **11.6** | **4.9** | **6.3** | **85.3** | **81.0** | **1,069.3** |
| **2003:** | | **770.5** | **22.1** | **11.6** | **4.3** | | **40.8** | **849.3** |
| **2002:** | | **599.4** | **43.2** | **18.4** | **3.1** | | **12.3** | **676.5** |

Reference: NCCCS Data Warehouse Report CCRE563 (Refreshed 8/17/05)

# APPENDIX C

## 2005-06 ANNUAL BUDGET ALLOCATION SHEET

10:54:05 08-18-05

NORTH CAROLINA
COMMUNITY COLLEGE SYSTEM
FORMULA BUDGET COMPUTATION 2005-06

SURRY COMMUNITY COLLEGE

| BUDGETED CURRICULUM FTE: | | BUDGETED CONTINUING EDUCATION FTE: | |
|---|---|---|---|
| REGULAR CURRICULUM | 3,577 ✓ | OCCUPATIONAL | 458 ✓ |
| CONTRACTED INSTRUCTION | 0 | BASIC SKILLS | 160 ✓ → $3,615.08 per FTE |
| TOTAL CURRICULUM: | 2,577 | TOTAL BUDGETED: | 3,195 |

| | | | | | |
|---|---|---|---|---|---|
| INSTRUCTION: | | | | | |
| REGULAR CURRICULUM: | | | | | |
| First | 500 | FTE @ $3,528.88 | $1,764,440 | | |
| Above 500 | 2,077 | FTE @ $2,948.83 | $6,124,720 | | |
| Total Regular Curriculum | | | | $7,889,160 | S+F = $7,429,165 O.C. = 459,995 |
| CONTRACTED CURRICULUM INSTRUCTION: | | | | | |
| | 0 | FTE @ $2,608.95 | | $0 | |
| OCCUPATIONAL: | | | | | |
| First | 458 | FTE @ $2,608.95 | $1,194,899 | | S+F = $1,113,146 |
| Above 500 | 0 | FTE @ $2,184.14 | | | O.C. = 81,753 |
| Total Occupational | | | | $1,194,899 | |
| BASIC SKILLS BLOCK GRANT | | | | $578,413 | |
| COMMUNITY SERVICE GRANT | | | | $16,266 | |
| TOTAL INSTRUCTION ALLOTMENT | | | | | $9,678,738 |
| PRESIDENT'S ALLOTMENT: | | | | | |
| President's Salary | | | $107,340 | | |
| FICA AT 7.65% | | | $6,656 | | |
| Retirement at 6.82% | | | $7,321 | | |
| Hospitalization at $ 3748.00 | | | $3,748 | | |
| TOTAL PRESIDENT'S ALLOTMENT | | | | | $125,065 |
| INSTRUCTIONAL SUPPORT : | | | | $4,673,623 | |
| Base Allotment - First 750 FTE | | | $1,685,463 | | |
| Enrollment Allotment @ 1,171.00 per FTE Above 750 | | | $2,863,095 | | |
| TOTAL INSTRUCTIONAL SUPPORT | | | | | $4,548,558 |
| TOTAL FORMULA ALLOTMENT | | | | | $14,352,361 |

General
14,352,361 / 3,195 = $4,492/FTE
× 89 Days
= $399,788

Curriculum
$7,889,160 / 2577 = 3,061
$4,548,558 / 3195 = 1,424
$4,485/FTE

APPENDIX D

DISTANCE EDUCATION COSTS SURVEY

# Distance Education Institutional Costs Survey

**Directions:** Please answer the questions below to the best of your ability. Omit any questions that you cannot adequately answer. All answers should relate to distance education delivery for curriculum programs. For answers to financial questions it may be helpful to refer to the institutional financial reports which breakdown expenses by function. Once you have completed the survey please press "submit" at the bottom of the page.

**Distance Education Definition:** For the purposes of this survey distance education is defined as courses provided entirely through the online environment. Please do **not** include courses offered through virtual classrooms, satellite television, or hybrid method of instruction.

## Institutional Information

Institution name: ....._____
Name of person completing survey: ....._____
Contact phone number: ....._____
Length of time your institution has been offering distance education courses _____

## Demographics

Please provide information on the following items. Answers should be based upon information obtained for the 2005-06 fiscal year.

Unduplicated curriculum headcount ....._____
Curriculum full-time equivalency (FTE) ....._____
Curriculum student retention rate ....._____
Institutional space (Square footage of all facilities) ....._____
Additional fees assessed to students ....._____
College designation as rural or urban institution ....._____

Distance education student unduplicated headcount ....._____
Distance education full-time equivalency (FTE) ....._____
Distance education student retention rate ....._____
Number of distance education degrees offered....._____
Number of distinct distance education courses offered (Not sections)....._____
Student fees assessed solely to distance education students....._____

## Personnel Costs

Please identify the amount spent on the following items during the 2005-06 fiscal year and the percentage of those expenditures that were attributed to distance education. Also, please add any additional expenditures related to personnel costs, but not listed in this section, that your institution tracks.

| | Total Cost | % D/E |
|---|---|---|
| Staff training (Please indicate total and % of total for D/E) | | |
| D/E Employee bonuses/released time (please estimate cost) | | |
| Faculty development (Please indicate total and % of total for D/E) | | |
| _____ | | |
| _____ | | |
| _____ | | |

## Technology Costs

Please identify the amount spent on the following items during the 2005-06 fiscal year and the percentage of those expenditures that were attributed to distance education. Also, Please add any additional expenditures related to technology costs, but not listed in this section, that your institution tracks.

| | Total Cost | % D/E |
|---|---|---|
| Computer software (Programs, data maintenance, websites, etc.) | | |
| Computer hardware (Computers, servers, etc) | | |
| Technology maintenance costs | | |
| Telecommunications costs (Broadband connections, networking, etc.) | | |
| Personnel costs related to delivery of technology | | |
| _____ | | |
| _____ | | |
| _____ | | |

## Support Services Costs

Please identify the amount spent on the following items during the 2005-06 fiscal year and the percentage of those expenditures that were attributed to distance education. Also, please add any additional expenditures related to the cost of support services, but not listed in this section, that your institution tracks.

| | Total Cost | % D/E |
|---|---|---|
| Advising | | |
| Tutoring programs | | |
| Counseling | | |
| Registration activities | | |
| Financial aid | | |
| Library resources | | |
| Help centers/Technical support | | |

Resource centers ....._____ _____
Personnel costs related to delivery of support services ....._____ _____
_____....._____ _____
_____....._____ _____
_____....._____ _____

**Other Costs**

Please identify the amount spent on the following items during the 2005-06 fiscal year and the percentage of those expenditures that were attributed to distance education. Also, please add any additional expenditures not listed in this section that include a distance education component that your institution tracks.

| | Total Cost | % D/E |
|---|---|---|
| Facility space devoted to distance education..... | | _____ |
| Marketing expenses ....._____ | | _____ |
| _____....._____ | | _____ |
| _____....._____ | | _____ |
| _____....._____ | | _____ |

**Program & Course Offerings**

Below; please list which programs your institution offers completely as distance education

Below, please list which courses your institution offered through distance education during the 2005-06 academic year.

APPENDIX E

LETTERS TO PRESIDENTS AND SURVEY RESPONDENTS

January 13, 2008

Dear ,

My name is Chad Bledsoe and I am the Dean of Career Technologies at Surry Community College in Dobson, North Carolina. Currently, I am completing a doctorate in Higher Education Administration at the University of North Carolina at Greensboro. As part of my research, I must survey chief financial officers and distance learning coordinators on institutional costs of distance education programs. This study assesses the financial cost/benefits of offering distance education courses and programs at community colleges in North Carolina. Once completed, it will provide valuable information about the viability of distance education offerings at your institution and within the system. Recently I sent a survey to your chief financial officer and director of distance education asking that they assist me by providing the requested information. Copies of the cover letter and survey have been included for your reference. Their support is vital to the success of this study; if possible, I ask that you allow these individuals time in their busy schedule to complete the survey and encourage their participation.

Should you have any questions about the survey or my dissertation, please feel free to contact me at the address listed below.

Sincerely,

Chad A. Bledsoe

Chad A. Bledsoe

January 13, 2008

Dear Sir/Madam,

My name is Chad Bledsoe and I am the Dean of Career Technologies at Surry Community College in Dobson, North Carolina. Currently, I am completing a doctorate in Higher Education Administration at the University of North Carolina at Greensboro. As part of my research I must survey chief financial officers and distance learning coordinators on institutional costs of distance education programs, which is the reason for contacting you today. Your help in completing this survey would be appreciated. The survey should take one half to one hour to complete and relies on an understanding of the financial data and enrollment at your institution. As a result, your participation is vital to the success of this project. In addition to assisting in my personal research, this study will provide valuable information to your institution and the community college system distance education office about relative costs of distance education. I am asking for your assistance in completing the attached survey on distance education costs at your institution.

Please complete the enclosed survey and return it to me in the pre-addressed envelope provided. If possible, I would like to have surveys returned by Friday, January 25, 2008.
All information presented in this survey is public and has been collected through IPEDS or state level data collection systems and does not contain any private or confidential data. Additionally, all information you provide for this survey will be kept in accordance with UNCG Institutional Board guidelines and protected from unauthorized access. Thank you in advance for your participation. Should you have any questions about the survey please feel free to contact me at the address below.

Sincerely,

Chad A. Bledsoe

Chad A. Bledsoe

# APPENDIX F

## DISTANCE EDUCATION SURVEY RESPONSES

| Institution | InstSize | Total Operating Exp | PersonnelCosts | Technology | SupportServices | TimeOfferingDE |
|---|---|---|---|---|---|---|
| AB Technical Community College | Large | $ 16,891,042.00 | $ 12,788,148.00 | $ 609,821.00 | $ 3,493,073.00 | 10 |
| Alamance Community College | Medium | $ 25,788,632.00 | $ 19,604,885.00 | $ 1,022,235.00 | $ 5,161,512.00 | 9 |
| Beaufort County Community College | Small | $ 8,614,949.00 | $ 6,374,370.00 | $ 412,965.00 | $ 1,827,614.00 | 9 |
| Bladen Community College | Small | $ 5,886,050.00 | $ 4,673,188.00 | $ 280,871.00 | $ 931,991.00 | 10 |
| Caldwell Community College | Small | $ 17,309,793.00 | $ 12,742,599.00 | $ 657,424.00 | $ 3,909,770.00 | 10 |
| Cape Fear Community College | Large | $ 28,620,850.00 | $ 22,015,930.00 | $ 863,749.00 | $ 5,741,171.00 | 10 |
| Catawba Valley Community College | Medium | $ 21,958,941.00 | $ 16,076,036.00 | $ 773,488.00 | $ 5,109,417.00 | 24 |
| Central Carolina Community College | Medium | $ 22,686,860.00 | $ 16,779,851.00 | $ 1,229,478.00 | $ 4,677,531.00 | 10 |
| Central Piedmont Community College | Large | $ 59,711,069.00 | $ 41,898,448.00 | $ 1,648,158.00 | $ 16,164,463.00 | 10 |
| Cleveland Community College | Medium | $ 12,439,291.00 | $ 9,251,885.00 | $ 477,634.00 | $ 2,709,772.00 | 9 |
| Coastal Carolina Community College | Medium | $ 18,653,887.00 | $ 13,297,037.00 | $ 1,440,126.00 | $ 3,916,724.00 | 9 |
| Craven Community College | Medium | $ 12,182,820.00 | $ 8,792,620.00 | $ 425,692.00 | $ 2,964,508.00 | 10 |
| Davidson County Community College | Small | $ 15,716,496.00 | $ 11,665,306.00 | $ 573,714.00 | $ 3,477,476.00 | 24 |
| Edgecombe Community College | Small | $ 10,934,335.00 | $ 7,390,665.00 | $ 560,428.00 | $ 2,983,242.00 | 9 |
| Fayetteville Technical Community College | Large | $ 44,018,738.00 | $ 35,430,408.00 | $ 1,369,135.00 | $ 7,219,195.00 | 10 |
| Forsyth Technical Community College | Large | $ 31,589,531.00 | $ 24,507,727.00 | $ 967,784.00 | $ 6,114,020.00 | 10 |
| Gaston College | Medium | $ 20,279,530.00 | $ 14,010,973.00 | $ 760,573.00 | $ 5,507,984.00 | 11 |
| Haywood Community College | Small | $ 9,805,249.00 | $ 7,625,150.00 | $ 293,976.00 | $ 1,886,123.00 | 8 |
| Isothermal Community College | Small | $ 10,777,213.00 | $ 7,674,578.00 | $ 391,956.00 | $ 2,710,679.00 | 10 |
| James Sprunt Community College | Small | $ 8,500,219.00 | $ 5,213,015.00 | $ 287,087.00 | $ 3,000,117.00 | 8 |
| Johnston Community College | Medium | $ 17,058,333.00 | $ 12,635,468.00 | $ 593,879.00 | $ 3,828,986.00 | 7 |
| Lenoir Community College | Medium | $ 16,986,502.00 | $ 12,169,229.00 | $ 590,365.00 | $ 4,226,908.00 | 6 |
| Mitchell Community College | Small | $ 10,989,951.00 | $ 7,926,475.00 | $ 556,689.00 | $ 2,506,787.00 | 5 |
| Montgomery Community College | Small | $ 4,802,286.00 | $ 3,540,501.00 | $ 227,508.00 | $ 1,034,277.00 | 10 |
| Nash Community College | Small | $ 11,620,714.00 | $ 8,877,661.00 | $ 609,126.00 | $ 2,133,927.00 | 8 |
| Pamlico Community College | Small | $ 2,924,539.00 | $ 1,716,615.00 | $ 349,405.00 | $ 858,519.00 | 6 |
| Piedmont Community College | Medium | $ 13,001,347.00 | $ 10,000,145.00 | $ 798,117.00 | $ 2,203,085.00 | 19 |
| Pitt Community College | Large | $ 23,818,024.00 | $ 17,877,634.00 | $ 707,011.00 | $ 5,233,379.00 | 10 |
| Randolph Community College | Small | $ 11,582,563.00 | $ 8,723,370.00 | $ 572,682.00 | $ 2,286,511.00 | 10 |
| Richmond Community College | Small | $ 9,223,524.00 | $ 7,203,376.00 | $ 344,098.00 | $ 1,676,050.00 | 10 |
| Roanoke-Chowan Community College | Small | $ 4,581,546.00 | $ 3,366,572.00 | $ 235,615.00 | $ 979,359.00 | 10 |
| Robeson Community College | Small | $ 15,335,630.00 | $ 11,862,960.00 | $ 506,940.00 | $ 2,965,730.00 | 3 |
| Rockingham Community College | Small | $ 10,252,033.00 | $ 7,681,401.00 | $ 377,191.00 | $ 2,193,441.00 | 10 |
| Rowan-Cabarrus Community College | Medium | $ 21,614,523.00 | $ 16,183,398.00 | $ 959,452.00 | $ 4,471,673.00 | 7 |
| Sampson Community College | Small | $ 8,602,775.00 | $ 6,285,834.00 | $ 373,321.00 | $ 1,943,620.00 | 7 |
| Sandhills Community College | Medium | $ 17,082,545.00 | $ 12,962,469.00 | $ 577,736.00 | $ 3,542,340.00 | 10 |
| Southwestern Community College | Small | $ 10,368,165.00 | $ 7,788,547.00 | $ 467,257.00 | $ 2,112,361.00 | 10 |
| Stanly Community College | Small | $ 9,730,329.00 | $ 7,666,585.00 | $ 337,067.00 | $ 1,726,677.00 | 11 |
| Surry Community College | Medium | $ 14,902,286.00 | $ 11,002,671.00 | $ 634,288.00 | $ 3,265,327.00 | 17 |
| Tri-County Community College | Small | $ 5,205,524.00 | $ 3,940,456.00 | $ 124,406.00 | $ 1,140,662.00 | 8 |
| Vance-Granville Community College | Medium | $ 19,361,067.00 | $ 14,792,151.00 | $ 686,655.00 | $ 3,882,261.00 | 10 |
| Wake Technical Community College | Large | $ 56,429,214.00 | $ 39,127,882.00 | $ 1,331,795.00 | $ 15,969,537.00 | 10 |
| Western Piedmont Community College | Medium | $ 13,540,823.00 | $ 9,846,071.00 | $ 883,387.00 | $ 2,811,365.00 | 10 |
| Wilkes Community College | Medium | $ 15,132,379.00 | $ 11,536,704.00 | $ 552,570.00 | $ 3,043,105.00 | 10 |
| **Total** | | **$ 746,512,117.00** | **$ 552,526,994.00** | **$ 28,442,854.00** | **$ 165,542,269.00** | **444.00** |

