ABSTRACT

Susan J. Peck. CURRICULAR JOINT VENTURE: A MODEL FOR MEETING COMMUNITY AND EDUCATIONAL DEMANDS. (Under the direction of Dr. Lynn Bradshaw) Department of Educational Leadership, July, 2009.

The purpose of this study was to describe the inception, development, and implementation of a unique curricular joint venture, the University of North Carolina at Chapel Hill (UNC-Chapel Hill)/Elizabeth City State University (ECSU) Doctor of Pharmacy (PharmD) Partnership Program and to determine the value of this new program model. The research questions focused on: (a) what was implemented to address both the pharmacist shortage/imbalance in North Carolina and the demands to accommodate an increased student population more representative of the general population, (b) consequences and reasons why implementation occurred as it did utilizing hybrid video teleconferencing (VTC) distance education, and (c) what worked. Finally, it was important to make connections between elements that drove education policy implementation (Dumas & Anyon, 2006; Honig, 2006) while considering factors of diffusion and adoption (Rogers, 2003).

This intrinsic case study followed a pre-structure case outline during analysis that was aligned with the case study's original conceptual framework and covered the time period from 2002 to the spring of 2006. Multiple data collection methods were applied to provide a rich and comprehensive description.

The description of the implemented program drew out the challenges of implementation and resulting consequences. Challenges included the many complex interactions that took place between and among policy, people, places, and technology influenced by economics, political, social networks, and culture perspectives or frameworks. A chronology approach (Yin, 2003) was used to compare identified themes to the case study's theoretical framework of educational policy implementation (Honig, 2006) and diffusions and adoption of innovations (Rogers, 2003). Findings from this case study indicated full implementation and efficacy of the UNC-Chapel Hill/ECSU PharmD Partnership Program. Each partnering university's willingness to compromise, be honest, trust, and create an atmosphere of collaboration was valuable to the overall effectiveness of the partnership program. Sustaining these factors will be vital for continued effectiveness.

The UNC-Chapel Hill/ECSU Doctor of Pharmacy Partnership Program has responded to the demand for more pharmacists using innovative technology without compromising the quality of pharmaceutical education. However, there remains the challenge of recruiting an appropriate number of qualified students and continuing efforts to strengthen ECSU's preparation programs.

CURRICULAR JOINT VENTURE: A MODEL FOR MEETING COMMUNITY AND EDUCATIONAL DEMANDS

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COMMUNITY AND EDUCATIONAL DEMANDS

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CHAPTER 1: INTRODUCTION

In July 2003 the National Association of Chain Drug Stores (NACDS) cited 5,499 vacancies among the 90 chain pharmacy companies that responded to its survey. Two years later the United States faced a critical pharmacist shortage that showed no signs of abatement and was predicted to worsen (The Associated Press, 2005). NACDS reported about 6,000 open pharmacist positions (USA Today, 2005) and stated severe shortage in the high-growth states of California, Florida and North Carolina. In addition to drug store vacancies, unfilled hospital pharmacist positions were reported to be approximately 2,800 in 2003 and anticipated to increase as well (American Foundation for Pharmaceutical Education [AFPE], 2003). According to a Pharmacy ManPower Project, Inc. (2002) news release, a 157,000 shortfall of pharmacists was foreseen by 2020 (Knapp, 2002; Martin, 2005).

Several factors cited as contributing to the pharmacist shortage include: 30% increase in prescription volume from 1992-1999, greater populace of 65 years or older who have an excessively high share of prescription drugs, handling time-consuming third party payments, and a decline in pharmacy school applicants in the late 1990s (Kenreigh & Wagner, 2006). As pharmacist positions became more difficult to fill, pharmacist salaries rose compounding the pharmacist shortage further. These salary increases attracted more students to this field of study and resulted in a 5.1% increase in pharmacy school enrollment requiring more faculty and creating a pharmacy school faculty (educational/-

practitioners) shortage as well (Kenreigh & Wagner). This situation contributed further difficulties to the dilemma of addressing the national pharmacist shortage.

A study published in August 2002 by the Cecil G. Sheps Center for Health Services Research at the University of North Carolina at Chapel Hill (UNC-Chapel Hill) (Sheps Study) confirmed that North Carolina had been experiencing similar pharmacist shortages throughout the state, specific to “settings (i.e. retail and hospital) and populations (i.e., rural)” (Fraher, Smith, Dyson, & Ricketts, 2002, p. 16). As the population growth rate for the rural northeastern North Carolina area continues to grow and age, the residents have an elevated threat for losing access to pharmacy services. This existing imbalance between retail/hospital pharmacy services demand and supply of pharmacy professionals led North Carolina legislators and the University of North Carolina’s (UNC) Board of Governors (BOG) to seek a solution with imminent results.

In seeking a solution to specifically address North Carolina’s pharmacy manpower shortage the North Carolina UNC Board of Governors took into consideration the Sheps Study (Fraher et al., 2002) along with physical, financial, and time restrictions. Establishing another pharmacy school in any state is expensive, takes years of planning, and requires pharmacy faculty also in short supply (Kenreigh & Wagner, 2006). The number of pharmacy graduates is also restricted to the number of physical seats available in the classroom. For example, if a classroom used for pharmacy instruction only has 140 chairs, there is room only to seat 140 students restricting admission to 140 students per year.

These factors guided University of North Carolina (UNC) administrators to explore more creative options.

As a result, University of North Carolina at Chapel Hill (UNC-Chapel Hill) and Elizabeth City State University (ECSU), both constituent universities in the UNC system, created a unique curricular joint venture and collaboration to meet expanding community and educational demands. These two universities partnered in creation of a UNC-Chapel Hill/ECSU Doctor of Pharmacy (PharmD) Partnership Program that promised to directly counter the pharmacist shortage by increasing the number of UNC system graduates each year without a substantial increase in faculty staffing and by attempting to raise the numbers of pharmacists working in underserved populations, especially in northeastern North Carolina where ECSU is located.

The final goals and objectives of the UNC-Chapel Hill/ECSU PharmD Partnership Program were agreed upon in a January 2005 Memorandum of Understanding (MOU). That MOU included the intent to enroll 10-15 students in the initial ECSU cohorts who would receive PharmD instruction primarily through rich media utilizing hybrid video teleconferencing (VTC). In addition, UNC educational leaders wanted to develop an effective model for operating satellite professional degree programs throughout the UNC system.

The UNC-Chapel Hill/ECSU PharmD Partnership Program utilizes many different kinds of computer mediated communications (CMC) tools to create a completely new and innovative distance learning environment. State educational

leaders believed that by using CMC tools and adopting a hybrid (teacher may instruct from either site) VTC learning environment; they created an economic solution for addressing the pharmacist shortage with an emphasis on rural northeastern North Carolina and a program model intended for operating satellite professional degree programs throughout the UNC system. This original program model is quickly becoming state education policy and thus warrants closer examination to look for evidence that substantiates or refutes the effectiveness of this prescribed change in curriculum format. Already there has been discussion within the UNC university system of expanding the pharmacy program and extending legal programs and nursing programs using hybrid VTC learning environments. Therefore, this case study describes the many facets involved in inception, development, and implementation of the innovative pedagogical practice employed by the UNC-Chapel Hill/ECSU PharmD Partnership Program to address an indicated national and regional pharmacist shortage that was predicted to worsen.