| Institution | UnDupHeadcount | FTE | RetentionRate | Squarefootage | StudentFees | RuralUrban | Deheadcount | DEFTE | |
|---|---|---|---|---|---|---|---|---|---|
| AB Technical Community College | 8,452 | 4,623 | 68% | 355,648 | $ 14.00 | Urban | | | 260 |
| Alamance Community College | 6,203 | 3,119 | 65% | 144,279 | $ - | Rural | 1,150 | | 300 |
| Beaufort County Community College | 1,879 | 1,217 | 69% | 117,349 | $ 16.00 | Rural | | | |
| Bladen Community College | 1,987 | 1,189 | 62% | 66,691 | $ 10.00 | Rural | 950 | | 237 |
| Caldwell Community College | 5,002 | 1,932 | 65% | 196,810 | $ 7.00 | Rural | 837 | | |
| Cape Fear Community College | 9,591 | 5,592 | 65% | 337,742 | $ - | Urban | | | |
| Catawba Valley Community College | 6,536 | 3,691 | 68% | 260,164 | $ 10.00 | Urban | 7,322 | | 736 |
| Central Carolina Community College | 6,304 | 3,558 | 64% | 251,872 | $ 15.00 | Rural | | | |
| Central Piedmont Community College | 24,388 | 10,352 | 62% | 841,935 | $ - | Urban | | | |
| Cleveland Community College | 4,437 | 2,341 | 65% | 125,428 | $ - | Rural | | | |
| Coastal Carolina Community College | 6,190 | 3,147 | 60% | 180,956 | $ - | Rural | | | |
| Craven Community College | 4,506 | 2,090 | 60% | 136,743 | $ 10.00 | Rural | | | |
| Davidson County Community College | 3,250 | 1,325 | 50% | 194,799 | $ 100.00 | Neither | | | |
| Edgecombe Community College | 3,546 | 1,776 | 63% | 100,810 | $ 11.00 | Rural | 955 | | 250 |
| Fayetteville Technical Community College | 12,250 | 7,698 | 67% | 411,284 | $ - | Urban | 6,000 | | 3,000 |
| Forsyth Technical Community College | 9,855 | 4,968 | 63% | 318,035 | $ 16.00 | Urban | | | |
| Gaston College | 7,139 | 3,919 | 63% | 254,502 | $ 16.00 | Rural | 1,000 | | 700 |
| Haywood Community College | 2,828 | 1,562 | 67% | 148,960 | $ 16.00 | Urban | | | |
| Isothermal Community College | 3,052 | 1,724 | 67% | 139,801 | $ - | Rural | | | |
| James Sprunt Community College | 1,855 | 1,107 | 74% | 77,810 | $ - | Rural | | | |
| Johnston Community College | 6,188 | 3,102 | 68% | 169,426 | $ 16.00 | Urban | 1,500 | | 270 |
| Lenoir Community College | 3,733 | 2,227 | 70% | 192,568 | $ 16.00 | Urban | 900 | | 215 |
| Mitchell Community College | 2,491 | 1,674 | 70% | 157,428 | $ 16.00 | Urban | | | |
| Montgomery Community College | 1,224 | 684 | 67% | 65,034 | $ - | Rural | | | |
| Nash Community College | 3,788 | 1,684 | 64% | 118,671 | $ 15.00 | Rural | 900 | | |
| Pamlico Community College | 525 | 313 | 70% | 29,507 | $ 10.00 | Rural | | | |
| Piedmont Community College | 3,476 | 2,058 | 73% | 79,531 | $ - | Rural | 1,355 | | 352 |
| Pitt Community College | 8,310 | 4,874 | 67% | 174,909 | $ 19.00 | Rural | | | 408 |
| Randolph Community College | 3,085 | 1,637 | 65% | 273,546 | $ 32.00 | Rural | 1,105 | | 235 |
| Richmond Community College | 2,107 | 1,163 | 67% | 103,506 | $ - | Rural | | | |
| Roanoke-Chowan Community College | 2,692 | 758 | 59% | 63,311 | $ 3.00 | Rural | 329 | | 150 |
| Robeson Community College | | 612 | 51% | 893 | $ 30.00 | Rural | | | 500 |
| Rockingham Community College | 2,692 | 1,553 | 67% | 165,805 | $ 16.00 | Rural | | | |
| Rowan-Cabarrus Community College | 7,090 | 3,765 | 64% | 197,568 | $ 16.00 | Urban | | | |
| Sampson Community College | 1,917 | 1,076 | 70% | 101,017 | $ 16.00 | Rural | | | |
| Sandhills Community College | 4,901 | 2,922 | 67% | 198,092 | $ 10.00 | Rural | 1,652 | | 216 |
| Southwestern Community College | 2,650 | 1,518 | 62% | 110,169 | $ 2.00 | Rural | 1,008 | | |
| Stanly Community College | 2,988 | 1,496 | 71% | 96,850 | $ 16.00 | Rural | 897 | | 419 |
| Surry Community College | 4,079 | 2,219 | 65% | 379,180 | $ 10.00 | Rural | | | 620 |
| Tri-County Community College | 1,407 | 796 | 60% | 73,138 | $ 16.00 | Rural | | | |
| Vance-Granville Community College | 5,550 | 3,094 | 57% | 370,905 | $ 16.00 | Rural | | | |
| Wake Technical Community College | 17,466 | 8,198 | 61% | 391,064 | $ - | Urban | | | |
| Western Piedmont Community College | 3,689 | 2,078 | 70% | 127,650 | $ - | Rural | 1,100 | | 750 |
| Wilkes Community College | 3,513 | 2,018 | 81% | 339,275 | $ 1.00 | Rural | 956 | | 118 |
| **Total** | **$ 224,811.00** | **$ 118,449.00** | **$ 28.73** | **$ 8,640,661.00** | **$ 517.00** | **$ -** | **$ 29,916.00** | **$** | **9,735.60** |

| Institution | DERetention | DEDegrees | DECourses | DEStudentFees | Staff Training | StaffTraining% | DEStaffTraining | DEBonuses |
|---|---|---|---|---|---|---|---|---|
| AB Technical Community College | 68% | 0 | | $ - | $ 10,134.63 | 0% | $ - | $ 1,500.00 |
| Alamance Community College | | 0 | | $ - | $ 15,473.18 | 25% | $ 3,868.29 | $ - |
| Beaufort County Community College | | | | $ - | $ 5,168.97 | 10% | $ 516.90 | $ 1,500.00 |
| Bladen Community College | 86% | 5 | | $ - | $ 3,531.63 | 0% | $ - | $ - |
| Caldwell Community College | 59% | 0 | | $ - | $ 10,385.88 | 0% | $ - | $ - |
| Cape Fear Community College | | 1 | | | $ 17,172.51 | | $ - | |
| Catawba Valley Community College | 68% | 1 | | $ - | $ 13,175.36 | 0% | $ - | $ - |
| Central Carolina Community College | | | | $ - | $ 13,612.12 | | $ - | |
| Central Piedmont Community College | | | | $ - | $ 35,826.64 | | $ - | |
| Cleveland Community College | | 0 | | $ - | $ 7,463.57 | 0% | $ - | $ - |
| Coastal Carolina Community College | 55% | 1 | | $ - | $ 11,192.33 | 0% | $ - | $ 5.00 |
| Craven Community College | | 0 | | $ - | $ 7,309.69 | 0% | $ - | $ - |
| Davidson County Community College | | 3 | 300 | $ - | $ 9,429.90 | | $ - | |
| Edgecombe Community College | 63% | 1 | | $ - | $ 6,560.60 | 0% | $ - | $ - |
| Fayetteville Technical Community College | 67% | 11 | | $ - | $ 26,411.24 | 0% | $ - | $ - |
| Forsyth Technical Community College | | 1 | | $ - | $ 18,953.72 | 0% | $ - | $ - |
| Gaston College | 63% | 4 | | $ - | $ 12,167.72 | 0% | $ - | $ 2,000.00 |
| Haywood Community College | | 0 | | $ - | $ 5,883.15 | 0% | $ - | $ - |
| Isothermal Community College | | 0 | | $ - | $ 6,466.33 | 0% | $ - | $ - |
| James Sprunt Community College | 76% | 0 | | $ - | $ 5,100.13 | 0% | $ - | $ 5.00 |
| Johnston Community College | 68% | 0 | | $ - | $ 10,235.00 | 0% | $ - | $ - |
| Lenoir Community College | | 4 | | $ - | $ 10,191.90 | 0% | $ - | $ 2,500.00 |
| Mitchell Community College | | 0 | | $ - | $ 6,593.97 | 0% | $ - | $ - |
| Montgomery Community College | | | | | $ 2,881.37 | | $ - | |
| Nash Community College | 64% | 0 | | $ - | $ 6,972.43 | 0% | $ - | $ - |
| Pamlico Community College | | 0 | | $ - | $ 1,754.72 | 0% | $ - | $ - |
| Piedmont Community College | | 5 | | $ - | $ 7,800.81 | 5% | $ 390.04 | $ 2,000.00 |
| Pitt Community College | 67% | 4 | | $ - | $ 14,290.81 | 0% | $ - | $ - |
| Randolph Community College | 89% | 2 | 150 | $ - | $ 6,949.54 | | $ - | |
| Richmond Community College | 67% | 0 | | $ - | $ 5,534.11 | 0% | $ - | $ - |
| Roanoke-Chowan Community College | 65% | 1 | | $ - | $ 2,748.93 | | $ - | $ - |
| Robeson Community College | 75% | 4 | 49 | $ - | $ 9,201.38 | 12% | $ 1,104.17 | |
| Rockingham Community College | 67% | 0 | | $ - | $ 6,151.22 | 0% | $ - | $ - |
| Rowan-Cabarrus Community College | | 1 | | $ - | $ 12,968.71 | 0% | $ - | $ 2,500.00 |
| Sampson Community College | 70% | 0 | | $ - | $ 5,161.67 | 10% | $ 516.17 | $ 3,000.00 |
| Sandhills Community College | 67% | 2 | 110 | $ - | $ 10,249.53 | 0% | $ - | $ - |
| Southwestern Community College | | 6 | | $ - | $ 6,220.90 | 0% | $ - | $ - |
| Stanly Community College | 71% | 5 | 0 | $ - | $ 5,838.20 | 0% | $ - | $ 1,500.00 |
| Surry Community College | 82% | 4 | 63 | $ - | $ 8,941.37 | 0% | $ - | |
| Tri-County Community College | | 1 | | $ - | $ 3,123.31 | 0% | $ - | $ - |
| Vance-Granville Community College | | 5 | 104 | $ - | $ 11,616.64 | | $ - | |
| Wake Technical Community College | | 7 | | | $ 33,857.53 | | $ - | |
| Western Piedmont Community College | 70% | 3 | | $ - | $ 8,124.49 | 20% | $ 1,624.90 | $ - |
| Wilkes Community College | 71% | | 91 | $ - | $ 11,086.00 | | $ - | |
| **Total** | **$ 15.98** | **$ 82.00** | **$ 867.00** | **$ -** | **$ 449,913.84** | **$ 0.82** | **$ 8,020.46** | **$ 16,510.00** |

| Institution | Faculty Development | FacultyDev% | DEFacultyDev | Computer Software | ComputerSoftware% | DEComputerSoftware |
|---|---|---|---|---|---|---|
| AB Technical Community College | $ 15,201.94 | 0% | $ - | $ 84,455.21 | 0% | $ - |
| Alamance Community College | $ 23,209.77 | 25% | $ 5,802.44 | $ 128,943.16 | 9% | $ 11,604.88 |
| Beaufort County Community College | $ 7,753.45 | 10% | $ 775.35 | $ 43,074.75 | 30% | $ 12,922.42 |
| Bladen Community College | $ 5,297.45 | 0% | $ - | $ 29,430.25 | 40% | $ 11,772.10 |
| Caldwell Community College | $ 15,578.81 | 0% | $ - | $ 86,548.97 | 10% | $ 8,654.90 |
| Cape Fear Community College | $ 25,758.77 | | $ - | $ 143,104.25 | | $ - |
| Catawba Valley Community College | $ 19,763.05 | 10% | $ 1,976.30 | $ 109,794.71 | 40% | $ 43,917.88 |
| Central Carolina Community College | $ 20,418.17 | | $ - | $ 113,434.30 | | $ - |
| Central Piedmont Community College | $ 53,739.96 | | $ - | $ 298,555.35 | | $ - |
| Cleveland Community College | $ 11,195.36 | | $ - | $ 62,196.46 | | $ - |
| Coastal Carolina Community College | $ 16,788.50 | 0% | $ - | $ 93,269.44 | 10% | $ 9,326.94 |
| Craven Community College | $ 10,964.54 | 5% | $ 548.23 | $ 60,914.10 | | $ - |
| Davidson County Community College | $ 14,144.85 | | | $ 78,582.48 | | |
| Edgecombe Community College | $ 9,840.90 | 5% | $ 492.05 | $ 54,671.68 | 80% | $ 43,737.34 |
| Fayetteville Technical Community College | $ 39,616.86 | 9% | $ 3,565.52 | $ 220,093.69 | | $ - |
| Forsyth Technical Community College | $ 28,430.58 | 5% | $ 1,421.53 | $ 157,947.66 | | $ - |
| Gaston College | $ 18,251.58 | 5% | $ 912.58 | $ 101,397.65 | 25% | $ 25,349.41 |
| Haywood Community College | $ 8,824.72 | 5% | $ 441.24 | $ 49,026.25 | | $ - |
| Isothermal Community College | $ 9,699.49 | 10% | $ 969.95 | $ 53,886.07 | | $ - |
| James Sprunt Community College | $ 7,650.20 | 10% | $ 765.02 | $ 42,501.10 | | $ - |
| Johnston Community College | $ 15,352.50 | 5% | $ 767.62 | $ 85,291.67 | | $ - |
| Lenoir Community College | $ 15,287.85 | 5% | $ 764.39 | $ 84,932.51 | | $ - |
| Mitchell Community College | $ 9,890.96 | 0% | $ - | $ 54,949.76 | 0% | $ - |
| Montgomery Community College | $ 4,322.06 | | $ - | $ 24,011.43 | | $ - |
| Nash Community College | $ 10,458.64 | 5% | $ 522.93 | $ 58,103.57 | | $ - |
| Pamlico Community College | $ 2,632.09 | 3% | $ 78.96 | $ 14,622.70 | 5% | $ 731.13 |
| Piedmont Community College | $ 11,701.21 | 15% | $ 1,755.18 | $ 65,006.74 | 23% | $ 14,951.55 |
| Pitt Community College | $ 21,436.22 | 5% | $ 1,071.81 | $ 119,090.12 | 20% | $ 23,818.02 |
| Randolph Community College | $ 10,424.31 | 0% | $ - | $ 57,912.82 | 16% | $ 9,266.05 |
| Richmond Community College | $ 8,301.17 | 0% | $ - | $ 46,117.62 | | $ - |
| Roanoke-Chowan Community College | $ 4,123.39 | 5% | $ 206.17 | $ 22,907.73 | 55% | $ 12,599.25 |
| Robeson Community College | $ 13,802.07 | 6% | $ 828.12 | $ 76,678.15 | 25% | $ 19,169.54 |
| Rockingham Community College | $ 9,226.83 | 0% | $ - | $ 51,260.17 | 10% | $ 5,126.02 |
| Rowan-Cabarrus Community College | $ 19,453.07 | 0% | $ - | $ 108,072.62 | | $ - |
| Sampson Community College | $ 7,742.50 | 10% | $ 774.25 | $ 43,013.88 | | $ - |
| Sandhills Community College | $ 15,374.29 | 5% | $ 768.71 | $ 85,412.73 | 30% | $ 25,623.82 |
| Southwestern Community College | $ 9,331.35 | 0% | $ - | $ 51,840.83 | 10% | $ 5,184.08 |
| Stanly Community College | $ 8,757.30 | 5% | $ 437.86 | $ 48,651.65 | | $ - |
| Surry Community College | $ 13,412.06 | 0% | $ - | $ 74,511.43 | 28% | $ 20,863.20 |
| Tri-County Community College | $ 4,684.97 | 0% | $ - | $ 26,027.62 | 10% | $ 2,602.76 |
| Vance-Granville Community College | $ 17,424.96 | | $ - | $ 96,805.34 | | $ - |
| Wake Technical Community College | $ 50,786.29 | | $ - | $ 282,146.07 | 25% | $ 70,536.52 |
| Western Piedmont Community College | $ 12,186.74 | 20% | $ 2,437.35 | $ 67,704.12 | 50% | $ 33,852.06 |
| Wilkes Community College | $ 13,619.14 | 36% | $ 4,902.89 | $ 167,745.00 | | $ - |
| **Total** | **$ 671,860.91** | **$ 2.24** | **$ 32,986.46** | **$ 3,824,643.69** | **$ 5.51** | **$ 411,609.88** |