Problem Statement

When introducing a new program model, determining if a sustainable learning environment resulted is a prudent course of action. Questions should be raised related to efficacy of the new program model, quality of the instruction, faculty, staff, and student satisfaction, and how the program model was realized. A unique aspect of the UNC-Chapel Hill/ECSU PharmD Partnership Program's education curriculum is that the partnership grew from addressing a community

need. Many people came together to embrace this new vision and many CMC tools are utilized in the execution of instruction. The CMC tools provide the mechanisms to deliver the entire program at a distance and include: VTC classrooms for instruction, Adobe® Acrobat® Connect™ Pro web communication system for classroom content delivery, cutting-edge mobile VTC technology for laboratory instruction, Blackboard® course management system for course content delivery, desktop video-conferencing for office hours/visits, and email and instant messaging for communication.

Distance learning delivery methods have been revolutionary over the years. At first, these methods were mostly one-way (asynchronous) like online learning with the exception of VTC (Monolescu, Schifter, & Greenwood, 2004). Now, new VTC technologies and network advances, such as the ones used in the UNC-Chapel Hill/ECSU PharmD Partnership Program, have made two-way real-time (synchronous) VTC communications increasingly viable for use in instructional environments and require thorough scrutiny. Unfortunately, a relatively small amount of studies have specifically examined whole programs being delivered in a hybrid VTC learning environment (Chesbro, 2000; DeBourgh, 1998; Freeman, 1995).

Some studies have looked specifically at desktop video-conferencing (Duphorne & Gunawardena, 2005; Gunawardena & Duphorne, 2000, 2001; Harman & Dorman, 1998; Kies, 1997; LaPointe & Gunawardena, 2004; Monolescu-Kliger, 2002), and have contributed to the understanding of advanced

communication technology along with how they impact the learning process. However, these desktop video-conferencing studies have only concentrated on single learning environments, not an entire program and they have mainly focused on disciplines other than pharmacy (Ried & McKenzie, 2004).

Studies that have focused on two-way, synchronous VTC have largely concentrated on individual business or math courses (Barkhi & Brozovsky, 1999/2000; Freeman, 1998; Lawerence, 1995/1996; Pitcher, Davidson, & Goldfinch, 2000). These studies focus on the student/instructor interactions and have shown VTC as a useful medium. Concerns that traditional lecturing styles need to be modified when using VTC in delivering curriculum are also discussed.

A limited amount of studies exist that are directed at entire programs delivered through two-way synchronous VTC and most, until recently, have fallen in the medical fields of nursing (DeBourgh, 1998), medical technology (Freeman, 1995), or physical therapy (Chesbro, 2000). These studies looked at various aspects of two-way synchronous VTC (student satisfaction, student achievement, student learning styles) and all concluded that additional studies were needed to thoroughly understand this type of learning environment.

Of late, a few studies involving pharmacy classes being delivered via synchronous VTC instruction are surfacing in the *American Journal of Pharmaceutical Educati*on (AJPE) (Kennedy, Ward, & Metzner, 2003; MacLaughlin, Supernaw, & Howard, 2004; Ward, Rey, Mobley, & Evans, 2003). Two of these studies focused on pharmacy education (Kennedy et al., 2003;

MacLaughlin et al., 2004) and indicated no significant difference in student achievement. All three studies indicated that student and instructor satisfaction and interaction with VTC needs additional research due to the VTC technologies being non-passive in this type of learning environment.

Overall the available studies regarding VTC learning environments indicate that courses taught using VTC appeared to be effective in reaching remote students (Barkhi & Brozovsky, 1999/2000; Freeman, 1998; Pitcher et al., 2000; Ward et al., 2003). However, studies on VTC education have also mentioned concerns regarding social presence issues, distraction from learning due to technical problems, and the need to modify teaching away from lecturing in VTC instruction (Anderson, Banks, & Leary, 2002; Pitcher et al.; Reinhart & Schneider, 1998; Schenone-Stevens, 2002; Ward et al.). Studies that focused on whole programs delivered through VTC have shown similar results and concerns (Chesbro, 2000; DeBourgh, 1998; Freeman, 1995). Moreover, what few studies that are available regarding Doctor of Pharmacy programs being delivered through VTC have mentioned related challenges (Kennedy et al., 2003; MacLaughlin et al., 2004; Ried, Motycka, Mobley, & Meldrum, 2006; Ward et al.) and recommend further studies focused on student and faculty interactions and satisfaction.

None of the pharmacy education studies found to date have focused on an entire pharmacy program, including laboratory instruction (compounding, etc.), being delivered through a hybrid VTC learning environment. The scarcity of

educational research regarding synchronous VTC and entire programs being developed and delivered via hybrid VTC leave much to conjecture such as how a new educational program model utilizing hybrid VTC gets implemented and diffused. Therefore, this case study fills gaps collectively in VTC distance education, education policy implementation, and diffusion of innovation research. The UNC-Chapel Hill/ECSU PharmD Partnership Program was developed to be used as a VTC distance education model for operating other satellite professional degree programs in the UNC system with instruction delivered through hybrid VTC. Implementing a unique collaborative VTC distance education model to be used system-wide prescribes a closer examination of this mode of distance education and ties this research to education policy implementation research. Education policy implementation theory focuses on what worked and why (Honig, 2006). The infusion of multiple technologies also ties this research to diffusion of innovation research. Diffusion of innovation is a mechanism for change and provides the necessary lens to understand the consequences of innovations (Rogers, 2003). This case study augments the literature and has relevance in these research areas.

Purpose of the Study

The purpose of this case study is to describe and examine inception, development, and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program, and look at the efficacy of this new program model. The program was created to address a national and regional pharmacist shortage by

delivering instruction to remote students through a rich media learning environment utilizing hybrid VTC and produce a functional satellite professional degree programs model to be used throughout the UNC system. The boundaries of this case study are generally defined as a PharmD Partnership Program between UNC-Chapel Hill and ECSU that begins with the introduction of legislation in 2001 (SB 1005, Chapter 424, Section 31.10(c)) directing the UNC Board of Governors to study the feasibility of establishing a school of pharmacy at ECSU and ends after the first year of program/policy implementation in spring 2006. Issues explored include policy response to perceived problem, foundation of program model, university characteristics, student satisfaction, faculty/staff satisfaction, and educational factors realized after implementation of this new and distinctive program model.

Research Questions

This study analyzes three dimensions of education policy implementation: policy, people, and places which are contingent upon one another (Honig, 2006) and the technology infused. Data collected show relationships among these components and answer one overriding question: How did UNC-Chapel Hill and ECSU work together to create and implement the UNC-Chapel Hill/ECSU PharmD Partnership Program? Specifically:

1. What were the intended consequences from implementation of this new program model?

2. What were the unintended consequences from implementation of this new program model?
3. How did interaction among policy, place, people, and technology shape the implementation process?