| Institution | Computer Hardware | ComputerHardware% | DEComputerHardware | Tech Maintenance | TechMaintenance% | DETechMaintenance |
|---|---|---|---|---|---|---|
| AB Technical Community College | $ 168,910.42 | 0% | $ - | $ 20,269.25 | 0% | $ - |
| Alamance Community College | $ 257,886.32 | 9% | $ 23,209.77 | $ 30,946.36 | 9% | $ 2,785.17 |
| Beaufort County Community College | $ 86,149.49 | 20% | $ 17,229.90 | $ 10,337.94 | 30% | $ 3,101.38 |
| Bladen Community College | $ 58,860.50 | 40% | $ 23,544.20 | $ 7,063.26 | 40% | $ 2,825.30 |
| Caldwell Community College | $ 173,097.93 | 10% | $ 17,309.79 | $ 20,771.75 | 10% | $ 2,077.18 |
| Cape Fear Community College | $ 286,208.50 | | $ - | $ 34,345.02 | | $ - |
| Catawba Valley Community College | $ 219,589.41 | 40% | $ 87,835.76 | $ 26,350.73 | 40% | $ 10,540.29 |
| Central Carolina Community College | $ 226,868.60 | | $ - | $ 27,224.23 | | $ - |
| Central Piedmont Community College | $ 597,110.69 | | $ - | $ 71,653.28 | | $ - |
| Cleveland Community College | $ 124,392.91 | | $ - | $ 14,927.15 | | $ - |
| Coastal Carolina Community College | $ 186,538.87 | 10% | $ 18,653.89 | $ 22,384.66 | 10% | $ 2,238.47 |
| Craven Community College | $ 121,828.20 | | $ - | $ 14,619.38 | | $ - |
| Davidson County Community College | $ 157,164.96 | | | $ 18,859.80 | | |
| Edgecombe Community College | $ 109,343.35 | 80% | $ 87,474.68 | $ 13,121.20 | 80% | $ 10,496.96 |
| Fayetteville Technical Community College | $ 440,187.38 | | $ - | $ 52,822.49 | | $ - |
| Forsyth Technical Community College | $ 315,895.31 | | $ - | $ 37,907.44 | | $ - |
| Gaston College | $ 202,795.30 | 35% | $ 70,978.36 | $ 24,335.44 | 15% | $ 3,650.32 |
| Haywood Community College | $ 98,052.49 | | $ - | $ 11,766.30 | | $ - |
| Isothermal Community College | $ 107,772.13 | | $ - | $ 12,932.66 | | $ - |
| James Sprunt Community College | $ 85,002.19 | | $ - | $ 10,200.26 | | $ - |
| Johnston Community College | $ 170,583.33 | | $ - | $ 20,470.00 | | $ - |
| Lenoir Community College | $ 169,865.02 | | $ - | $ 20,383.80 | | $ - |
| Mitchell Community College | $ 109,899.51 | 0% | $ - | $ 13,187.94 | 0% | $ - |
| Montgomery Community College | $ 48,022.86 | | $ - | $ 5,762.74 | | $ - |
| Nash Community College | $ 116,207.14 | | $ - | $ 13,944.86 | | $ - |
| Pamlico Community College | $ 29,245.39 | 5% | $ 1,462.27 | $ 3,509.45 | 5% | $ 175.47 |
| Piedmont Community College | $ 130,013.47 | 13% | $ 16,901.75 | $ 15,601.62 | 2% | $ 312.03 |
| Pitt Community College | $ 238,180.24 | 20% | $ 47,636.05 | $ 28,581.63 | 20% | $ 5,716.33 |
| Randolph Community College | $ 115,825.63 | 0% | $ - | $ 13,899.08 | 5% | $ 694.95 |
| Richmond Community College | $ 92,235.24 | | $ - | $ 11,068.23 | | $ - |
| Roanoke-Chowan Community College | $ 45,815.46 | 55% | $ 25,198.50 | $ 5,497.86 | 55% | $ 3,023.82 |
| Robeson Community College | $ 153,356.30 | 5% | $ 7,667.82 | $ 18,402.76 | 26% | $ 4,784.72 |
| Rockingham Community College | $ 102,520.33 | 10% | $ 10,252.03 | $ 12,302.44 | 10% | $ 1,230.24 |
| Rowan-Cabarrus Community College | $ 216,145.23 | | $ - | $ 25,937.43 | | $ - |
| Sampson Community College | $ 86,027.75 | | $ - | $ 10,323.33 | | $ - |
| Sandhills Community College | $ 170,825.45 | 25% | $ 42,706.36 | $ 20,499.05 | 25% | $ 5,124.76 |
| Southwestern Community College | $ 103,681.65 | 10% | $ 10,368.17 | $ 12,441.80 | 10% | $ 1,244.18 |
| Stanly Community College | $ 97,303.29 | | $ - | $ 11,676.39 | | $ - |
| Surry Community College | $ 149,022.86 | 3% | $ 4,470.69 | $ 17,882.74 | | $ - |
| Tri-County Community College | $ 52,055.24 | 10% | $ 5,205.52 | $ 6,246.63 | 10% | $ 624.66 |
| Vance-Granville Community College | $ 193,610.67 | 17% | $ 32,913.81 | $ 23,233.28 | 10% | $ 2,323.33 |
| Wake Technical Community College | $ 564,292.14 | 25% | $ 141,073.04 | $ 67,715.06 | 25% | $ 16,928.76 |
| Western Piedmont Community College | $ 135,408.23 | 50% | $ 67,704.12 | $ 16,248.99 | 50% | $ 8,124.49 |
| Wilkes Community College | $ 147,329.00 | | $ - | $ 18,720.00 | | $ - |
| **Total** | **$ 7,461,126.38** | **$ 4.92** | **$ 759,796.47** | **$ 896,375.69** | **$ 4.87** | **$ 88,022.83** |

| Institution | Telecommunications | Telecommunications% | DETelecommunications | Tech Personnel | TechPersonnel% | DETechPersonnel |
|---|---|---|---|---|---|---|
| AB Technical Community College | $ 3,378.21 | 0% | $ - | $ 337,820.84 | 0% | $ - |
| Alamance Community College | $ 5,157.73 | 0% | $ - | $ 515,772.64 | 33% | $ 170,204.97 |
| Beaufort County Community College | $ 1,722.99 | 30% | $ 516.90 | $ 172,298.98 | 30% | $ 51,689.69 |
| Bladen Community College | $ 1,177.21 | 50% | $ 588.61 | $ 117,721.00 | 40% | $ 47,088.40 |
| Caldwell Community College | $ 3,461.96 | 10% | $ 346.20 | $ 346,195.86 | 10% | $ 34,619.59 |
| Cape Fear Community College | $ 5,724.17 | | $ - | $ 572,417.00 | | $ - |
| Catawba Valley Community College | $ 4,391.79 | 60% | $ 2,635.07 | $ 439,178.82 | 40% | $ 175,671.53 |
| Central Carolina Community College | $ 4,537.37 | | $ - | $ 453,737.20 | | $ - |
| Central Piedmont Community College | $ 11,942.21 | | $ - | $ 1,194,221.38 | | $ - |
| Cleveland Community College | $ 2,487.86 | | $ - | $ 248,785.82 | | $ - |
| Coastal Carolina Community College | $ 3,730.78 | 25% | $ 932.69 | $ 373,077.74 | 10% | $ 37,307.77 |
| Craven Community College | $ 2,436.56 | | $ - | $ 243,656.40 | | $ - |
| Davidson County Community College | $ 3,143.30 | | | $ 314,329.92 | | $ - |
| Edgecombe Community College | $ 2,186.87 | 80% | $ 1,749.49 | $ 218,686.70 | 80% | $ 174,949.36 |
| Fayetteville Technical Community College | $ 8,803.75 | | $ - | $ 880,374.76 | | $ - |
| Forsyth Technical Community College | $ 6,317.91 | | $ - | $ 631,790.62 | | $ - |
| Gaston College | $ 4,055.91 | 40% | $ 1,622.36 | $ 405,590.60 | 15% | $ 60,838.59 |
| Haywood Community College | $ 1,961.05 | | $ - | $ 196,104.98 | | $ - |
| Isothermal Community College | $ 2,155.44 | | $ - | $ 215,544.26 | | $ - |
| James Sprunt Community College | $ 1,700.04 | | $ - | $ 170,004.38 | | $ - |
| Johnston Community College | $ 3,411.67 | | $ - | $ 341,166.66 | | $ - |
| Lenoir Community College | $ 3,397.30 | | $ - | $ 339,730.04 | | $ - |
| Mitchell Community College | $ 2,197.99 | 5% | $ 109.90 | $ 219,799.02 | 0% | $ - |
| Montgomery Community College | $ 960.46 | | $ - | $ 96,045.72 | | $ - |
| Nash Community College | $ 2,324.14 | | $ - | $ 232,414.28 | | $ - |
| Pamlico Community College | $ 584.91 | 1% | $ 5.85 | $ 58,490.78 | 5% | $ 2,924.54 |
| Piedmont Community College | $ 2,600.27 | 50% | $ 1,300.13 | $ 260,026.94 | 9% | $ 23,402.42 |
| Pitt Community College | $ 4,763.60 | 20% | $ 952.72 | $ 476,360.48 | 20% | $ 95,272.10 |
| Randolph Community College | $ 2,316.51 | 4% | $ 92.66 | $ 231,651.26 | 23% | $ 53,279.79 |
| Richmond Community College | $ 1,844.70 | | $ - | $ 184,470.48 | | $ - |
| Roanoke-Chowan Community College | $ 916.31 | 55% | $ 503.97 | $ 91,630.92 | 55% | $ 50,397.01 |
| Robeson Community College | $ 902.28 | 50% | $ 451.14 | $ 306,712.60 | 24% | $ 73,611.02 |
| Rockingham Community College | $ 2,050.41 | 10% | $ 205.04 | $ 205,040.66 | 10% | $ 20,504.07 |
| Rowan-Cabarrus Community College | $ 4,322.90 | | $ - | $ 432,290.46 | | $ - |
| Sampson Community College | $ 1,720.56 | | $ - | $ 172,055.50 | | $ - |
| Sandhills Community College | $ 3,416.51 | 50% | $ 1,708.25 | $ 341,650.90 | 25% | $ 85,412.73 |
| Southwestern Community College | $ 2,073.63 | 25% | $ 518.41 | $ 207,363.30 | 25% | $ 51,840.83 |
| Stanly Community College | $ 1,946.07 | | $ - | $ 194,606.58 | | $ - |
| Surry Community College | $ 2,980.46 | | $ - | $ 298,045.72 | | $ - |
| Tri-County Community College | $ 1,041.10 | 10% | $ 104.11 | $ 104,110.48 | 10% | $ 10,411.05 |
| Vance-Granville Community College | $ 3,872.21 | | $ - | $ 387,221.34 | | $ - |
| Wake Technical Community College | $ 11,285.84 | 25% | $ 2,821.46 | $ 1,128,584.28 | 25% | $ 282,146.07 |
| Western Piedmont Community College | $ 2,708.16 | 50% | $ 1,354.08 | $ 270,816.46 | 50% | $ 135,408.23 |
| Wilkes Community College | $ 10,000.00 | | $ - | $ 295,462.00 | | $ - |
| **Total** | **$ 154,111.10** | **$ 6.50** | **$ 18,519.05** | **$ 14,923,056.76** | **$ 5.39** | **$ 1,636,979.75** |

| Institution | Advising | Advising% | Tutoring | Tutoring% | Counseling | Counseling% | Registration | Registration% | Financial Aid |
|---|---|---|---|---|---|---|---|---|---|
| AB Technical Community College | | 0% | | 0% | | 0% | | 0% | |
| Alamance Community College | | 0% | | 0% | | 0% | | 10% | |
| Beaufort County Community College | | 0% | | 0% | | 0% | | 0% | |
| Bladen Community College | | 0% | | 0% | | 0% | | 0% | 0 |
| Caldwell Community College | | | | | | | | | |
| Cape Fear Community College | | | | | | | | | |
| Catawba Valley Community College | | | | | | | | | |
| Central Carolina Community College | | | | | | | | | |
| Central Piedmont Community College | | | | | | | | | |
| Cleveland Community College | | | | | | | | | |
| Coastal Carolina Community College | | | | | | | | | |
| Craven Community College | | | | | | | | | |
| Davidson County Community College | | | | | | | | | |
| Edgecombe Community College | | 9% | | | | | | | |
| Fayetteville Technical Community College | | | | | | | | | |
| Forsyth Technical Community College | | | | | | | | | |
| Gaston College | | 10% | | | | | | | |
| Haywood Community College | | | | | | | | | |
| Isothermal Community College | | | | | | | | | |
| James Sprunt Community College | | | | | | | | | |
| Johnston Community College | | | | | | | | | |
| Lenoir Community College | | | | | | | | | |
| Mitchell Community College | | 0% | | | | | | | |
| Montgomery Community College | | | | | | | | | |
| Nash Community College | | | | | | | | | |
| Pamlico Community College | | | | | | | | | |
| Piedmont Community College | | 19% | | 0% | | 18% | | 25% | |
| Pitt Community College | | 20% | | 20% | | | | 0% | |
| Randolph Community College | 1393 | 0% | 683 | 0% | 1224 | 0% | 12134 | 500% | 68233 |
| Richmond Community College | | | | | | | | | |
| Roanoke-Chowan Community College | | | | | | | | | |
| Robeson Community College | 183.79 | 31% | 180 | | 305 | 36% | 782.1 | | 467 |
| Rockingham Community College | % | | | | | | | | |
| Rowan-Cabarrus Community College | | | | | | | | | |
| Sampson Community College | | 5% | | | | | | | |
| Sandhills Community College | | | | | | | | | |
| Southwestern Community College | | 25% | | | | | | 15% | |
| Stanly Community College | | | | | | | | | |
| Surry Community College | | | | | | | | | |
| Tri-County Community College | % | | | | | | | | |
| Vance-Granville Community College | | | | | | | | | |
| Wake Technical Community College | | | | | | | | | |
| Western Piedmont Community College | | | | | | | | | |
| Wilkes Community College | | | 33000 | | 652118 | | 237134 | | 177850 |
| **Total** | **$ 1,576.79** | **$ 1.19** | **$ 33,863.00** | **$ 0.20** | **$ 653,647.00** | **$ 0.54** | **$ 250,050.10** | **$ 5.50** | **$ 246,550.00** |