Conceptual Framework

In this study the national and state pharmacist shortage acts as a lever for education policy implementation and a basis for change (Gornitzka, Kogan, & Amaral, 2007). Education policy implementation research focuses on strategic ways to ensure that new learning environments are designed to have positive impacts on students. Education policy implementation's current design builds on and departs from three past stages of research. Those stages included: (1) a focus on what got implemented, (2) attention to what got implemented over time, and (3) a growing concern with what works (Honig, 2006). Today education policy implementation research also concentrates on policy, people, and places so that resistance is minimized and does not impair desired results (Honig). Examination of the interrelated elements of education policy implementation examined in this study help determine if new program policy was successful in its implementation and what worked for "whom, where, when, and why" (Honig, p. 4). These factors and challenges involved in successful implementation of innovative pedagogical practices impact fulfillment of educational goals and whether or not diffusion of innovation takes place.

Diffusion of innovation research addresses the complexities of an organization adopting new pedagogical innovations and learning technologies and provides an understanding of the innovation process an organization follows. The innovation process in organizations include two activities: (1) initiation which consists of agenda-setting (identifying an organizations problem and need for an innovation) and matching the agenda-setting with an innovation; and (2) implementation which consists of innovation-decisions, actions, and event in the process leading to routinizing of the innovation (Rogers, 2003). Diffusion of innovation research recognizes that organizations adapting innovations typically involve a number of people; some supportive while others are opposed to the new idea; both impact what gets implemented and what works.

As depicted in the conceptual framework (see Figure 1), this study describes the main elements/factors involved in implementation of an innovative pedagogical practice put in place to address the particular problem of a national and regional pharmacist shortage. The study also traces policy origination throughout the university system. The conceptual framework of this study starts with a description of the initial response from legislators and educators when presented with this national/state/local problem. Then the study examines how this new program model was created and realized through collaborative efforts by the UNC University System and state and local policy makers. This requires understanding both universities' positions and roles in the UNC-Chapel

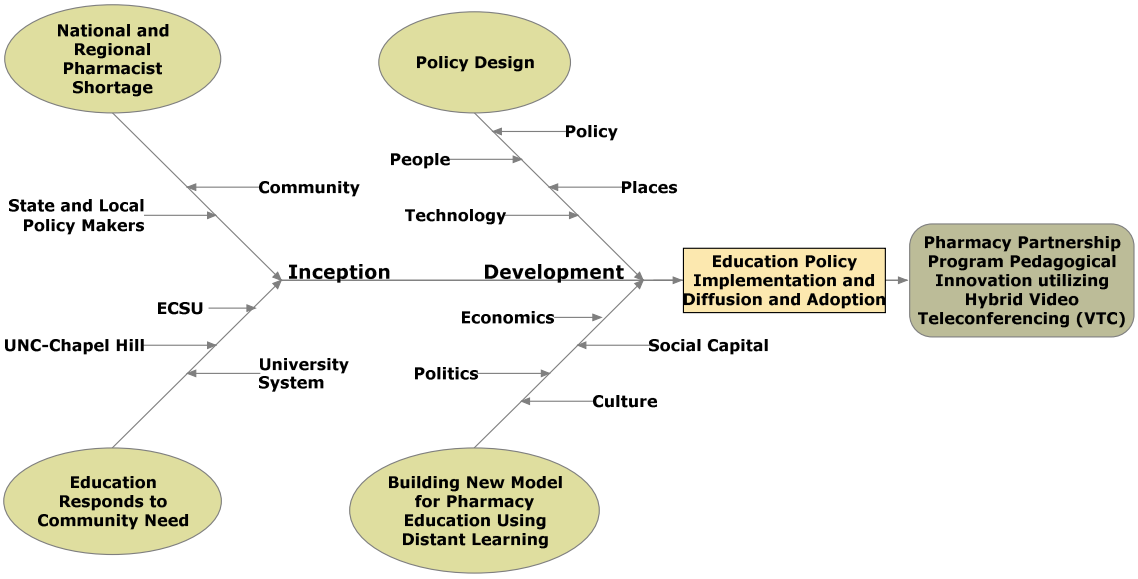


Figure 1. Conceptual framework – diffusion of innovation.

Hill/ECSU PharmD Partnership Program and what part the policy makers and university system had in the evolution of this partnership.

Because education does not take place in isolation, the economic status, social capital, politics and culture explored in this case study provides understanding on how these additional elements interacted with policy, people, places, and technology. This examination provides insight as to how connections are made between universal and limited scopes, beliefs and social practices, and institutional structures and individual desires that drive implementation (Dumas & Anyon). Finally, consideration of diffusion and adoption of new pedagogical innovations and learning technologies introduced into the pharmacy partnership program afford insight regarding different perspectives, change taking place, consequences, and whether educational goals were attained. In summary, data gathered has undergone a thorough evaluation and then related to each research question.

Method

This study is an intrinsic case study focused on describing, examining, and evaluating the complexities of factors involved in inception, development, and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program. Triangulation of multiple data sources including interviews, documents, archival records/materials, observations, and participant-observations provides a holistic analysis of the entire case (Creswell, 2003, 2007; Merriam, 1998; Yin, 2003). Investigating different data sources provides a check for consistency and

inconsistencies that facilitate reliability and internal validity (Creswell, 2003, 2007; Merriam, 1998; Patton, 2002; Yin, 2003). The process of triangulation provides for more than one perspective and acts as the means to reduce bias and error throughout the analysis.

Three levels of analysis are incorporated in this study. The first level of analysis investigates the process of interactions between the four main elements from the conceptual drawing: (1) national and regional pharmacist shortage, (2) education responds to community need, (3) policy design, and (4) building new model for pharmacy education using distance learning. The second level focuses on the interactions and individual roles of participants to gain understanding of what part the state and local policy makers, educational leaders in the university system, faculty, staff, student, and the partner universities each had. Finally, the third level of analysis identifies themes and evaluates efficacy resulting from implementation of the newly formed collaboration to answer the research questions. A chronology approach (Yin, 2003) was used to compare the chronology with education policy implementation (Honig, 2006) and diffusion and adoption (Rogers, 2003) theory. These findings are related through rich description.

Limitations

VTC is considered a mode of distance learning; however, the UNC-Chapel Hill/ECSU PharmD Partnership Program is actually a combination of distance learning and face-to-face instruction. Students at the remote site are expected,

just as the students at the local site are, to attend classes all day, every day. Hybrid VTC technology appears to have created an environment that is the next best thing to being face-to-face. So even though the literature in the distance learning field has already demonstrated “no significant difference” between online learning and face-to-face learning (Russell, 2001), this learning environment is unique and requires further studies more empirical in nature. This case study provides a detailed description that is more historical in nature and focuses on the inception, development, and implementation of a new program model, all the participants, their locations, the integration of technology, and policy involved. Additionally, because this program is now in its fourth year some of the originating policy makers were difficult to locate or unresponsive, therefore, this study instead relied on statements from other observants or persons that played or are playing a more supportive role in the implementation process.