| Institution | FinancialAid% | Library | Library% | Help Center | HelpCenter% | Resource Center | ResourceCenter% | DEFacultySpace |
|---|---|---|---|---|---|---|---|---|
| AB Technical Community College | 0% | | 0% | | 0% | | 0% | 2,000 |
| Alamance Community College | 0% | | 0% | | 0% | | 0% | 900 |
| Beaufort County Community College | 0% | | 0% | | 0% | | 0% | 500 |
| Bladen Community College | 0% | | 0% | | 5% | | 0% | 3,500 |
| Caldwell Community College | | | | | 5% | % | | 3,000 |
| Cape Fear Community College | | | | | | | | |
| Catawba Valley Community College | | | | | | | | 4,500 |
| Central Carolina Community College | | | | | | | | |
| Central Piedmont Community College | | | | | | | | |
| Cleveland Community College | | | | | | | | 1,000 |
| Coastal Carolina Community College | | | | | | | | 1,500 |
| Craven Community College | | | | | 3% | % | | 3,500 |
| Davidson County Community College | | | | | | | | |
| Edgecombe Community College | | | | | | | | 2,500 |
| Fayetteville Technical Community College | | | | | | | | |
| Forsyth Technical Community College | | | | | 10% | | | 4,500 |
| Gaston College | | | | | | | | 6,000 |
| Haywood Community College | | | | | | | | 1,500 |
| Isothermal Community College | | | | | | | | 1,500 |
| James Sprunt Community College | | | | | | | | 3,000 |
| Johnston Community College | | | | | | | | 2,500 |
| Lenoir Community College | | | | | | | | 3,500 |
| Mitchell Community College | | | | | | | | 500 |
| Montgomery Community College | | | | | | | | |
| Nash Community College | | | | | 5% | | | 2,000 |
| Pamlico Community College | | | | | | | | 1,500 |
| Piedmont Community College | 25% | | 14% | | 9% | | 0% | |
| Pitt Community College | 0% | | 0% | | 10% | | 20% | 2,500 |
| Randolph Community College | 0% | 130214 | 0% | 0 | 0% | 0 | 0% | 1,200 |
| Richmond Community College | | | | | | | | 500 |
| Roanoke-Chowan Community College | | | | | | | | 1,500 |
| Robeson Community College | | 542.1 | 7100% | 837.35 | | 397.19 | | |
| Rockingham Community College | | | | | | | | 500 |
| Rowan-Cabarrus Community College | | | | | 2% | | 0% | 4,500 |
| Sampson Community College | | | | | 10% | | | 3,500 |
| Sandhills Community College | | | | | | | | 1,500 |
| Southwestern Community College | 15% | | | | 10% | | | 1,000 |
| Stanly Community College | | | | | | | | 1,500 |
| Surry Community College | | | | | | | | 1,500 |
| Tri-County Community College | | | 10% | | 10% | | | 2,000 |
| Vance-Granville Community College | | | | | | | | |
| Wake Technical Community College | | | | | | | | 2,500 |
| Western Piedmont Community College | | | | | | | | 2,500 |
| Wilkes Community College | | 254294 | | | | | | 143,059 |
| **Total** | **$ 0.40** | **$ 385,050.10** | **$ 71.24** | **$ 837.35** | **$ 0.79** | **$ 397.19** | **$ 0.20** | **$ 219,159.00** |

| Institution | Marketing | Marketing% | Programs | Courses | |
|---|---|---|---|---|---|
| AB Technical Community College | | 0% | None | | $ - |
| Alamance Community College | | 0% | None | | $ 217,475.53 |
| Beaufort County Community College | | 5% | None | | $ 86,752.54 |
| Bladen Community College | | 0% | Criminal Justice | | $ 85,818.61 |
| Caldwell Community College | | 0% | None | | $ 63,007.65 |
| Cape Fear Community College | | | College Transfer | | $ - |
| Catawba Valley Community College | | 0% | Health Care MGT | | $ 322,576.84 |
| Central Carolina Community College | | | Information Technology | | $ - |
| Central Piedmont Community College | | | None | | $ - |
| Cleveland Community College | | 0% | None | | $ - |
| Coastal Carolina Community College | | 0% | Web Technologies | | $ 68,459.77 |
| Craven Community College | | 0% | None | | $ 548.23 |
| Davidson County Community College | | | Office Systems Tech | CIC | $ - |
| Edgecombe Community College | | 0% | Health Information Systems | | $ 318,899.88 |
| Fayetteville Technical Community College | | | Business Finance | | $ 3,565.52 |
| Forsyth Technical Community College | | 0% | Business | | $ 1,421.53 |
| Gaston College | | 0% | College Transfer | | $ 163,351.61 |
| Haywood Community College | | 0% | None | | $ 441.24 |
| Isothermal Community College | | 0% | None | | $ 969.95 |
| James Sprunt Community College | | 0% | None | | $ 765.02 |
| Johnston Community College | | 0% | None | | $ 767.62 |
| Lenoir Community College | | 0% | Accounting | | $ 764.39 |
| Mitchell Community College | | 0% | None | | $ 109.90 |
| Montgomery Community College | | | None | | $ - |
| Nash Community College | | 0% | None | | $ 522.93 |
| Pamlico Community College | | 0% | None | | $ 5,378.23 |
| Piedmont Community College | | 0% | College Transfer | | $ 59,013.11 |
| Pitt Community College | | 20% | Health Care | | $ 174,467.03 |
| Randolph Community College | 26333 | 40% | Criminal Justice | | $ 63,333.45 |
| Richmond Community College | | 0% | None | | $ - |
| Roanoke-Chowan Community College | | 1% | College Transfer | | $ 91,928.72 |
| Robeson Community College | | | None | | $ 107,616.52 |
| Rockingham Community College | | 0% | None | | $ 37,317.40 |
| Rowan-Cabarrus Community College | | 0% | Business | | $ - |
| Sampson Community College | | 0% | None | | $ 1,290.42 |
| Sandhills Community College | | 0% | College Transfer | | $ 161,344.64 |
| Southwestern Community College | | 10% | E-commerce | | $ 69,155.66 |
| Stanly Community College | | 0% | Computer Information Tech | | $ 437.86 |
| Surry Community College | | | Accounting | | $ 25,333.89 |
| Tri-County Community College | | 0% | Computer Information Tech | | $ 18,948.11 |
| Vance-Granville Community College | | | Business | | $ 35,237.14 |
| Wake Technical Community College | | 0% | College Transfer | | $ 513,505.85 |
| Western Piedmont Community College | | 0% | Business | | $ 250,505.23 |
| Wilkes Community College | | | Business Administration | ACC 120 | $ 4,902.89 |
| **Total** | **$ 26,333.00** | **$ 0.76** | | | |

# APPENDIX G

## DE COST AS A PROPORTION OF SPENDING BY CATEGORY

**Appendix G**
**Distance Education Spending by Category**

| Institution | Distance Education Staff Training | Distance Education Faculty Development | Distance Education Computer Software | Distance Education Computer Hardware | Distance Education Technology Maintenance | Distance Education Telecommunications |
|---|---|---|---|---|---|---|
| AB Technical Community College | $ - | $ - | $ - | $ - | $ - | $ - |
| Alamance Community College | $ 3,868.29 | $ 5,802.44 | $ 11,604.88 | $ 23,209.77 | $ 2,785.17 | $ - |
| Beaufort County Community College | $ 516.90 | $ 775.35 | $ 12,922.42 | $ 17,229.90 | $ 3,101.38 | $ 516.90 |
| Bladen Community College | $ - | $ - | $ 11,772.10 | $ 23,544.20 | $ 2,825.30 | $ 588.61 |
| Caldwell Community College | $ - | $ - | $ 8,654.90 | $ 17,309.79 | $ 2,077.18 | $ 346.20 |
| Cape Fear Community College | $ - | $ - | $ - | $ - | $ - | $ - |
| Catawba Valley Community College | $ - | $ 1,976.30 | $ 43,917.88 | $ 87,835.76 | $ 10,540.29 | $ 2,635.07 |
| Central Carolina Community College | $ - | $ - | $ - | $ - | $ - | $ - |
| Central Piedmont Community College | $ - | $ - | $ - | $ - | $ - | $ - |
| Cleveland Community College | $ - | $ - | $ - | $ - | $ - | $ - |
| Coastal Carolina Community College | $ - | $ - | $ 9,326.94 | $ 18,653.89 | $ 2,238.47 | $ 932.69 |
| Craven Community College | $ - | $ 548.23 | $ - | $ - | $ - | $ - |
| Davidson County Community College | $ - | $ - | | | | |
| Edgecombe Community College | $ - | $ 492.05 | $ 43,737.34 | $ 87,474.68 | $ 10,496.96 | $ 1,749.49 |
| Fayetteville Technical Community College | $ - | $ 3,565.52 | $ - | $ - | $ - | $ - |
| Forsyth Technical Community College | $ - | $ 1,421.53 | $ - | $ - | $ - | $ - |
| Gaston College | $ - | $ 912.58 | $ 25,349.41 | $ 70,978.36 | $ 3,650.32 | $ 1,622.36 |
| Haywood Community College | $ - | $ 441.24 | $ - | $ - | $ - | $ - |
| Isothermal Community College | $ - | $ 969.95 | $ - | $ - | $ - | $ - |
| James Sprunt Community College | $ - | $ 765.02 | $ - | $ - | $ - | $ - |
| Johnston Community College | $ - | $ 767.62 | $ - | $ - | $ - | $ - |
| Lenoir Community College | $ - | $ 764.39 | $ - | $ - | $ - | $ - |
| Mitchell Community College | $ - | $ - | $ - | $ - | $ - | $ 109.90 |
| Montgomery Community College | $ - | $ - | $ - | $ - | $ - | $ - |
| Nash Community College | $ - | $ 522.93 | $ - | $ - | $ - | $ - |
| Pamlico Community College | $ - | $ 78.96 | $ 731.13 | $ 1,462.27 | $ 175.47 | $ 5.85 |
| Piedmont Community College | $ 390.04 | $ 1,755.18 | $ 14,951.55 | $ 16,901.75 | $ 312.03 | $ 1,300.13 |
| Pitt Community College | $ - | $ 1,071.81 | $ 23,818.02 | $ 47,636.05 | $ 5,716.33 | $ 952.72 |
| Randolph Community College | $ - | $ - | $ 9,266.05 | $ - | $ 694.95 | $ 92.66 |
| Richmond Community College | $ - | $ - | $ - | $ - | $ - | $ - |
| Roanoke-Chowan Community College | $ - | $ 206.17 | $ 12,599.25 | $ 25,198.50 | $ 3,023.82 | $ 503.97 |
| Robeson Community College | $ 1,104.17 | $ 828.12 | $ 19,169.54 | $ 7,667.82 | $ 4,784.72 | $ 451.14 |
| Rockingham Community College | $ - | $ - | $ 5,126.02 | $ 10,252.03 | $ 1,230.24 | $ 205.04 |
| Rowan-Cabarrus Community College | $ - | $ - | $ - | $ - | $ - | $ - |
| Sampson Community College | $ 516.17 | $ 774.25 | $ - | $ - | $ - | $ - |
| Sandhills Community College | $ - | $ 768.71 | $ 25,623.82 | $ 42,706.36 | $ 5,124.76 | $ 1,708.25 |
| Southwestern Community College | $ - | $ - | $ 5,184.08 | $ 10,368.17 | $ 1,244.18 | $ 518.41 |
| Stanly Community College | $ - | $ 437.86 | $ - | $ - | $ - | $ - |
| Surry Community College | $ - | $ - | $ 20,863.20 | $ 4,470.69 | $ - | $ - |
| Tri-County Community College | $ - | $ - | $ 2,602.76 | $ 5,205.52 | $ 624.66 | $ 104.11 |
| Vance-Granville Community College | $ - | $ - | $ - | $ 32,913.81 | $ 2,323.33 | $ - |
| Wake Technical Community College | $ - | $ - | $ 70,536.52 | $ 141,073.04 | $ 16,928.76 | $ 2,821.46 |
| Western Piedmont Community College | $ 1,624.90 | $ 2,437.35 | $ 33,852.06 | $ 67,704.12 | $ 8,124.49 | $ 1,354.08 |
| Wilkes Community College | $ - | $ 4,902.89 | $ - | $ - | $ - | $ - |
| **Average Cost:** | **$ 1,336.74** | **$ 1,374.44** | **$ 19,600.47** | **$ 36,180.78** | **$ 4,191.56** | **$ 925.95** |

# APPENDIX H

## DE COST AS A PERCENTAGE OF SPENDING BY CATEGORY

**Appendix H**

**Distance Education Spending as a Percentage of Cost by Category**

| Institution | Distance Education Staff Training | Distance Education Faculty Development | Distance Education Computer Software | Distance Education Computer Hardware | Distance Education Technology Maintenance | Distance Education Telecommunications |
|---|---|---|---|---|---|---|
| AB Technical Community College | 0% | 0% | 0% | 0% | 0% | 0% |
| Alamance Community College | 25% | 25% | 9% | 9% | 9% | 0% |
| Beaufort County Community College | 10% | 10% | 30% | 20% | 30% | 30% |
| Bladen Community College | 0% | 0% | 40% | 40% | 40% | 50% |
| Caldwell Community College | 0% | 0% | 10% | 10% | 10% | 10% |
| Cape Fear Community College | 0% | 0% | 0% | 0% | 0% | 0% |
| Catawba Valley Community College | 0% | 10% | 40% | 40% | 40% | 60% |
| Central Carolina Community College | 0% | 0% | 0% | 0% | 0% | 0% |
| Central Piedmont Community College | 0% | 0% | 0% | 0% | 0% | 0% |
| Cleveland Community College | 0% | 0% | 0% | 0% | 0% | 0% |
| Coastal Carolina Community College | 0% | 0% | 10% | 10% | 10% | 25% |
| Craven Community College | 0% | 5% | 0% | 0% | 0% | 0% |
| Davidson County Community College | 0% | 0% | 0% | 0% | 0% | 0% |
| Edgecombe Community College | 0% | 5% | 80% | 80% | 80% | 80% |
| Fayetteville Technical Community College | 0% | 9% | 0% | 0% | 0% | 0% |
| Forsyth Technical Community College | 0% | 5% | 0% | 0% | 0% | 0% |
| Gaston College | 0% | 5% | 25% | 35% | 15% | 40% |
| Haywood Community College | 0% | 5% | 0% | 0% | 0% | 0% |
| Isothermal Community College | 0% | 10% | 0% | 0% | 0% | 0% |
| James Sprunt Community College | 0% | 10% | 0% | 0% | 0% | 0% |
| Johnston Community College | 0% | 5% | 0% | 0% | 0% | 0% |
| Lenoir Community College | 0% | 5% | 0% | 0% | 0% | 0% |
| Mitchell Community College | 0% | 0% | 0% | 0% | 0% | 5% |
| Montgomery Community College | 0% | 0% | 0% | 0% | 0% | 0% |
| Nash Community College | 0% | 5% | 0% | 0% | 0% | 0% |
| Pamlico Community College | 0% | 3% | 5% | 5% | 5% | 1% |
| Piedmont Community College | 5% | 15% | 23% | 13% | 2% | 50% |
| Pitt Community College | 0% | 5% | 20% | 20% | 20% | 20% |
| Randolph Community College | 0% | 0% | 16% | 0% | 5% | 4% |
| Richmond Community College | 0% | 0% | 0% | 0% | 0% | 0% |
| Roanoke-Chowan Community College | 0% | 5% | 55% | 55% | 55% | 55% |
| Robeson Community College | 12% | 6% | 25% | 5% | 26% | 50% |
| Rockingham Community College | 0% | 0% | 10% | 10% | 10% | 10% |
| Rowan-Cabarrus Community College | 0% | 0% | 0% | 0% | 0% | 0% |
| Sampson Community College | 10% | 10% | 0% | 0% | 0% | 0% |
| Sandhills Community College | 0% | 5% | 30% | 25% | 25% | 50% |
| Southwestern Community College | 0% | 0% | 10% | 10% | 10% | 25% |
| Stanly Community College | 0% | 5% | 0% | 0% | 0% | 0% |
| Surry Community College | 0% | 0% | 28% | 3% | 0% | 0% |
| Tri-County Community College | 0% | 0% | 10% | 10% | 10% | 10% |
| Vance-Granville Community College | 0% | 0% | 0% | 17% | 10% | 0% |
| Wake Technical Community College | 0% | 0% | 25% | 25% | 25% | 25% |
| Western Piedmont Community College | 20% | 20% | 50% | 50% | 50% | 50% |
| Wilkes Community College | 0% | 36% | 0% | 0% | 0% | 0% |

# APPENDIX I

## CATEGORIZED SPENDING BY INSTITUTION SIZE

**Appendix I**
**Categorized Spending by Institutional Size**

| Institution | Institution Size | Distance Education Staff Training | Distance Education Faculty Development | Distance Education Computer Software | Distance Education Computer Hardware | Distance Education Technology Maintenance |
|---|---|---|---|---|---|---|
| AB Technical Community College | Large | $ - | $ - | $ - | $ - | $ - |
| Cape Fear Community College | Large | $ - | $ - | $ - | $ - | $ - |
| Central Piedmont Community College | Large | $ - | $ - | $ - | $ - | $ - |
| Fayetteville Technical Community College | Large | $ - | $ 3,565.52 | $ - | $ - | $ - |
| Forsyth Technical Community College | Large | $ - | $ 1,421.53 | $ - | $ - | $ - |
| Pitt Community College | Large | $ - | $ 1,071.81 | $ 23,818.02 | $ 47,636.05 | $ 5,716.33 |
| Wake Technical Community College | Large | $ - | $ - | $ 70,536.52 | $ 141,073.04 | $ 16,928.76 |
| Alamance Community College | Medium | $ 3,868.29 | $ 5,802.44 | $ 11,604.88 | $ 23,209.77 | $ 2,785.17 |
| Catawba Valley Community College | Medium | $ - | $ 1,976.30 | $ 43,917.88 | $ 87,835.76 | $ 10,540.29 |
| Central Carolina Community College | Medium | $ - | $ - | $ - | $ - | $ - |
| Cleveland Community College | Medium | $ - | $ - | $ - | $ - | $ - |
| Coastal Carolina Community College | Medium | $ - | $ - | $ 9,326.94 | $ 18,653.89 | $ 2,238.47 |
| Craven Community College | Medium | $ - | $ 548.23 | $ - | $ - | $ - |
| Gaston College | Medium | $ - | $ 912.58 | $ 25,349.41 | $ 70,978.36 | $ 3,650.32 |
| Johnston Community College | Medium | $ - | $ 767.62 | $ - | $ - | $ - |
| Lenoir Community College | Medium | $ - | $ 764.39 | $ - | $ - | $ - |
| Piedmont Community College | Medium | $ 390.04 | $ 1,755.18 | $ 14,951.55 | $ 16,901.75 | $ 312.03 |
| Rowan-Cabarrus Community College | Medium | $ - | $ - | $ - | $ - | $ - |
| Sandhills Community College | Medium | $ - | $ 768.71 | $ 25,623.82 | $ 42,706.36 | $ 5,124.76 |
| Surry Community College | Medium | $ - | $ - | $ 20,863.20 | $ 4,470.69 | $ - |
| Vance-Granville Community College | Medium | $ - | $ - | $ - | $ 32,913.81 | $ 2,323.33 |
| Western Piedmont Community College | Medium | $ 1,624.90 | $ 2,437.35 | $ 33,852.06 | $ 67,704.12 | $ 8,124.49 |
| Wilkes Community College | Medium | $ - | $ 4,902.89 | $ - | $ - | $ - |
| Beaufort County Community College | Small | $ 516.90 | $ 775.35 | $ 12,922.42 | $ 17,229.90 | $ 3,101.38 |
| Bladen Community College | Small | $ - | $ - | $ 11,772.10 | $ 23,544.20 | $ 2,825.30 |
| Caldwell Community College | Small | $ - | $ - | $ 8,654.90 | $ 17,309.79 | $ 2,077.18 |
| Davidson County Community College | Small | $ - | $ - | | | |
| Edgecombe Community College | Small | $ - | $ 492.05 | $ 43,737.34 | $ 87,474.68 | $ 10,496.96 |
| Haywood Community College | Small | $ - | $ 441.24 | $ - | $ - | $ - |
| Isothermal Community College | Small | $ - | $ 969.95 | $ - | $ - | $ - |
| James Sprunt Community College | Small | $ - | $ 765.02 | $ - | $ - | $ - |
| Mitchell Community College | Small | $ - | $ - | $ - | $ - | $ - |
| Montgomery Community College | Small | $ - | $ - | $ - | $ - | $ - |
| Nash Community College | Small | $ - | $ 522.93 | $ - | $ - | $ - |
| Pamlico Community College | Small | $ - | $ 78.96 | $ 731.13 | $ 1,462.27 | $ 175.47 |
| Randolph Community College | Small | $ - | $ - | $ 9,266.05 | $ - | $ 694.95 |
| Richmond Community College | Small | $ - | $ - | $ - | $ - | $ - |
| Roanoke-Chowan Community College | Small | $ - | $ 206.17 | $ 12,599.25 | $ 25,198.50 | $ 3,023.82 |
| Robeson Community College | Small | $ 1,104.17 | $ 828.12 | $ 19,169.54 | $ 7,667.82 | $ 4,784.72 |
| Rockingham Community College | Small | $ - | $ - | $ 5,126.02 | $ 10,252.03 | $ 1,230.24 |
| Sampson Community College | Small | $ 516.17 | $ 774.25 | $ - | $ - | $ - |
| Southwestern Community College | Small | $ - | $ - | $ 5,184.08 | $ 10,368.17 | $ 1,244.18 |
| Stanly Community College | Small | $ - | $ 437.86 | $ - | $ - | $ - |
| Tri-County Community College | Small | $ - | $ - | $ 2,602.76 | $ 5,205.52 | $ 624.66 |

# APPENDIX J

## CATEGORIZED SPENDING PERCENTAGES BY INSTITUTION SIZE

**Appendix J**

**Percentage of Categorized Spending Devoted to Distance Education by Institutional Size**

| Institution | Institution Size | Distance Education Staff Training | Distance Education Faculty Development | Distance Education Computer Software | Distance Education Computer Hardware | Distance Education Technology Maintenance |
|---|---|---|---|---|---|---|
| AB Technical Community College | Large | 0% | 0% | 0% | 0% | 0% |
| Cape Fear Community College | Large | 0% | 0% | 0% | 0% | 0% |
| Central Piedmont Community College | Large | 0% | 0% | 0% | 0% | 0% |
| Fayetteville Technical Community College | Large | 0% | 9% | 0% | 0% | 0% |
| Forsyth Technical Community College | Large | 0% | 5% | 0% | 0% | 0% |
| Pitt Community College | Large | 0% | 5% | 20% | 20% | 20% |
| Wake Technical Community College | Large | 0% | 0% | 25% | 25% | 25% |
| Alamance Community College | Medium | 25% | 25% | 9% | 9% | 9% |
| Catawba Valley Community College | Medium | 0% | 10% | 40% | 40% | 40% |
| Central Carolina Community College | Medium | 0% | 0% | 0% | 0% | 0% |
| Cleveland Community College | Medium | 0% | 0% | 0% | 0% | 0% |
| Coastal Carolina Community College | Medium | 0% | 0% | 10% | 10% | 10% |
| Craven Community College | Medium | 0% | 5% | 0% | 0% | 0% |
| Gaston College | Medium | 0% | 5% | 25% | 35% | 15% |
| Johnston Community College | Medium | 0% | 5% | 0% | 0% | 0% |
| Lenoir Community College | Medium | 0% | 5% | 0% | 0% | 0% |
| Piedmont Community College | Medium | 5% | 15% | 23% | 13% | 2% |
| Rowan-Cabarrus Community College | Medium | 0% | 0% | 0% | 0% | 0% |
| Sandhills Community College | Medium | 0% | 5% | 30% | 25% | 25% |
| Surry Community College | Medium | 0% | 0% | 28% | 3% | 0% |
| Vance-Granville Community College | Medium | 0% | 0% | 0% | 17% | 10% |
| Western Piedmont Community College | Medium | 20% | 20% | 50% | 50% | 50% |
| Wilkes Community College | Medium | 0% | 36% | 0% | 0% | 0% |
| Beaufort County Community College | Small | 10% | 10% | 30% | 20% | 30% |
| Bladen Community College | Small | 0% | 0% | 40% | 40% | 40% |
| Caldwell Community College | Small | 0% | 0% | 10% | 10% | 10% |
| Davidson County Community College | Small | 0% | 0% | 0% | 0% | 0% |
| Edgecombe Community College | Small | 0% | 5% | 80% | 80% | 80% |
| Haywood Community College | Small | 0% | 5% | 0% | 0% | 0% |
| Isothermal Community College | Small | 0% | 10% | 0% | 0% | 0% |
| James Sprunt Community College | Small | 0% | 10% | 0% | 0% | 0% |
| Mitchell Community College | Small | 0% | 0% | 0% | 0% | 0% |
| Montgomery Community College | Small | 0% | 0% | 0% | 0% | 0% |
| Nash Community College | Small | 0% | 5% | 0% | 0% | 0% |
| Pamlico Community College | Small | 0% | 3% | 5% | 5% | 5% |
| Randolph Community College | Small | 0% | 0% | 16% | 0% | 5% |
| Richmond Community College | Small | 0% | 0% | 0% | 0% | 0% |
| Roanoke-Chowan Community College | Small | 0% | 5% | 55% | 55% | 55% |
| Robeson Community College | Small | 12% | 6% | 25% | 5% | 26% |
| Rockingham Community College | Small | 0% | 0% | 10% | 10% | 10% |
| Sampson Community College | Small | 10% | 10% | 0% | 0% | 0% |
| Southwestern Community College | Small | 0% | 0% | 10% | 10% | 10% |
| Stanly Community College | Small | 0% | 5% | 0% | 0% | 0% |
| Tri-County Community College | Small | 0% | 0% | 10% | 10% | 10% |

# APPENDIX K

## DE EXPENDITURES BY CATEGORY BY SERVICE AREA

**Appendix K**

**College Expenditures on Distance Education by Category and Broken Down by Service Area**

| Institution | Rural/Urban | Distance Education Staff Training | Distance Education Faculty Development | Distance Education Computer Software | Distance Education Computer Hardware | Distance Education Technology Maintenance |
|---|---|---|---|---|---|---|
| Alamance Community College | Rural | $ 3,868.29 | $ 5,802.44 | $ 11,604.88 | $ 23,209.77 | $ 2,785.17 |
| Beaufort County Community College | Rural | $ 516.90 | $ 775.35 | $ 12,922.42 | $ 17,229.90 | $ 3,101.38 |
| Bladen Community College | Rural | $ - | $ - | $ 11,772.10 | $ 23,544.20 | $ 2,825.30 |
| Caldwell Community College | Rural | $ - | $ - | $ 8,654.90 | $ 17,309.79 | $ 2,077.18 |
| Central Carolina Community College | Rural | $ - | $ - | $ - | $ - | $ - |
| Cleveland Community College | Rural | $ - | $ - | $ - | $ - | $ - |
| Coastal Carolina Community College | Rural | $ - | $ - | $ 9,326.94 | $ 18,653.89 | $ 2,238.47 |
| Craven Community College | Rural | $ - | $ 548.23 | $ - | $ - | $ - |
| Davidson County Community College | Rural | $ - | $ - | | | |
| Edgecombe Community College | Rural | $ - | $ 492.05 | $ 43,737.34 | $ 87,474.68 | $ 10,496.96 |
| Gaston College | Rural | $ - | $ 912.58 | $ 25,349.41 | $ 70,978.36 | $ 3,650.32 |
| Isothermal Community College | Rural | $ - | $ 969.95 | $ - | $ - | $ - |
| James Sprunt Community College | Rural | $ - | $ 765.02 | $ - | $ - | $ - |
| Montgomery Community College | Rural | $ - | $ - | $ - | $ - | $ - |
| Nash Community College | Rural | $ - | $ 522.93 | $ - | $ - | $ - |
| Pamlico Community College | Rural | $ - | $ 78.96 | $ 731.13 | $ 1,462.27 | $ 175.47 |
| Piedmont Community College | Rural | $ 390.04 | $ 1,755.18 | $ 14,951.55 | $ 16,901.75 | $ 312.03 |
| Pitt Community College | Rural | $ - | $ 1,071.81 | $ 23,818.02 | $ 47,636.05 | $ 5,716.33 |
| Randolph Community College | Rural | $ - | $ - | $ 9,266.05 | $ - | $ 694.95 |
| Richmond Community College | Rural | $ - | $ - | $ - | $ - | $ - |
| Roanoke-Chowan Community College | Rural | $ - | $ 206.17 | $ 12,599.25 | $ 25,198.50 | $ 3,023.82 |
| Robeson Community College | Rural | $ 1,104.17 | $ 828.12 | $ 19,169.54 | $ 7,667.82 | $ 4,784.72 |
| Rockingham Community College | Rural | $ - | $ - | $ 5,126.02 | $ 10,252.03 | $ 1,230.24 |
| Sampson Community College | Rural | $ 516.17 | $ 774.25 | $ - | $ - | $ - |
| Sandhills Community College | Rural | $ - | $ 768.71 | $ 25,623.82 | $ 42,706.36 | $ 5,124.76 |
| Southwestern Community College | Rural | $ - | $ - | $ 5,184.08 | $ 10,368.17 | $ 1,244.18 |
| Stanly Community College | Rural | $ - | $ 437.86 | $ - | $ - | $ - |
| Surry Community College | Rural | $ - | $ - | $ 20,863.20 | $ 4,470.69 | $ - |
| Tri-County Community College | Rural | $ - | $ - | $ 2,602.76 | $ 5,205.52 | $ 624.66 |
| Vance-Granville Community College | Rural | $ - | $ - | $ - | $ 32,913.81 | $ 2,323.33 |
| Western Piedmont Community College | Rural | $ 1,624.90 | $ 2,437.35 | $ 33,852.06 | $ 67,704.12 | $ 8,124.49 |
| Wilkes Community College | Rural | $ - | $ 4,902.89 | $ - | $ - | $ - |
| AB Technical Community College | Urban | $ - | $ - | $ - | $ - | $ - |
| Cape Fear Community College | Urban | $ - | $ - | $ - | $ - | $ - |
| Catawba Valley Community College | Urban | $ - | $ 1,976.30 | $ 43,917.88 | $ 87,835.76 | $ 10,540.29 |
| Central Piedmont Community College | Urban | $ - | $ - | $ - | $ - | $ - |
| Fayetteville Technical Community College | Urban | $ - | $ 3,565.52 | $ - | $ - | $ - |
| Forsyth Technical Community College | Urban | $ - | $ 1,421.53 | $ - | $ - | $ - |
| Haywood Community College | Urban | $ - | $ 441.24 | $ - | $ - | $ - |
| Johnston Community College | Urban | $ - | $ 767.62 | $ - | $ - | $ - |
| Lenoir Community College | Urban | $ - | $ 764.39 | $ - | $ - | $ - |
| Mitchell Community College | Urban | $ - | $ - | $ - | $ - | $ - |
| Rowan-Cabarrus Community College | Urban | $ - | $ - | $ - | $ - | $ - |
| Wake Technical Community College | Urban | $ - | $ - | $ 70,536.52 | $ 141,073.04 | $ 16,928.76 |