The researcher is also employed at ECSU as the Coordinator of Instructional Technology for the UNC-Chapel Hill/ECSU PharmD Partnership Program. This employment has allowed the researcher to observe occurrences formally, informally, socially, and academically over the last four years beginning in the spring of 2005. Some of those observances have been instrumental in making adjustments to the instruction and delivery of instruction. Whereas those observances provided convenience for this study, those same observances also meant that multiple perspectives were needed to ensure perspectives from the entire domain of this case (Creswell, 2007).

Definitions

Accreditation Council for Pharmacy Education (ACPE) – The organization that sets the standards for Pharmacy Education and is recognized by the U.S. Department of Education as the national agency for accreditation of professional degree programs in pharmacy.

*North Carolina (NC) Area Health Education Center (AHE*C) – Is a network of Health Education Centers across North Carolina that focuses on multidisciplinary educational services to students, faculty, and local practitioners, and functions to improve health care delivery in medically underserved areas.

Asynchronous Learning Environment - Digital communication not having any timing requirements for transmission.

Computer Mediated Communications (CMC) - Communication between two or more individuals at different locations interacting through the Internet using computers with “social software” that allows them to communicate. Focus is on how people communicate rather than on the method itself. A variety of technology communication tools provide for CMC.

Desktop Video-conferencing – Desktop video-conferencing enables two or more people to interact with two-way audio and video communications between locations using a personal computer (usually desktop, but could be laptop). Free software that has been used to facilitate this kind of CMC includes NetMeeting (Microsoft Corporation), or Cusee-me (Cornell University) or software available

for purpose include Macromedia Breeze (now Adobe® Acrobat® Connect™ Pro), or VCON Vpoint.

Distance Education - The physical separation of teaching and learning. Distance education can now be used interchangeably with the term distance learning and takes on many different forms to meet different needs. Distance learning puts the emphasis on the 'learner' and the concept of student-centered learning. Three such common forms of distance learning are broadcast television, two-way videoconferencing and asynchronous learning network. (Picciano, 2006, p. 168)

Hybrid Video-Teleconferencing (VTC) - Technologically innovative systems known as hybrid VTC allows instruction to originate from either site and be delivered synchronously to remote sites through interactive 2-way audio/video communications utilizing compressed VTC on Internet2 in addition to multimedia content delivered simultaneously through an interactive Macromedia Breeze (now Adobe® Acrobat® Connect™ Pro) interface.

Internet2 - Internet2 is a separate leading edge network (like the Internet) that is dedicated to national research community, education, and government use. Internet2 is a consortium being led by 207 universities working in partnership with industry and government to develop and deploy advanced network applications and technologies, ensuring rapid transfer of new network services and applications up to 15,000 times faster than the standard internet (http://www.internet2.edu/).

Media – A vehicle or container that moves or communicates information.

Pharmacy College Admission Test (PCAT) – Test used to identify qualified applicants for schools of pharmacy.

Professional Experience Program (PEP) – The PEP curriculum provides the pharmacy student with ten months of experiential education including early hospital and community practice experiences and then additional advanced pharmacy practice experiences in hospital, community, inpatient medicine, ambulatory care, and medical specialty.

Social Capital – The value of an entity's affiliation with various social networks, reputation, influence, connections over different industries and social strata, etc., and access to resources.

Synchronous Learning Environment - Digital communication happening and occurring at precisely the same time.

Video-Teleconferencing (VTC) – Technologically innovative systems known as VTC allows instruction to be delivered synchronously to remote sites through interactive 2-way audio/video communications utilizing compressed VTC on Internet2.

Significance of the Study

Future politicians, federal and state agencies, educational leaders, instructional technologists, education administrators, faculty, and staff nationwide wanting to address similar community needs or expand existing programs out to rural areas will benefit from additional information and evidence produced in this

study. This study provides a rich description of the unique inception, development, and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program to expose what worked and why for recreation purposes. An examination of participants' roles, interactions and communication among the participants provides a holistic analysis of this unique program mode and a better understanding of what took place. With this study, the researcher aspires to contribute to the knowledge base by describing the complexities and consequences the UNC-Chapel Hill/ECSU PharmD Partnership Program experienced while implementing a pedagogical innovation using a hybrid VTC delivery model. This case study employs the theories of education policy implementation and diffusion of innovations to investigate how the infusion of a hybrid VTC teaching initiative affected educational goals and identifies what was attainable for the UNC system.

Summary

Today's universities are heading in new directions in response to community needs and increased competition, according to the American Council on Education (ACE) (Eckel, Hartley, & Affolter-Caine, 2004), and pharmacy education is no different. Chapter 1 briefly described a documented national and regional pharmacist shortage that triggered inception, development, and implementation of the innovative UNC-Chapel Hill/ECSU PharmD Partnership Program. This case study explored the foundation and implementation of this new program model while contributing to the scarcity of educational research

regarding hybrid VTC. The case study describes how the UNC-Chapel Hill/ECSU PharmD Partnership Program turned to an innovative use of technology in Pharmacy Education (Davison & Medina, 2003; Ried & McKenzie, 2004) along with other CMC technology advances that have evolved over the years in distance education for the answers to accessibility, restriction of room size, state and local community pharmacist needs, and various social economy issues.

Chapter 2 will now follow with a synthesis of the literature, theory, and research related to this study. Chapter 3 describes the methodology used. Chapters 4 and 5 present the findings and a discussion of results.

CHAPTER 2: LITERATURE REVIEW

Education policy and environments are changing to adapt to new demands by students, community members, teachers, and educational administrators. These appeals are driven by national and regional economic, social, political, and cultural needs of society. Distance education has been answering and growing in popularity from those demands over the years (Goodman, 2001). Now, pharmacy education is answering needs of society (pharmacist shortage) by creating distance education learning environments utilizing improved VTC technologies and influencing education policy. Distance education, pharmacy education, education policy implementation theory, and change theory, specifically diffusion of innovations are addressed in the literature review to follow.

This literature review begins with an overview of distance education over the last 40 years in education that includes an abridgment of CMC technology evolution and its relationship with distance education. Characteristics of distance education students, many of whom are adult learners and learning environments utilizing new technologies that are facilitating distance education programs are examined. A discussion of faculty/staff perspectives and needs during change and the implementation of a new program model are also presented. This review of the literature includes a history of pharmacy graduate school professional preparation programs nationwide and distance education's role in this field. Finally, the literature review concludes with an investigation of education policy

implementation theory and diffusion of innovations to inform and ground this study.

Distance Education

Geography no longer restricts students from taking courses anywhere in the world. Community members are no longer restricted to area schools and can choose from a growing list of distance education degree programs from not only public, but also private universities and businesses. Many researchers and authors have offered definitions of distance education over the years and are represented in Table 1. Picciano's 2006 definition is used for the purpose of this study. Picciano defines distance education:

> As an all-inclusive term, Distance Education served well in the past due to define the physical separation of teaching and learning. Distance Education can now be used interchangeably with the term Distance Learning and takes on many different forms to meet different needs. Distance Learning puts the emphasis on the 'Learner' and the concept of student-centered learning. Three such common forms of distance learning are Broadcast Television, Two-Way Videoconferencing, and Asynchronous Learning Network. (p. 168)

Table 1

Definition of Distance Education

Year	Author(s)	Definition
1980	Keegan	Essential for any comprehensive definition of distance education: 1. separation of teacher and student 2. influence of an educational organization, especially in the planning and preparation of learning materials 3. use of technical media to carry educational content between teacher and student 4. provision of two-way communication 5. possibility of occasional face-to face seminars 6. participation in the most industrial form of education (Moore & Kearsley, 1996, p. 206)
1989	Holmberg	Distance education is a concept that covers the learning-teaching activities in the cognitive and/or psycho-motor and affective domains of an individual learner and a supporting organization. It is characterized by non-contiguous communication and can be carried out anywhere and at any time which makes it attractive to adults with professional and social commitments (Jonassen, 1996)
1996	Moore & Kearsley	Planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design special instructional techniques, special methods of communication by electronic or other technology, as well as special organizational and administrative arrangements (p. 2)
2001	Mehrotra, Hollister, & McGahey	Any formal approach to instruction in which the majority of the instruction occurs while educator and learner are not in each other's physical presence (p. 1)

Table 1

Definition of Distance Education (continued)

Year	Author(s)	Definition
2003	National Center for Education Statistics	Education or training courses delivered to remote (off-campus) sites via audio, video (live or prerecorded), or computer technologies, including both synchronous (i.e., simultaneous) and asynchronous (i.e., not simultaneous) instruction (p. 1)
2006	Picciano	As an all-inclusive term, distance education served well in the past due to define the physical separation of teaching and learning. Distance education can now be used interchangeably with the term distance learning and takes on many different forms to meet different needs. Distance learning puts the emphasis on the 'learner' and the concept of student-centered learning. Three such common forms of distance learning are broadcast television, two-way videoconferencing and asynchronous learning network (p. 168).

Picciano's definition is inclusive of the many modes of CMC available to facilitate distance learning environments and also captures the pedagogy/andragogy changes that have taken place over the years. Education has shifted to student-centered learning in both distance education and face-to-face education (DeZure, 2000) which is captured in this definition.

Evolution of Distance Education

One question that becomes obvious while reading articles on media and technology in education is whether technology in classrooms evolved or resulted from a revolutionary push (DeZure, 2000; Green, 2000)? Both situations appear to be present. The world is in a constant state of change, today both parents work in most families and there are more single heads of households. Many of these individuals are trying to improve their economic status by acquiring additional education or changing career paths through retooling skills. Education has stepped up to meet these new types of students and community demands with creative educational delivery modes, for example, distance education.

Distance education began in the late 1800s with courses being delivered by correspondence. The first formally recognized correspondence teaching, the Chautauqua Institute, was recognized in 1883 by the state of New York and allowed to award degrees (Moore & Kearsley, 1996). From that point on correspondence education continued to grow in the 1890s as mining businesses used correspondence for professional development in safety and schools interested in supporting home studies offered course work for home bound

women and military personnel. In 1947, University Maryland University College (UMUC) began providing education services to working adults and U.S. military overseas through correspondence classes (UMUC, n.d.).

By the 1960s computers were an integral part of both the business and scientific communities (Lockard & Abrams, 2001), with desktop computers (Apples) starting to appear in United States public schools (K-12) and in higher education offices in the 1970s. Green (2000) stated that articles about infusion of technology in education started showing up in Change magazine, which deals with contemporary issues in higher learning, about that same time. Classroom computers helped teachers with root memory activities and freed up time for other classroom activities. Educational software was limited at the time, and software vendors were rushing to design more. By the 1980s, educators gladly used any software that would work on new desktop computers without concern for quality or theoretical base (Lockard & Abrams). Good theory in curriculum development in education has not always been applied (Ornstein & Hunkins, 2004). Instead educational software was usually created by software developers without teaching backgrounds and deployed by teachers who did not have adequate time to review the software.

In 1971, England's Open University emerged and started the process of moving education into a more public community experience using a system approach and a range of CMC technologies to offer undergraduate curriculum to any adult wanting to learn (Moore & Kearsley, 1996). At the time, England's

Open University's political patrons thought they were founding social change, however, others felt the most significant achievement over time would be experienced indirectly by influencing other universities and other colleges to offer online courses (Maclure, 2000). The 1980s and 90s brought more technological changes to education as card catalogs started to disappear and personal computers started showing up in campus libraries. Library services started to rapidly develop ways to extend services to students at a distance (Mehrotra et al., 2001). Distance education was gaining momentum with correspondence courses and videotaped, radio and television broadcast instruction.

During this period videotaped, radio and television broadcast instruction was considered by some to be undermining the quality of the educational experience (Dunning, Van Kekerix, & Zaborowski, 1993) and did not have the essential element of an educator present. Conversely, research studies (Moore & Kearsley, 1996; Russell, 2001; Saba, 2000) have documented that learners working on their own at a distance from faculty do as well as those face-to-face in the classroom with faculty. Therefore, with the development of innovative technologies, distance education seemed new and institutions were working hard to better meet the needs of modern society.

By the late 1990s, public institutions were competing with for-profit universities like University of Phoenix that offer degrees totally on-line at a distance. Some public academic institutions, like UMUC, launched for-profit companies (UMUC Online.com) to market online course offerings in response to

the competitive world of on-line education (Katz-Stone, 2000). Leaders in distance education such as Open University, UMUC, Penn State's independent study programs, Phoenix University, and many Florida educational institutions (NOVA Southern University) seem to have harnessed technology and were reaching far beyond the classroom walls. These *early adopters* (Rogers, 2003) of technology in education continue their exploration of delivery modes even today.

Early adopters in distance education are teachers that have embraced technology, and quickly see advantages of using technology for delivery of instruction at a distance. One concern noted in the research on developing distance education courses is that content is varied, and depending on the course, structure should be determined by sound instructional system design and development methods (Moore & Kearsley, 1996). CMCs should also be chosen wisely because as Monolescu-Kliger (2002) cautions, how we use technology determines its meaning and we need to understand how people are affected by new features of CMC.

Evolution of Computer Mediated Communication (CMC)

CMC tools used in distance education evolved greatly throughout the 1980s. While these tools improved student and teacher time and distance constraints, much of the early research on CMCs took place in organizational settings not educational (Monolescu-Kliger, 2002). Educational CMC technology has progressed from radio broadcasts in the 1920s, television in the 1940s; to audio and videotape from the 1970s and has helped to lead the way to more

forms of interactive media (Chesbro, 2000) that we see today such as course management systems that include email, discussion forums, and chat tools built right into the application. CMC uses and outcome variables are affecting distance learning experiences and have inspired many to look closer at CMC employment.

Muirhead (1999) conducted one of the first doctoral dissertation studies that dealt with challenges of promoting computer-mediated (i.e., CMC) education without losing social interaction (Monolescu-Kliger, 2002). Muirhead (1999) found communication played a major role in the educational process and that engaging students in successful online discussion included instructors' active involvement. Muirhead's findings were later supported by Gunawardena and Duphorne (2000). When desktop video-conference was added to online instruction, Monolescu-Kliger found that students reported feeling connected with one another and enjoying the instant feedback they received.