# APPENDIX L

## DE EXPENDITURES AS A PERCENTAGE BY CATEGORY BY SERVICE AREA

**Appendix L**
**Percentage of Categorized Expenditures Devoted to Distance Education**

| Institution | Rural/Urban | Distance Education Staff Training | Distance Education Faculty Development | Distance Education Computer Software | Distance Education Computer Hardware | Distance Education Technology Maintenance |
|---|---|---|---|---|---|---|
| Alamance Community College | Rural | 25% | 25% | 9% | 9% | 9% |
| Beaufort County Community College | Rural | 10% | 10% | 30% | 20% | 30% |
| Bladen Community College | Rural | 0% | 0% | 40% | 40% | 40% |
| Caldwell Community College | Rural | 0% | 0% | 10% | 10% | 10% |
| Central Carolina Community College | Rural | 0% | 0% | 0% | 0% | 0% |
| Cleveland Community College | Rural | 0% | 0% | 0% | 0% | 0% |
| Coastal Carolina Community College | Rural | 0% | 0% | 10% | 10% | 10% |
| Craven Community College | Rural | 0% | 5% | 0% | 0% | 0% |
| Davidson County Community College | Rural | 0% | 0% | 0% | 0% | 0% |
| Edgecombe Community College | Rural | 0% | 5% | 80% | 80% | 80% |
| Gaston College | Rural | 0% | 5% | 25% | 35% | 15% |
| Isothermal Community College | Rural | 0% | 10% | 0% | 0% | 0% |
| James Sprunt Community College | Rural | 0% | 10% | 0% | 0% | 0% |
| Montgomery Community College | Rural | 0% | 0% | 0% | 0% | 0% |
| Nash Community College | Rural | 0% | 5% | 0% | 0% | 0% |
| Pamlico Community College | Rural | 0% | 3% | 5% | 5% | 5% |
| Piedmont Community College | Rural | 5% | 15% | 23% | 13% | 2% |
| Pitt Community College | Rural | 0% | 5% | 20% | 20% | 20% |
| Randolph Community College | Rural | 0% | 0% | 16% | 0% | 5% |
| Richmond Community College | Rural | 0% | 0% | 0% | 0% | 0% |
| Roanoke-Chowan Community College | Rural | 0% | 5% | 55% | 55% | 55% |
| Robeson Community College | Rural | 12% | 6% | 25% | 5% | 26% |
| Rockingham Community College | Rural | 0% | 0% | 10% | 10% | 10% |
| Sampson Community College | Rural | 10% | 10% | 0% | 0% | 0% |
| Sandhills Community College | Rural | 0% | 5% | 30% | 25% | 25% |
| Southwestern Community College | Rural | 0% | 0% | 10% | 10% | 10% |
| Stanly Community College | Rural | 0% | 5% | 0% | 0% | 0% |
| Surry Community College | Rural | 0% | 0% | 28% | 3% | 0% |
| Tri-County Community College | Rural | 0% | 0% | 10% | 10% | 10% |
| Vance-Granville Community College | Rural | 0% | 0% | 0% | 17% | 10% |
| Western Piedmont Community College | Rural | 20% | 20% | 50% | 50% | 50% |
| Wilkes Community College | Rural | 0% | 36% | 0% | 0% | 0% |
| AB Technical Community College | Urban | 0% | 0% | 0% | 0% | 0% |
| Cape Fear Community College | Urban | 0% | 0% | 0% | 0% | 0% |
| Catawba Valley Community College | Urban | 0% | 10% | 40% | 40% | 40% |
| Central Piedmont Community College | Urban | 0% | 0% | 0% | 0% | 0% |
| Fayetteville Technical Community College | Urban | 0% | 9% | 0% | 0% | 0% |
| Forsyth Technical Community College | Urban | 0% | 5% | 0% | 0% | 0% |
| Haywood Community College | Urban | 0% | 5% | 0% | 0% | 0% |
| Johnston Community College | Urban | 0% | 5% | 0% | 0% | 0% |
| Lenoir Community College | Urban | 0% | 5% | 0% | 0% | 0% |
| Mitchell Community College | Urban | 0% | 0% | 0% | 0% | 0% |
| Rowan-Cabarrus Community College | Urban | 0% | 0% | 0% | 0% | 0% |
| Wake Technical Community College | Urban | 0% | 0% | 25% | 25% | 25% |

# APPENDIX M

## DE HEAD COUNT AS A PERCENTAGE OF TOTAL ENROLLMENT

| Institution | Curriculum Head Count | Distance Education Curriculum Head Count | Percentage of Head Count that is Distance Education |
|---|---|---|---|
| AB Technical Community College | 8,452 | - | - |
| Alamance Community College | 6,203 | 1,150 | 19% |
| Beaufort County Community College | 1,879 | - | - |
| Bladen Community College | 1,987 | 950 | 48% |
| Caldwell Community College | 5,002 | 837 | 17% |
| Cape Fear Community College | 9,591 | - | - |
| Catawba Valley Community College | 6,536 | - | - |
| Central Carolina Community College | 6,304 | - | - |
| Central Piedmont Community College | 24,388 | - | - |
| Cleveland Community College | 4,437 | - | - |
| Coastal Carolina Community College | 6,190 | - | - |
| Craven Community College | 4,506 | - | - |
| Davidson County Community College | 3,250 | - | - |
| Edgecombe Community College | 3,546 | 955 | 27% |
| Fayetteville Technical Community College | 12,250 | 6,000 | 49% |
| Forsyth Technical Community College | 9,855 | - | - |
| Gaston College | 7,139 | 1,000 | 14% |
| Haywood Community College | 2,828 | - | - |
| Isothermal Community College | 3,052 | - | - |
| James Sprunt Community College | 1,855 | - | - |
| Johnston Community College | 6,188 | 1,500 | 24% |
| Lenoir Community College | 3,733 | 900 | 24% |
| Mitchell Community College | 2,491 | - | - |
| Montgomery Community College | 1,224 | - | - |
| Nash Community College | 3,788 | 900 | 24% |
| Pamlico Community College | 525 | - | - |
| Piedmont Community College | 3,476 | 1,355 | 39% |
| Pitt Community College | 8,310 | - | - |
| Randolph Community College | 3,085 | 1,105 | 36% |
| Richmond Community College | 2,107 | - | - |
| Roanoke-Chowan Community College | 2,692 | 329 | 12% |
| Robeson Community College | - | - | - |
| Rockingham Community College | 2,692 | - | - |
| Rowan-Cabarrus Community College | 7,090 | - | - |
| Sampson Community College | 1,917 | - | - |
| Sandhills Community College | 4,901 | 1,652 | 34% |
| Southwestern Community College | 2,650 | 1,008 | 38% |
| Stanly Community College | 2,988 | 897 | 30% |
| Surry Community College | 4,079 | - | - |
| Tri-County Community College | 1,407 | - | - |
| Vance-Granville Community College | 5,550 | - | - |
| Wake Technical Community College | 17,466 | - | - |
| Western Piedmont Community College | 3,689 | 1,100 | 30% |
| Wilkes Community College | 3,513 | 956 | 27% |
| **Average Enrollment** | **5,228** | **1,329** | **28.9%** |

# APPENDIX N

## DE SPENDING BY CATEGORY AS A PERCENTAGE OF TOTAL SPENDING

**Appendix N - 1**

| Institution | Distance Education Staff Training | Percentage of Total Expenditures |
|---|---|---|
| AB Technical Community College | $ - | 0.0% |
| Alamance Community College | $ 3,868.29 | 48.2% |
| Beaufort County Community College | $ 516.90 | 6.4% |
| Bladen Community College | $ - | 0.0% |
| Caldwell Community College | $ - | 0.0% |
| Cape Fear Community College | $ - | 0.0% |
| Catawba Valley Community College | $ - | 0.0% |
| Central Carolina Community College | $ - | 0.0% |
| Central Piedmont Community College | $ - | 0.0% |
| Cleveland Community College | $ - | 0.0% |
| Coastal Carolina Community College | $ - | 0.0% |
| Craven Community College | $ - | 0.0% |
| Davidson County Community College | $ - | 0.0% |
| Edgecombe Community College | $ - | 0.0% |
| Fayetteville Technical Community College | $ - | 0.0% |
| Forsyth Technical Community College | $ - | 0.0% |
| Gaston College | $ - | 0.0% |
| Haywood Community College | $ - | 0.0% |
| Isothermal Community College | $ - | 0.0% |
| James Sprunt Community College | $ - | 0.0% |
| Johnston Community College | $ - | 0.0% |
| Lenoir Community College | $ - | 0.0% |
| Mitchell Community College | $ - | 0.0% |
| Montgomery Community College | $ - | 0.0% |
| Nash Community College | $ - | 0.0% |
| Pamlico Community College | $ - | 0.0% |
| Piedmont Community College | $ 390.04 | 4.9% |
| Pitt Community College | $ - | 0.0% |
| Randolph Community College | $ - | 0.0% |
| Richmond Community College | $ - | 0.0% |
| Roanoke-Chowan Community College | $ - | 0.0% |
| Robeson Community College | $ 1,104.17 | 13.8% |
| Rockingham Community College | $ - | 0.0% |
| Rowan-Cabarrus Community College | $ - | 0.0% |
| Sampson Community College | $ 516.17 | 6.4% |
| Sandhills Community College | $ - | 0.0% |
| Southwestern Community College | $ - | 0.0% |
| Stanly Community College | $ - | 0.0% |
| Surry Community College | $ - | 0.0% |
| Tri-County Community College | $ - | 0.0% |
| Vance-Granville Community College | $ - | 0.0% |
| Wake Technical Community College | $ - | 0.0% |
| Western Piedmont Community College | $ 1,624.90 | 20.3% |
| Wilkes Community College | $ - | 0.0% |

**Appendix N - 2**

| Institution | Distance Education Faculty Development | Percentage of Total Expenditures |
|---|---|---|
| AB Technical Community College | $ - | 0.0% |
| Alamance Community College | $ 5,802.44 | 17.6% |
| Beaufort County Community College | $ 775.35 | 2.4% |
| Bladen Community College | $ - | 0.0% |
| Caldwell Community College | $ - | 0.0% |
| Cape Fear Community College | $ - | 0.0% |
| Catawba Valley Community College | $ 1,976.30 | 6.0% |
| Central Carolina Community College | $ - | 0.0% |
| Central Piedmont Community College | $ - | 0.0% |
| Cleveland Community College | $ - | 0.0% |
| Coastal Carolina Community College | $ - | 0.0% |
| Craven Community College | $ 548.23 | 1.7% |
| Davidson County Community College | $ - | 0.0% |
| Edgecombe Community College | $ 492.05 | 1.5% |
| Fayetteville Technical Community College | $ 3,565.52 | 10.8% |
| Forsyth Technical Community College | $ 1,421.53 | 4.3% |
| Gaston College | $ 912.58 | 2.8% |
| Haywood Community College | $ 441.24 | 1.3% |
| Isothermal Community College | $ 969.95 | 2.9% |
| James Sprunt Community College | $ 765.02 | 2.3% |
| Johnston Community College | $ 767.62 | 2.3% |
| Lenoir Community College | $ 764.39 | 2.3% |
| Mitchell Community College | $ - | 0.0% |
| Montgomery Community College | $ - | 0.0% |
| Nash Community College | $ 522.93 | 1.6% |
| Pamlico Community College | $ 78.96 | 0.2% |
| Piedmont Community College | $ 1,755.18 | 5.3% |
| Pitt Community College | $ 1,071.81 | 3.2% |
| Randolph Community College | $ - | 0.0% |
| Richmond Community College | $ - | 0.0% |
| Roanoke-Chowan Community College | $ 206.17 | 0.6% |
| Robeson Community College | $ 828.12 | 2.5% |
| Rockingham Community College | $ - | 0.0% |
| Rowan-Cabarrus Community College | $ - | 0.0% |
| Sampson Community College | $ 774.25 | 2.3% |
| Sandhills Community College | $ 768.71 | 2.3% |
| Southwestern Community College | $ - | 0.0% |
| Stanly Community College | $ 437.86 | 1.3% |
| Surry Community College | $ - | 0.0% |
| Tri-County Community College | $ - | 0.0% |
| Vance-Granville Community College | $ - | 0.0% |
| Wake Technical Community College | $ - | 0.0% |
| Western Piedmont Community College | $ 2,437.35 | 7.4% |
| Wilkes Community College | $ 4,902.89 | 14.9% |

**Appendix N - 3**

| Institution | Distance Education Computer Software | Percentage of Total Expenditures |
|---|---|---|
| AB Technical Community College | $ - | 0.0% |
| Alamance Community College | $ 11,604.88 | 2.8% |
| Beaufort County Community College | $ 12,922.42 | 3.1% |
| Bladen Community College | $ 11,772.10 | 2.9% |
| Caldwell Community College | $ 8,654.90 | 2.1% |
| Cape Fear Community College | $ - | 0.0% |
| Catawba Valley Community College | $ 43,917.88 | 10.7% |
| Central Carolina Community College | $ - | 0.0% |
| Central Piedmont Community College | $ - | 0.0% |
| Cleveland Community College | $ - | 0.0% |
| Coastal Carolina Community College | $ 9,326.94 | 2.3% |
| Craven Community College | $ - | 0.0% |
| Davidson County Community College | | 0.0% |
| Edgecombe Community College | $ 43,737.34 | 10.6% |
| Fayetteville Technical Community College | $ - | 0.0% |
| Forsyth Technical Community College | $ - | 0.0% |
| Gaston College | $ 25,349.41 | 6.2% |
| Haywood Community College | $ - | 0.0% |
| Isothermal Community College | $ - | 0.0% |
| James Sprunt Community College | $ - | 0.0% |
| Johnston Community College | $ - | 0.0% |
| Lenoir Community College | $ - | 0.0% |
| Mitchell Community College | $ - | 0.0% |
| Montgomery Community College | $ - | 0.0% |
| Nash Community College | $ - | 0.0% |
| Pamlico Community College | $ 731.13 | 0.2% |
| Piedmont Community College | $ 14,951.55 | 3.6% |
| Pitt Community College | $ 23,818.02 | 5.8% |
| Randolph Community College | $ 9,266.05 | 2.3% |
| Richmond Community College | $ - | 0.0% |
| Roanoke-Chowan Community College | $ 12,599.25 | 3.1% |
| Robeson Community College | $ 19,169.54 | 4.7% |
| Rockingham Community College | $ 5,126.02 | 1.2% |
| Rowan-Cabarrus Community College | $ - | 0.0% |
| Sampson Community College | $ - | 0.0% |
| Sandhills Community College | $ 25,623.82 | 6.2% |
| Southwestern Community College | $ 5,184.08 | 1.3% |
| Stanly Community College | $ - | 0.0% |
| Surry Community College | $ 20,863.20 | 5.1% |
| Tri-County Community College | $ 2,602.76 | 0.6% |
| Vance-Granville Community College | $ - | 0.0% |
| Wake Technical Community College | $ 70,536.52 | 17.1% |
| Western Piedmont Community College | $ 33,852.06 | 8.2% |
| Wilkes Community College | $ - | 0.0% |

**Appendix N - 4**

| Institution | Distance Education Computer Hardware | Percentage of Total Expenditures |
|---|---|---|
| AB Technical Community College | $ - | 0.0% |
| Alamance Community College | $ 23,209.77 | 3.1% |
| Beaufort County Community College | $ 17,229.90 | 2.3% |
| Bladen Community College | $ 23,544.20 | 3.1% |
| Caldwell Community College | $ 17,309.79 | 2.3% |
| Cape Fear Community College | $ - | 0.0% |
| Catawba Valley Community College | $ 87,835.76 | 11.6% |
| Central Carolina Community College | $ - | 0.0% |
| Central Piedmont Community College | $ - | 0.0% |
| Cleveland Community College | $ - | 0.0% |
| Coastal Carolina Community College | $ 18,653.89 | 2.5% |
| Craven Community College | $ - | 0.0% |
| Davidson County Community College | | 0.0% |
| Edgecombe Community College | $ 87,474.68 | 11.5% |
| Fayetteville Technical Community College | $ - | 0.0% |
| Forsyth Technical Community College | $ - | 0.0% |
| Gaston College | $ 70,978.36 | 9.3% |
| Haywood Community College | $ - | 0.0% |
| Isothermal Community College | $ - | 0.0% |
| James Sprunt Community College | $ - | 0.0% |
| Johnston Community College | $ - | 0.0% |
| Lenoir Community College | $ - | 0.0% |
| Mitchell Community College | $ - | 0.0% |
| Montgomery Community College | $ - | 0.0% |
| Nash Community College | $ - | 0.0% |
| Pamlico Community College | $ 1,462.27 | 0.2% |
| Piedmont Community College | $ 16,901.75 | 2.2% |
| Pitt Community College | $ 47,636.05 | 6.3% |
| Randolph Community College | $ - | 0.0% |
| Richmond Community College | $ - | 0.0% |
| Roanoke-Chowan Community College | $ 25,198.50 | 3.3% |
| Robeson Community College | $ 7,667.82 | 1.0% |
| Rockingham Community College | $ 10,252.03 | 1.3% |
| Rowan-Cabarrus Community College | $ - | 0.0% |
| Sampson Community College | $ - | 0.0% |
| Sandhills Community College | $ 42,706.36 | 5.6% |
| Southwestern Community College | $ 10,368.17 | 1.4% |
| Stanly Community College | $ - | 0.0% |
| Surry Community College | $ 4,470.69 | 0.6% |
| Tri-County Community College | $ 5,205.52 | 0.7% |
| Vance-Granville Community College | $ 32,913.81 | 4.3% |
| Wake Technical Community College | $ 141,073.04 | 18.6% |
| Western Piedmont Community College | $ 67,704.12 | 8.9% |
| Wilkes Community College | $ - | 0.0% |

**Appendix N - 5**

| Institution | Distance Education Technology Maintenance | Percentage of Total Expenditures |
|---|---|---|
| AB Technical Community College | $ - | 0.0% |
| Alamance Community College | $ 2,785.17 | 3.2% |
| Beaufort County Community College | $ 3,101.38 | 3.5% |
| Bladen Community College | $ 2,825.30 | 3.2% |
| Caldwell Community College | $ 2,077.18 | 2.4% |
| Cape Fear Community College | $ - | 0.0% |
| Catawba Valley Community College | $ 10,540.29 | 12.0% |
| Central Carolina Community College | $ - | 0.0% |
| Central Piedmont Community College | $ - | 0.0% |
| Cleveland Community College | $ - | 0.0% |
| Coastal Carolina Community College | $ 2,238.47 | 2.5% |
| Craven Community College | $ - | 0.0% |
| Davidson County Community College | | 0.0% |
| Edgecombe Community College | $ 10,496.96 | 11.9% |
| Fayetteville Technical Community College | $ - | 0.0% |
| Forsyth Technical Community College | $ - | 0.0% |
| Gaston College | $ 3,650.32 | 4.1% |
| Haywood Community College | $ - | 0.0% |
| Isothermal Community College | $ - | 0.0% |
| James Sprunt Community College | $ - | 0.0% |
| Johnston Community College | $ - | 0.0% |
| Lenoir Community College | $ - | 0.0% |
| Mitchell Community College | $ - | 0.0% |
| Montgomery Community College | $ - | 0.0% |
| Nash Community College | $ - | 0.0% |
| Pamlico Community College | $ 175.47 | 0.2% |
| Piedmont Community College | $ 312.03 | 0.4% |
| Pitt Community College | $ 5,716.33 | 6.5% |
| Randolph Community College | $ 694.95 | 0.8% |
| Richmond Community College | $ - | 0.0% |
| Roanoke-Chowan Community College | $ 3,023.82 | 3.4% |
| Robeson Community College | $ 4,784.72 | 5.4% |
| Rockingham Community College | $ 1,230.24 | 1.4% |
| Rowan-Cabarrus Community College | $ - | 0.0% |
| Sampson Community College | $ - | 0.0% |
| Sandhills Community College | $ 5,124.76 | 5.8% |
| Southwestern Community College | $ 1,244.18 | 1.4% |
| Stanly Community College | $ - | 0.0% |
| Surry Community College | $ - | 0.0% |
| Tri-County Community College | $ 624.66 | 0.7% |
| Vance-Granville Community College | $ 2,323.33 | 2.6% |
| Wake Technical Community College | $ 16,928.76 | 19.2% |
| Western Piedmont Community College | $ 8,124.49 | 9.2% |
| Wilkes Community College | $ - | 0.0% |

**Appendix N - 6**

| Institution | Distance Education Telecommunications | Percentage of Total Expenditures |
|---|---|---|
| AB Technical Community College | $ - | 0.0% |
| Alamance Community College | $ - | 0.0% |
| Beaufort County Community College | $ 516.90 | 2.8% |
| Bladen Community College | $ 588.61 | 3.2% |
| Caldwell Community College | $ 346.20 | 1.9% |
| Cape Fear Community College | $ - | 0.0% |
| Catawba Valley Community College | $ 2,635.07 | 14.2% |
| Central Carolina Community College | $ - | 0.0% |
| Central Piedmont Community College | $ - | 0.0% |
| Cleveland Community College | $ - | 0.0% |
| Coastal Carolina Community College | $ 932.69 | 5.0% |
| Craven Community College | $ - | 0.0% |
| Davidson County Community College | | 0.0% |
| Edgecombe Community College | $ 1,749.49 | 9.4% |
| Fayetteville Technical Community College | $ - | 0.0% |
| Forsyth Technical Community College | $ - | 0.0% |
| Gaston College | $ 1,622.36 | 8.8% |
| Haywood Community College | $ - | 0.0% |
| Isothermal Community College | $ - | 0.0% |
| James Sprunt Community College | $ - | 0.0% |
| Johnston Community College | $ - | 0.0% |
| Lenoir Community College | $ - | 0.0% |
| Mitchell Community College | $ 109.90 | 0.6% |
| Montgomery Community College | $ - | 0.0% |
| Nash Community College | $ - | 0.0% |
| Pamlico Community College | $ 5.85 | 0.0% |
| Piedmont Community College | $ 1,300.13 | 7.0% |
| Pitt Community College | $ 952.72 | 5.1% |
| Randolph Community College | $ 92.66 | 0.5% |
| Richmond Community College | $ - | 0.0% |
| Roanoke-Chowan Community College | $ 503.97 | 2.7% |
| Robeson Community College | $ 451.14 | 2.4% |
| Rockingham Community College | $ 205.04 | 1.1% |
| Rowan-Cabarrus Community College | $ - | 0.0% |
| Sampson Community College | $ - | 0.0% |
| Sandhills Community College | $ 1,708.25 | 9.2% |
| Southwestern Community College | $ 518.41 | 2.8% |
| Stanly Community College | $ - | 0.0% |
| Surry Community College | $ - | 0.0% |
| Tri-County Community College | $ 104.11 | 0.6% |
| Vance-Granville Community College | $ - | 0.0% |
| Wake Technical Community College | $ 2,821.46 | 15.2% |
| Western Piedmont Community College | $ 1,354.08 | 7.3% |
| Wilkes Community College | $ - | 0.0% |

**Appendix N - 7**

| Institution | Distance Education Technical Personnel | Percentage of Total Expenditures |
|---|---|---|
| AB Technical Community College | $ - | 0.0% |
| Alamance Community College | $ 170,204.97 | 10.4% |
| Beaufort County Community College | $ 51,689.69 | 3.2% |
| Bladen Community College | $ 47,088.40 | 2.9% |
| Caldwell Community College | $ 34,619.59 | 2.1% |
| Cape Fear Community College | $ - | 0.0% |
| Catawba Valley Community College | $ 175,671.53 | 10.7% |
| Central Carolina Community College | $ - | 0.0% |
| Central Piedmont Community College | $ - | 0.0% |
| Cleveland Community College | $ - | 0.0% |
| Coastal Carolina Community College | $ 37,307.77 | 2.3% |
| Craven Community College | $ - | 0.0% |
| Davidson County Community College | $ - | 0.0% |
| Edgecombe Community College | $ 174,949.36 | 10.7% |
| Fayetteville Technical Community College | $ - | 0.0% |
| Forsyth Technical Community College | $ - | 0.0% |
| Gaston College | $ 60,838.59 | 3.7% |
| Haywood Community College | $ - | 0.0% |
| Isothermal Community College | $ - | 0.0% |
| James Sprunt Community College | $ - | 0.0% |
| Johnston Community College | $ - | 0.0% |
| Lenoir Community College | $ - | 0.0% |
| Mitchell Community College | $ - | 0.0% |
| Montgomery Community College | $ - | 0.0% |
| Nash Community College | $ - | 0.0% |
| Pamlico Community College | $ 2,924.54 | 0.2% |
| Piedmont Community College | $ 23,402.42 | 1.4% |
| Pitt Community College | $ 95,272.10 | 5.8% |
| Randolph Community College | $ 53,279.79 | 3.3% |
| Richmond Community College | $ - | 0.0% |
| Roanoke-Chowan Community College | $ 50,397.01 | 3.1% |
| Robeson Community College | $ 73,611.02 | 4.5% |
| Rockingham Community College | $ 20,504.07 | 1.3% |
| Rowan-Cabarrus Community College | $ - | 0.0% |
| Sampson Community College | $ - | 0.0% |
| Sandhills Community College | $ 85,412.73 | 5.2% |
| Southwestern Community College | $ 51,840.83 | 3.2% |
| Stanly Community College | $ - | 0.0% |
| Surry Community College | $ - | 0.0% |
| Tri-County Community College | $ 10,411.05 | 0.6% |
| Vance-Granville Community College | $ - | 0.0% |
| Wake Technical Community College | $ 282,146.07 | 17.2% |
| Western Piedmont Community College | $ 135,408.23 | 8.3% |
| Wilkes Community College | $ - | 0.0% |

# APPENDIX O

## DE EXPENSE AS A PERCENTAGE OF FTE

**Appendix O - 1**

| Institution | Distance Education Staff Training | Distance Education FTE Generated | Expense Per FTE |
|---|---|---|---|
| AB Technical Community College | $ - | 260 | $ - |
| Alamance Community College | $ 3,868.29 | 300 | $ 12.89 |
| Beaufort County Community College | $ 516.90 | 0 | |
| Bladen Community College | $ - | 237 | $ - |
| Caldwell Community College | $ - | 0 | |
| Cape Fear Community College | $ - | 0 | |
| Catawba Valley Community College | $ - | 736 | $ - |
| Central Carolina Community College | $ - | 0 | |
| Central Piedmont Community College | $ - | 0 | |
| Cleveland Community College | $ - | 0 | |
| Coastal Carolina Community College | $ - | 0 | |
| Craven Community College | $ - | 0 | |
| Davidson County Community College | $ - | 0 | |
| Edgecombe Community College | $ - | 250 | $ - |
| Fayetteville Technical Community College | $ - | 3,000 | $ - |
| Forsyth Technical Community College | $ - | 0 | |
| Gaston College | $ - | 700 | $ - |
| Haywood Community College | $ - | 0 | |
| Isothermal Community College | $ - | 0 | |
| James Sprunt Community College | $ - | 0 | |
| Johnston Community College | $ - | 270 | $ - |
| Lenoir Community College | $ - | 215 | $ - |
| Mitchell Community College | $ - | 0 | |
| Montgomery Community College | $ - | 0 | |
| Nash Community College | $ - | 0 | |
| Pamlico Community College | $ - | 0 | |
| Piedmont Community College | $ 390.04 | 352 | $ 1.11 |
| Pitt Community College | $ - | 408 | $ - |
| Randolph Community College | $ - | 235 | $ - |
| Richmond Community College | $ - | 0 | |
| Roanoke-Chowan Community College | $ - | 150 | $ - |
| Robeson Community College | $ 1,104.17 | 500 | $ 2.21 |
| Rockingham Community College | $ - | 0 | |
| Rowan-Cabarrus Community College | $ - | 0 | |
| Sampson Community College | $ 516.17 | 0 | |
| Sandhills Community College | $ - | 216 | $ - |
| Southwestern Community College | $ - | 0 | |
| Stanly Community College | $ - | 419 | $ - |
| Surry Community College | $ - | 620 | $ - |
| Tri-County Community College | $ - | 0 | |
| Vance-Granville Community College | $ - | 0 | |
| Wake Technical Community College | $ - | 0 | |
| Western Piedmont Community College | $ 1,624.90 | 750 | $ 2.17 |
| Wilkes Community College | $ - | 118 | $ - |

**Appendix O - 2**

| Institution | Distance Education Faculty Development | Distance Education FTE Generated | Expense Per FTE |
|---|---|---|---|
| AB Technical Community College | $ - | 260 | $ - |
| Alamance Community College | $ 5,802.44 | 300 | $ 19.34 |
| Beaufort County Community College | $ 775.35 | 0 | |
| Bladen Community College | $ - | 237 | $ - |
| Caldwell Community College | $ - | 0 | |
| Cape Fear Community College | $ - | 0 | |
| Catawba Valley Community College | $ 1,976.30 | 736 | $ 2.69 |
| Central Carolina Community College | $ - | 0 | |
| Central Piedmont Community College | $ - | 0 | |
| Cleveland Community College | $ - | 0 | |
| Coastal Carolina Community College | $ - | 0 | |
| Craven Community College | $ 548.23 | 0 | |
| Davidson County Community College | $ - | 0 | |
| Edgecombe Community College | $ 492.05 | 250 | $ 1.97 |
| Fayetteville Technical Community College | $ 3,565.52 | 3,000 | $ 1.19 |
| Forsyth Technical Community College | $ 1,421.53 | 0 | |
| Gaston College | $ 912.58 | 700 | $ 1.30 |
| Haywood Community College | $ 441.24 | 0 | |
| Isothermal Community College | $ 969.95 | 0 | |
| James Sprunt Community College | $ 765.02 | 0 | |
| Johnston Community College | $ 767.62 | 270 | $ 2.84 |
| Lenoir Community College | $ 764.39 | 215 | $ 3.56 |
| Mitchell Community College | $ - | 0 | |
| Montgomery Community College | $ - | 0 | |
| Nash Community College | $ 522.93 | 0 | |
| Pamlico Community College | $ 78.96 | 0 | |
| Piedmont Community College | $ 1,755.18 | 352 | $ 4.99 |
| Pitt Community College | $ 1,071.81 | 408 | $ 2.63 |
| Randolph Community College | $ - | 235 | $ - |
| Richmond Community College | $ - | 0 | |
| Roanoke-Chowan Community College | $ 206.17 | 150 | $ 1.37 |
| Robeson Community College | $ 828.12 | 500 | $ 1.66 |
| Rockingham Community College | $ - | 0 | |
| Rowan-Cabarrus Community College | $ - | 0 | |
| Sampson Community College | $ 774.25 | 0 | |
| Sandhills Community College | $ 768.71 | 216 | $ 3.56 |
| Southwestern Community College | $ - | 0 | |
| Stanly Community College | $ 437.86 | 419 | $ 1.05 |
| Surry Community College | $ - | 620 | $ - |
| Tri-County Community College | $ - | 0 | |
| Vance-Granville Community College | $ - | 0 | |
| Wake Technical Community College | $ - | 0 | |
| Western Piedmont Community College | $ 2,437.35 | 750 | $ 3.25 |
| Wilkes Community College | $ 4,902.89 | 118 | $ 41.55 |

**Appendix O - 3**

| Institution | Distance Education Computer Software | Distance Education FTE Generated | Expense Per FTE |
|---|---|---|---|
| AB Technical Community College | $ - | 260 | $ - |
| Alamance Community College | $ 11,604.88 | 300 | $ 38.68 |
| Beaufort County Community College | $ 12,922.42 | 0 | |
| Bladen Community College | $ 11,772.10 | 237 | $ 49.67 |
| Caldwell Community College | $ 8,654.90 | 0 | |
| Cape Fear Community College | $ - | 0 | |
| Catawba Valley Community College | $ 43,917.88 | 736 | $ 59.67 |
| Central Carolina Community College | $ - | 0 | |
| Central Piedmont Community College | $ - | 0 | |
| Cleveland Community College | $ - | 0 | |
| Coastal Carolina Community College | $ 9,326.94 | 0 | |
| Craven Community College | $ - | 0 | |
| Davidson County Community College | | 0 | |
| Edgecombe Community College | $ 43,737.34 | 250 | $ 174.95 |
| Fayetteville Technical Community College | $ - | 3,000 | $ - |
| Forsyth Technical Community College | $ - | 0 | |
| Gaston College | $ 25,349.41 | 700 | $ 36.21 |
| Haywood Community College | $ - | 0 | |
| Isothermal Community College | $ - | 0 | |
| James Sprunt Community College | $ - | 0 | |
| Johnston Community College | $ - | 270 | $ - |
| Lenoir Community College | $ - | 215 | $ - |
| Mitchell Community College | $ - | 0 | |
| Montgomery Community College | $ - | 0 | |
| Nash Community College | $ - | 0 | |
| Pamlico Community College | $ 731.13 | 0 | |
| Piedmont Community College | $ 14,951.55 | 352 | $ 42.48 |
| Pitt Community College | $ 23,818.02 | 408 | $ 58.38 |
| Randolph Community College | $ 9,266.05 | 235 | $ 39.50 |
| Richmond Community College | $ - | 0 | |
| Roanoke-Chowan Community College | $ 12,599.25 | 150 | $ 84.00 |
| Robeson Community College | $ 19,169.54 | 500 | $ 38.34 |
| Rockingham Community College | $ 5,126.02 | 0 | |
| Rowan-Cabarrus Community College | $ - | 0 | |
| Sampson Community College | $ - | 0 | |
| Sandhills Community College | $ 25,623.82 | 216 | $ 118.63 |
| Southwestern Community College | $ 5,184.08 | 0 | |
| Stanly Community College | $ - | 419 | $ - |
| Surry Community College | $ 20,863.20 | 620 | $ 33.65 |
| Tri-County Community College | $ 2,602.76 | 0 | |
| Vance-Granville Community College | $ - | 0 | |
| Wake Technical Community College | $ 70,536.52 | 0 | |
| Western Piedmont Community College | $ 33,852.06 | 750 | $ 45.14 |
| Wilkes Community College | $ - | 118 | $ - |