A later study by Duphorne and Gunawardena (2005) involving computer conferencing design indicated that more reflection and analytical thinking occurred during computer conferencing and supported critical thinking. These findings were supported by Anderson and Garrison (1995), and Garrison, Anderson, and Archer (2001). The Duphorne and Gunawardena study also indicated computer conferencing "has tremendous potential to foster communities of inquiry" (p. 48). This sense of community and the understanding that learning does not happen alone are features of interactional theories of cognitive development. Interactional theorists in cognitive development have the

perspectives that biological and cultural development does not occur in isolation (Driscoll, 2005). High levels of interaction and dialog facilitate the learning process (Gunawardena & Zittle, 1997; Richardson & Swan, 2003) and seem to make the CMC technologies disappear or at the very least be perceived as invisible. Much like putting on a pair of glasses or switching to contacts for the first time, after a couple of weeks the wearer hardly remembers or feels the glasses or contacts are there.

Now CMC tools include many more synchronous modes of communications such as instant messaging, chat, desktop video-conferencing, and classroom VTC. As CMC tools continue to evolve, research regarding their application and usefulness need to progress. Two recent dissertation studies (Chen, 2003; Schenone-Stevens, 2002) regarding two-way VTC both recommended that further research is needed to understand more fully the experiences of learners adapting to mediated environments and the effectiveness of this type of communication. Additionally, as education implementation research points out the role of human, social, and distributed cognition plays a significant role (Honig, 2006) in the learning process.

Characteristics of Distant Students

"The characteristics of the target population will…..help shape the instructional design, which in turn should heavily influence the choice of the mode for delivering the instruction" (Mehrotra et al., 2001, p. 15). Therefore, different CMC technologies can be chosen during the curriculum design process

that assists in the effective and efficient transfer of learning creating technology-enabled education environments (TEE) (Goodman, 2001) for students. So who are these students?

Interesting enough, most distance education learners are adults between the ages of 25-50 (Moore & Kearsley, 1996). More recent research (University of Florida, 2009) reported that half are 35 years old or older, three-quarters are working full or part-time, and more than half are married with dependents. Because these adult learners have busy lives, educators in rural and urban areas are “increasingly considering developing distance learning as part of their academic programs” (Picciano, 2006, p. 167) and it is important to understand the nature of adult learners and theories of adult learning.

Adult Learning

Meeting adult learner’s needs face-to-face or at a distance requires some flexibility and responsiveness to learning differences. Malcolm Knowles’ (1978) theory contends that adult learners are self directed and want learning to include real-life experiences, be relevant, and practical. Knowles' four assumptions about the characteristics that make adult learners different from other learners are as follows with a fifth one being added later:

1. Self-concept: As a person matures his self concept moves from one of being a dependent personality toward one of being a self-directed human being.

2. Experience: As a person matures he accumulates a growing reservoir of experience that becomes an increasing resource for learning.
3. Readiness to learn. As a person matures his readiness to learn becomes oriented increasingly to the developmental tasks of his social roles.
4. Orientation to learning. As a person matures his time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his orientation toward learning shifts from one of subject-centeredness to one of problem centeredness. (Knowles, 1980, pp. 44-45)
5. Motivation to learn: As a person matures the motivation to learn is internal (Knowles, 1984).

Knowles (1980) re-introduced through his writings and adopted the term andragogy, which means "adult-leading" or "to lead an adult." Theory of Andragogy (adult learning) includes the understanding that adults want to participate in defining course content to make instruction related and consequential to their lives (Mezirow, 1991). Critical reflection is part of this process. Most adult learners are self-directed, career-oriented, and have an intrinsic motivation to learn (Knowles, 1980).

Adult learners come to class with varied experiences seeking information that will help them now (Knowles, 1980). Adult learners also come to class with anxiety about their ability to succeed, especially in a distance learning

environment. These anxieties about expectations are both internal and external (Gunawardena & Zittle, 1997; Tu, 2002). Research has also shown that older learner may respond better to videotapes and interactive television educational environments (Mehrotra et al., 2001). These findings indicate that educator's need to alleviate adult student anxiety by creating learning environments that are interactive, task-oriented, and include a high degree of social presence (Gunawardena & Zittle; Tu). However, implementation is very different from adoption (Rogers, 2003) and according to West, Waddoups, and Graham (2007), more needs to be understood regarding the experiences instructors have as they adopt and implement technologies into their teaching.

Characteristics of Faculty/Staff

Faculty and the staff members assisting in integrating technology into instruction are collectively reexamining pedagogy/andragogy with renewed interest (Epper & Bates, 2001). Nonetheless, while teachers have the capacity to learn how to use new technologies, they are more likely to gravitate toward materials and approaches that are familiar to them and go well together with prior practices (Coburn & Stein, 2006). The rate of adoption of CMC tools can be hindered because some individuals have difficulties in perceiving advantages in its use, have had an unpleasant experience when trying to adopt a previous innovation, and/or have received little or no incentives to adopt a new innovation (Rogers, 2003). Correspondingly, professor autonomy over research and

teaching make implementation of new innovations or policy difficult (Larsen & Langfeldt, 2007).

Distance education instruction is also thought by faculty to be more challenging citing the need for more time and effort because of the physical separation which is a barrier to widespread adoption (Allen & Seaman, 2006). With VTC instruction, faculty must have or develop strong communication and course management skills along with the coordination to operate the VTC technology while teaching. Moore and Kearsley (1996) state too that the best distance education instruction facilitates three major types of interaction in learning:

1. Learner-to-Instructor
2. Learner-to-Learner
3. Learner-to-Content

Incorporating these types of interactions into instruction would indicate a shift from teacher centered to learner centered instruction which works well with the self-directed adult learner (Knowles, 1978, 1980).

Socially and culturally, the Internet has made the world a smaller place and collaboration easier (Friedman, 2005). With distance education using Internet connections, and various CMC such as course management systems along with VTC, a person can take courses anywhere at anytime with instructors facilitating/teaching from anywhere in the world. As an economical and political consequence, distance education continues to grow at a tremendous rate

providing alternatives for learner and faculty/staff while responding to community members' needs of supply and demand (Allen & Seaman, 2004, 2005, 2006).

Implications for Distance Education Programs

Distance education shows no signs of leveling growth rate, especially in the sixteen southern states which represent over one-third total online (including blended learning environments) enrollments and is being facilitated by the use of technology (Allen & Seaman, 2006). Both positive and not so positive learning experiences have resulted.

Asynchronous learning environments such as computer conferencing using discussion boards have been accredited with increasing critical thinking. Synchronous environments like VTC are now filling learners other needs associated with immediate feedback and social presence (cues). Kulik and Kulik (1988) performed a meta-analysis on the timing of feedback that showed immediate feedback had a more positive effect than delayed feedback. Bangert-Drowns, Kulik, Kulik, and Morgan (1991) found immediate feedback which "encouraged learner's mindful reception" (p. 233) improved later recall of this information. Teachers' interaction with students can be structured and managed through on-line communications and VTC to provide greater access and flexibility for both students and teachers. CMC tools used in distance education can facilitate team teaching, use of guest faculty from other institutions, and multicultural international classes (Bates, 2000).

With the separation of teacher and learner that results from distance education learning environments, CMC is necessary to reunite the teacher and learner, carry course content, and provide two-way communications. The “key to the learning process is the interactions among students themselves, the interactions between faculty and students, and the collaboration in learning that results from these interactions” (Palloff & Pratt, 1999, p. 5). CMCs, like VTC, facilitate those learning, social, and cultural interactions which are founded in educational theories such as social presence theory and interactional theories of cognitive development. As all levels of education turn to distance education to meet student and community demands (Allen & Seaman, 2004, 2005, 2006), VTC technology has become a viable solution because this type of learning environment offers better opportunities for immediate feedback.

K-20 school use of Internet2 for video and videoconferencing on all grade levels has increased and this practice is predicted to continue over the next few years (Allen & Seaman, 2004, 2005, 2006). The K20 initiative (k20.internet2.edu) which is sustained by a group of educators with the goal to bring Internet2 to all learners is credited with this rapid flux (Minkel, 2004). However, the K20 initiative is not necessarily supported by all of the research.

Knipe and Lee’s (2002) study regarding the quality of teaching and learning looked at classroom activities and cognitive outcomes which students at local and remote VTC sites experienced over a ten-week period. The results indicated that remote students did not have the same quality of teaching and

learning as local students. Knipe and Lee linked this difference to three factors. First, the learning environments differed due to group size, possibly causing less likelihood of co-operative learning at the remote site. Secondly, remote students experienced isolation caused by lack of social presence (cues) and necessary interactions that would have promoted co-operative learning. Lastly, remote students experienced a reduction of learning time due to wasted time associated with checking on technology or printing out PowerPoint Slides. Remote students were also observed to display more disruptive behavior (Freeman, 1998) at the remote site which probably contributed to the reduced learning.

Additionally, several studies have shown VTC technology is not passive, but rather negatively active in affecting group interaction because microphones need to be pressed and student are experiencing anxiety issues (Hsu & Sammons, 1998; Kennedy et al., 2003; Reinhart & Schneider, 1998). In response, Gunawardena (1995) points out that the impetus to promote interaction and collaborative learning really falls upon the instructor or facilitator of the VTC, highlighting the complexities involved in implementing distance education programs involving VTC.

The research to date underscores that the use of technology in distance education has magnified aspects of pedagogy/andragogy making it important for educators to refocus on how they plan instructional design, execute the curriculum and interact with their learners. Best practices for teaching with technology have shown up in article after article and in web-portal after web-

portal emphasizing the shift from teaching-centered to learner-centered learning environments. Recommendations have stated that instructors need to adapt the way a course is taught, especially when using VTC (Anderson et al., 2002; Lawrence, 1995/1996; Pitcher et al., 2000) to accommodate this shift.

Distance Education and Professional Preparation Programs

Dunning et al. (1993) predicted that:

> The American educational system has for centuries moved systematically from an elite to a universal form of education. Telecommunications-based education is simply the latest catalyst to influence reactions to the demographic, economic, and social changes that will alter teaching and learning relationships forever. (p. 266)

VTC may not change the nature or quality of teaching and learning. However, VTC is part of the revolution/evolution of distance education and professional preparation programs. By 1995, over half of the US higher-education institutions offered some form of distance learning and of this, nearly 80% involved television or two-way video in various forms (VTC) (Cotton, 1995).

VTC is not a new technology as discussed in the evolution of distance education section (Institute for Science Learning, 2005, p. 25), but has benefited from many technology advances making VTC more viable for use now in professional preparation educational settings. Delivery of pharmacy programs to remote sites utilizing VTC permits pharmacy school administrators to increase

the number of seats in the classroom without necessarily increasing the size of local faculty and staff, or building a larger school on site, and is foreseen to produce more pharmacy graduates responding to the national demand for more pharmacists (Chung, 2003; Lenz, Monaghan, Wilson, Tilleman, Jones, & Hayes, 2006; Ried & McKenzie, 2004; Ward et al., 2003).

The PharmD program at the University of Florida's College of Pharmacy in Gainesville is one such professional preparation program that has used hybrid distance education programming utilizing video streaming (asynchronous) technology. Course coordinators and faculty members travel to and visit the distant campus for only some instructional activities. University of Florida has found that distant students typically do not have to relocate, classes are smaller, and students get to know one another better which leads to integration and working as a team (Ried et al., 2006).

Ried and McKenzie (2004) found when comparing academic performance of University of Florida College of Pharmacy students at local and remote sites using hybrid blended learning approach employing asynchronous VTC in specific courses during one semester that students "performed equally well after taking into consideration their academic preparation before entering the college of pharmacy" (p. 10). Importantly, this study uncovered that pre-pharmacy math and science grade point average (GPA) emerged to be a significant predictor of academic success. Ried and McKenzie prescribed on-gong assessment and evaluation of academic performance in this type of learning environment.

Ried et al. (2006) followed up with a 2006 study which focused on University of Florida College of Pharmacy's hybrid distance education program using asynchronous VTC and this time concentrated on pharmacy student self-reported burnout. A comparison between the local ("founding") and remote campus was performed and concluded that students at the distant campus "reported lower burnout levels than students at the founding campus" (Ried et al., p. 11). Females reported being more emotional exhausted while male students reported more "depersonalizing behaviors" (Ried et al., p. 11).

In a descriptive article by Kennedy et al. (2003) faculty and student roles and experiences in the hybrid synchronous VTC learning environment at Nova Southeastern University, West Palm Beach's Pharmacy Program was depicted. This program is most similar to UNC-Chapel Hill/ECSU's Doctor of Pharmacy Partnership Program with the exception of laboratory instruction which is not VTCed. The article focused on student/instructor interactions. Classroom management is noted as a problem encountered with the depersonalization of the instructor and the necessity/role of a facilitator. Findings included that distance student sometimes feels like "second-class citizens" (Chung, 2003, p. 945; Kennedy et al., p. 4) when instructors pay more attention to local students. Additionally, instructor may believe distance student are not willing to participate because it is harder to see them or possibly because of student anxieties associated with pressing a microphone button to speak resulting in their image and voice being transmitted and seen by the local site. These social presence

and anxiety issues are noted as being hindrances because fewer visual cues are visible. The article recommended planned interactions, relationship building, and “developing a different teaching philosophy” (Kennedy et al., p. 5) to overcome the non-passive role of the VTC technology. Further studies are recommended that include a comparison of learning outcomes (analysis, synthesis, and evaluation). Nova Southeastern University has been delivering instruction using two-way VTC since 1995, and indicated success with their nontraditional, post baccalaureate PharmD program (260 graduates as of 2003) which has now conveyed into an entry-level PharmD curriculum (Kennedy et al.).