**Appendix O - 4**

| Institution | Distance Education Computer Hardware | Distance Education FTE Generated | Expense Per FTE |
|---|---|---|---|
| AB Technical Community College | $ - | 260 | $ - |
| Alamance Community College | $ 23,209.77 | 300 | $ 77.37 |
| Beaufort County Community College | $ 17,229.90 | 0 | |
| Bladen Community College | $ 23,544.20 | 237 | $ 99.34 |
| Caldwell Community College | $ 17,309.79 | 0 | |
| Cape Fear Community College | $ - | 0 | |
| Catawba Valley Community College | $ 87,835.76 | 736 | $ 119.34 |
| Central Carolina Community College | $ - | 0 | |
| Central Piedmont Community College | $ - | 0 | |
| Cleveland Community College | $ - | 0 | |
| Coastal Carolina Community College | $ 18,653.89 | 0 | |
| Craven Community College | $ - | 0 | |
| Davidson County Community College | | 0 | |
| Edgecombe Community College | $ 87,474.68 | 250 | $ 349.90 |
| Fayetteville Technical Community College | $ - | 3,000 | $ - |
| Forsyth Technical Community College | $ - | 0 | |
| Gaston College | $ 70,978.36 | 700 | $ 101.40 |
| Haywood Community College | $ - | 0 | |
| Isothermal Community College | $ - | 0 | |
| James Sprunt Community College | $ - | 0 | |
| Johnston Community College | $ - | 270 | $ - |
| Lenoir Community College | $ - | 215 | $ - |
| Mitchell Community College | $ - | 0 | |
| Montgomery Community College | $ - | 0 | |
| Nash Community College | $ - | 0 | |
| Pamlico Community College | $ 1,462.27 | 0 | |
| Piedmont Community College | $ 16,901.75 | 352 | $ 48.02 |
| Pitt Community College | $ 47,636.05 | 408 | $ 116.76 |
| Randolph Community College | $ - | 235 | $ - |
| Richmond Community College | $ - | 0 | |
| Roanoke-Chowan Community College | $ 25,198.50 | 150 | $ 167.99 |
| Robeson Community College | $ 7,667.82 | 500 | $ 15.34 |
| Rockingham Community College | $ 10,252.03 | 0 | |
| Rowan-Cabarrus Community College | $ - | 0 | |
| Sampson Community College | $ - | 0 | |
| Sandhills Community College | $ 42,706.36 | 216 | $ 197.71 |
| Southwestern Community College | $ 10,368.17 | 0 | |
| Stanly Community College | $ - | 419 | $ - |
| Surry Community College | $ 4,470.69 | 620 | $ 7.21 |
| Tri-County Community College | $ 5,205.52 | 0 | |
| Vance-Granville Community College | $ 32,913.81 | 0 | |
| Wake Technical Community College | $ 141,073.04 | 0 | |
| Western Piedmont Community College | $ 67,704.12 | 750 | $ 90.27 |
| Wilkes Community College | $ - | 118 | $ - |

**Appendix O - 5**

| Institution | Distance Education Technology Maintenance | Distance Education FTE Generated | Expense Per FTE |
|---|---|---|---|
| AB Technical Community College | $ - | 260 | $ - |
| Alamance Community College | $ 2,785.17 | 300 | $ 9.28 |
| Beaufort County Community College | $ 3,101.38 | 0 | |
| Bladen Community College | $ 2,825.30 | 237 | $ 11.92 |
| Caldwell Community College | $ 2,077.18 | 0 | |
| Cape Fear Community College | $ - | 0 | |
| Catawba Valley Community College | $ 10,540.29 | 736 | $ 14.32 |
| Central Carolina Community College | $ - | 0 | |
| Central Piedmont Community College | $ - | 0 | |
| Cleveland Community College | $ - | 0 | |
| Coastal Carolina Community College | $ 2,238.47 | 0 | |
| Craven Community College | $ - | 0 | |
| Davidson County Community College | | 0 | |
| Edgecombe Community College | $ 10,496.96 | 250 | $ 41.99 |
| Fayetteville Technical Community College | $ - | 3,000 | $ - |
| Forsyth Technical Community College | $ - | 0 | |
| Gaston College | $ 3,650.32 | 700 | $ 5.21 |
| Haywood Community College | $ - | 0 | |
| Isothermal Community College | $ - | 0 | |
| James Sprunt Community College | $ - | 0 | |
| Johnston Community College | $ - | 270 | $ - |
| Lenoir Community College | $ - | 215 | $ - |
| Mitchell Community College | $ - | 0 | |
| Montgomery Community College | $ - | 0 | |
| Nash Community College | $ - | 0 | |
| Pamlico Community College | $ 175.47 | 0 | |
| Piedmont Community College | $ 312.03 | 352 | $ 0.89 |
| Pitt Community College | $ 5,716.33 | 408 | $ 14.01 |
| Randolph Community College | $ 694.95 | 235 | $ 2.96 |
| Richmond Community College | $ - | 0 | |
| Roanoke-Chowan Community College | $ 3,023.82 | 150 | $ 20.16 |
| Robeson Community College | $ 4,784.72 | 500 | $ 9.57 |
| Rockingham Community College | $ 1,230.24 | 0 | |
| Rowan-Cabarrus Community College | $ - | 0 | |
| Sampson Community College | $ - | 0 | |
| Sandhills Community College | $ 5,124.76 | 216 | $ 23.73 |
| Southwestern Community College | $ 1,244.18 | 0 | |
| Stanly Community College | $ - | 419 | $ - |
| Surry Community College | $ - | 620 | $ - |
| Tri-County Community College | $ 624.66 | 0 | |
| Vance-Granville Community College | $ 2,323.33 | 0 | |
| Wake Technical Community College | $ 16,928.76 | 0 | |
| Western Piedmont Community College | $ 8,124.49 | 750 | $ 10.83 |
| Wilkes Community College | $ - | 118 | $ - |

**Appendix O - 6**

| Institution | Distance Education Telecommunications | Distance Education FTE Generated | Expense Per FTE |
|---|---|---|---|
| AB Technical Community College | $ - | 260 | $ - |
| Alamance Community College | $ - | 300 | $ - |
| Beaufort County Community College | $ 516.90 | 0 | |
| Bladen Community College | $ 588.61 | 237 | $ 2.48 |
| Caldwell Community College | $ 346.20 | 0 | |
| Cape Fear Community College | $ - | 0 | |
| Catawba Valley Community College | $ 2,635.07 | 736 | $ 3.58 |
| Central Carolina Community College | $ - | 0 | |
| Central Piedmont Community College | $ - | 0 | |
| Cleveland Community College | $ - | 0 | |
| Coastal Carolina Community College | $ 932.69 | 0 | |
| Craven Community College | $ - | 0 | |
| Davidson County Community College | | 0 | |
| Edgecombe Community College | $ 1,749.49 | 250 | $ 7.00 |
| Fayetteville Technical Community College | $ - | 3,000 | $ - |
| Forsyth Technical Community College | $ - | 0 | |
| Gaston College | $ 1,622.36 | 700 | $ 2.32 |
| Haywood Community College | $ - | 0 | |
| Isothermal Community College | $ - | 0 | |
| James Sprunt Community College | $ - | 0 | |
| Johnston Community College | $ - | 270 | $ - |
| Lenoir Community College | $ - | 215 | $ - |
| Mitchell Community College | $ 109.90 | 0 | |
| Montgomery Community College | $ - | 0 | |
| Nash Community College | $ - | 0 | |
| Pamlico Community College | $ 5.85 | 0 | |
| Piedmont Community College | $ 1,300.13 | 352 | $ 3.69 |
| Pitt Community College | $ 952.72 | 408 | $ 2.34 |
| Randolph Community College | $ 92.66 | 235 | $ 0.39 |
| Richmond Community College | $ - | 0 | |
| Roanoke-Chowan Community College | $ 503.97 | 150 | $ 3.36 |
| Robeson Community College | $ 451.14 | 500 | $ 0.90 |
| Rockingham Community College | $ 205.04 | 0 | |
| Rowan-Cabarrus Community College | $ - | 0 | |
| Sampson Community College | $ - | 0 | |
| Sandhills Community College | $ 1,708.25 | 216 | $ 7.91 |
| Southwestern Community College | $ 518.41 | 0 | |
| Stanly Community College | $ - | 419 | $ - |
| Surry Community College | $ - | 620 | $ - |
| Tri-County Community College | $ 104.11 | 0 | |
| Vance-Granville Community College | $ - | 0 | |
| Wake Technical Community College | $ 2,821.46 | 0 | |
| Western Piedmont Community College | $ 1,354.08 | 750 | $ 1.81 |
| Wilkes Community College | $ - | 118 | $ - |

**Appendix O - 7**

| Institution | Distance Education Technical Personnel | Distance Education FTE Generated | Expense Per FTE |
|---|---|---|---|
| AB Technical Community College | $ - | 260 | $ - |
| Alamance Community College | $ 170,204.97 | 300 | $ 567.35 |
| Beaufort County Community College | $ 51,689.69 | 0 | |
| Bladen Community College | $ 47,088.40 | 237 | $ 198.69 |
| Caldwell Community College | $ 34,619.59 | 0 | |
| Cape Fear Community College | $ - | 0 | |
| Catawba Valley Community College | $ 175,671.53 | 736 | $ 238.68 |
| Central Carolina Community College | $ - | 0 | |
| Central Piedmont Community College | $ - | 0 | |
| Cleveland Community College | $ - | 0 | |
| Coastal Carolina Community College | $ 37,307.77 | 0 | |
| Craven Community College | $ - | 0 | |
| Davidson County Community College | $ - | 0 | |
| Edgecombe Community College | $ 174,949.36 | 250 | $ 699.80 |
| Fayetteville Technical Community College | $ - | 3,000 | $ - |
| Forsyth Technical Community College | $ - | 0 | |
| Gaston College | $ 60,838.59 | 700 | $ 86.91 |
| Haywood Community College | $ - | 0 | |
| Isothermal Community College | $ - | 0 | |
| James Sprunt Community College | $ - | 0 | |
| Johnston Community College | $ - | 270 | $ - |
| Lenoir Community College | $ - | 215 | $ - |
| Mitchell Community College | $ - | 0 | |
| Montgomery Community College | $ - | 0 | |
| Nash Community College | $ - | 0 | |
| Pamlico Community College | $ 2,924.54 | 0 | |
| Piedmont Community College | $ 23,402.42 | 352 | $ 66.48 |
| Pitt Community College | $ 95,272.10 | 408 | $ 233.51 |
| Randolph Community College | $ 53,279.79 | 235 | $ 227.11 |
| Richmond Community College | $ - | 0 | |
| Roanoke-Chowan Community College | $ 50,397.01 | 150 | $ 335.98 |
| Robeson Community College | $ 73,611.02 | 500 | $ 147.22 |
| Rockingham Community College | $ 20,504.07 | 0 | |
| Rowan-Cabarrus Community College | $ - | 0 | |
| Sampson Community College | $ - | 0 | |
| Sandhills Community College | $ 85,412.73 | 216 | $ 395.43 |
| Southwestern Community College | $ 51,840.83 | 0 | |
| Stanly Community College | $ - | 419 | $ - |
| Surry Community College | $ - | 620 | $ - |
| Tri-County Community College | $ 10,411.05 | 0 | |
| Vance-Granville Community College | $ - | 0 | |
| Wake Technical Community College | $ 282,146.07 | 0 | |
| Western Piedmont Community College | $ 135,408.23 | 750 | $ 180.54 |
| Wilkes Community College | $ - | 118 | $ - |

# APPENDIX P

# DISTANCE EDUCATION COST MODEL

| Distance Education Cost/Benefit Analysis | | | |
|---|---|---|---|
| Institution Name | | | |
| Academic Year | | | |
| Academic Year Income Per FTE | | | $ - |
| Tuition Rate for Full-time Students | | | $ - |
| | | | |
| **Demographics** | | **Distance Education Demographics** | |
| Total Unduplicated Head Count | | Head Count Attributed to Distance Education | |
| Total FTE | | FTE Attributed to Distance Education | 1 |
| Retention Rate | | Distance Education Retention Rate | |
| Graduation Rate | | Distance Education Graduation Rate (Students who complete degrees totally through DE) | |
| Student Fees (Enter Total Fees Charged to One Full-time Student) | $ - | DE Student Fees (Enter Total Fees Charged to One Full-time Student) | $ - |
| Institutional Space | $ - | Space Devoted to Distance Education | $ - |
| | | | |
| **Personnel Costs** | | **Distance Education Personnel Costs** | |
| Administrative Personnel | $ - | Administrative Personnel | $ - |
| Faculty | $ - | Faculty | $ - |
| Student Support Staff | $ - | Student Support Staff | $ - |
| Technology Staff | $ - | Technology Staff | $ - |
| Other Staff | $ - | Other Staff | $ - |
| Maintenance Personnel (Paid From Local Monies) | $ - | Maintenance Personnel (Paid From Local Monies) | $ - |
| Faculty Professional Development | $ - | Faculty Professional Development | $ - |
| Staff Professional Development | $ - | Staff Professional Development | $ - |
| *** | | Distance Education Faculty Bonuses or Release Time | $ - |
| Other Personnel Costs | $ - | Other Personnel Costs | $ - |
| | | | |
| **Support Services Costs** | | **Distance Education Support Services Costs** | |
| Advising | $ - | Advising | $ - |
| Tutoring | $ - | Tutoring | $ - |
| Counseling | $ - | Counseling | $ - |
| Registration Activities | $ - | Registration Activities | $ - |
| Financial Aid | $ - | Financial Aid | $ - |
| Library Resources | $ - | Library Resources | $ - |
| Help Centers/Technical Support/Resource Centers | $ - | Help Centers/Technical Support/Resource Centers | $ - |
| Other Support Services Costs | $ - | Other Support Services Costs | $ - |
| | | | |
| **Technology Costs** | | **Distance Education Technology Costs** | |
| Computer Hardware | $ - | Computer Hardware | $ - |
| Computer Software | $ - | Computer Software | $ - |
| Technology Maintanence & Contracts | $ - | Technology Maintanence & Contracts | $ - |
| Telecommunications Costs | $ - | Telecommunications Costs | $ - |
| | | | |
| **Facilities Costs** | | **Distance Education Facilities Costs** | |
| Facilities Costs | $ - | Distance Education Facilities Costs | $ - |
| | | | |
| **Distance Education Cost/Benefit Analysis Summary** | | | |
| **Distance Education Income** | | **Instructions:** | |
| State Allocation Per FTE * Distance Education FTE Generated | $ - | | |
| Institution Tuituion and Fees Per FTE * Distance Education FTE Generated | $ - | Please enter data into highlighted cells for the academic year indicated at the top of this form. | |
| *Sub-Total* | $ - | Demographic data may be obtained from the institution's registrar and financial data may be obtained from | |
| **Distance Education Expenses** | | the Business Office's Colleague repo | |
| Personnel Costs (Less Technology, Maintanence, & Support Services Staff) | $ - | | |
| Support Services Costs (Including Support Services Staff Costs) | $ - | | |
| Technology Costs (Including Technology Staff Costs) | $ - | | |
| Facilities Costs (Including Maintanence Personnel Costs) | $ - | | |
| *Sub-Total* | $ - | | |
| **Total Income/Expense** | **$ -** | | |
| | | | |
| Income Per FTE | $ - | | |
| Expences Per FTE | $ - | | |
| Per FTE Distance Education Income/Expense | $ - | | |