In a descriptive paper, Ward et al. (2003) describe Nova Southeastern University in Fort Lauderdale’s VTC pharmacy program and encourages continued development of innovative instructional technology. This study centered on program development, role of faculty, and policies and procedures regarding videotaping and VTC transmitting and pronounces the program a success. Additionally, this paper reported that students surveyed at Nova Southeastern University in Fort Lauderdale have indicated an irritation with technology interruptions and cited a comparative study by Bader and Roy (1999) that found local VTC students perceived technology negatively as well. Students felt that VTC affected their ability to learn, while the remote students were more tolerant of the VTC environment. Local students in the Bader and Roy study indicated they would not take another VTC course while remote students indicated they would take another VTC class. However, even with the technology

discontentment mentioned above Nova Southeastern University was asked by the American Council of Pharmaceutical Education to continue delivery of their nontraditional PharmD program for post baccalaureate PharmD and to begin offering an entry-level PharmD curriculum as described above in this same manner (VTC) to address workforce demands (Ward et al.). The paper indicates planned program expansion to other sites and concludes with the statement that on-going assessment of technology, instructor, and student performance would be conducted to address areas of improvement.

VTC used in pharmacy pharmacotherapy II and clinical pharmacokinetics II courses in 1998 were investigated at the College of Pharmacy, The University of Georgia (Chisholm, Miller, Spruill, Cobb, Reinhardt, Terry, Reese, & Wade, 2000). No difference was found in students' performance in these two courses based on whether they received their instruction live or by VTC. One difference noted though included students' assessment of teaching performance. The teacher using VTC in this study received lower assessment on their teaching from remote students than the local students.

At Texas Tech University's School of Pharmacy student performance was compared between distance and on-site education (MacLaughlin et al., 2004). Four third-year required pharmacotherapy courses (Integumentary, Bone and Joint Disorders, Neurology, and Psychiatry) that were being offered to students locally and at a distance through interactive VTC were examined. The study found no significant difference in student achievement between remote and local

based students. Further studies were prescribed that would involve other types of pharmacy courses along with investigations to include satisfaction of instructors and students in a VTC learning environment. Even though these last two studies did not investigate an entire program, the results provide valuable information and encouragement that VTC was a viable delivery mode for pharmaceutical education.

Research to date is scarce and has focused on student satisfaction and achievement. However, these studies have not focused on the multi-layer dynamics of implementation of a full pharmacy partnership program delivered totally through hybrid synchronous VTC, to what extent current distance education policy and education policy implementation helps or hinders, and what policies are needed. Complex competing forces of implementing a collaborative educational program versus evaluation of a particular educational strategy have not been explored. The literature reveals that pharmacy education across the country is turning to VTC technology; however, research regarding the efficacy of these models is non-existent.

The scope of pharmacy education includes not only compounding (combination of elements in fixed proportions) and information on dispensing medications, but also consists of services related to patient care including clinical services, reviewing medications for safety and effectiveness, and providing drug information to patients, practitioners, and the community at large. Pharmacy

education is based on sharing intellectual resources on topics pertinent to pharmacy education and practice.

Pharmacy Education in the United States

Created in 1950 and used as a model for clinical doctorates in other fields, the doctor of pharmacy degree was justified based on the fact that the body of pharmacological knowledge was rapidly expanding (Siler & Randolph, 2006). Currently there is discussion regarding adverse effects of clinical doctorates in the field of pharmacy. Three concerns have arisen from those discussions and include: (1) the clinical doctorate program requires minimal research from students unlike PhD programs, (2) clinical doctorates require more time and tuition and may reduce the number of new graduates at a time when there is a pharmacist shortage, and (3) fewer health-care professional now come from minority populations (Siler & Randolph). Despite those concerns opportunities in the field of pharmacy have continued to grow in the United States over the years to include more than dispensing drugs.

New drugs are being discovered to treat previously untreatable conditions. Breakthroughs in genomics, informatics, pharmacology, and therapeutics are greatly improving the quality of patient care (UNC-Chapel Hill School of Pharmacy, 2006a). Because of this, the profession of pharmacy has also enacted two educational initiatives over the last decade. First, the profession has recognized the needs of society by extending pharmacist training to include pharmaceutical care. Pharmaceutical care involves activities such as counseling

of patients, drug therapy, and collaboration with health care providers (Hepler & Strand, 1990; Kelley, 2003). Secondly, a pharmacist's education has transitioned from a baccalaureate professional degree to a graduate professional degree, Doctor of Pharmacy, program so that instruction could include preparation for pharmaceutical care (Kelley).

Today's pharmacy student graduates from schools like UNC-Chapel Hill's School of Pharmacy (SOP) (now known as the UNC Eshelman School of Pharmacy) with at least two years undergraduate pre-requisites course work followed by an intensive four-years of PharmD curriculum that includes ten months of professional experience. Many PharmD graduates work in a variety of fields, including community, health system, managed care, long-term care pharmacy, academia, drug development, drug information, and pharmaceutical sales. Due to the increasing national demand for prescription drugs and the shortage of pharmacists (AFPE, 2003; Kenreigh & Wagner, 2006; Knapp, 2002: Martin, 2005; NACDS, 2003; The Associated Press, 2005; USA Today, 2005), PharmD graduates are able to find employment opportunities readily available. This pharmacist shortage is the main reason pharmacy educational administrators around the country have looked for innovative ways utilizing new technologies to supply qualified pharmacists to fill this national demand (Chung, 2003; Lenz et al., 2006; Ried & McKenzie, 2004; Ward et al., 2003).

Theoretical Framework

Contemporary education policy implementation research focuses on "what gets implemented and what works" (Honig, 2006, p. 1). For example, what works in one school system or program may not work in another because the new location has different people, who may or may not support the new policy/program goals. Successful policy or program implementation usually results in change as well. Consequently, understanding theories on change, specifically diffusion and adoption theories and how to get people through change significantly impacts the probability of successful policy or program implementation. Therefore, both sets of theory will now be discussed to illuminate the complexities involved in establishing a new and unique program model like the UNC-Chapel Hill/ECSU PharmD Partnership Program and ground this case study.

Education Policy Implementation

In the United States, higher education has taken steps to improve student learning and operate together with state and regional accrediting agencies to focus on accountability (El-Khawas, 2007). Regional accrediting agencies have set up standards for state colleges and universities to follow. The Southern Association of Colleges and Schools (SACS), which is the accrediting agency that presides over North Carolina colleges and universities, was one of the first agencies to adopt the requirement that institutions review themselves on student achievement and learning (Bogue, 2003). By adopting this requirement,

institutions are charged to evaluate their own success and use those results for planning and improvement (Bogue) which eventually leads to innovative education policy implementation.

Education policy implementation's current design builds on and departs from three past stages of research. Those stages included: (1) a focus on what got implemented, (2) attention to what got implemented over time, and (3) a growing concern with what works (Honig, 2006). Contemporary education policy implementation research also concentrates on the interactions among policy, people, and places so that resistance is minimized and does not impair desired results (Honig). The role of economics, political, social capital, and culture are also considered influential. Studies on education policy implementation focus on how well a particular strategic plan was implemented. Larsen and Langfeldt (2007) list three items that can get in the way of successful policy implementation in higher education:

1. Absent direction or procedures for implementation
2. Diffusion of power in higher education
3. Professor autonomy over research and teaching make it difficult to implement new policy (Larsen & Langfeldt)

Berry and Berry (2007) argue also that in fact there are both internal (politics, economics, and social characteristics of the state) and diffusion determinants that influence successful policy implementation.

A good example of the complexities involved in education policy implementation appeared in a recent Washington Post article (Glod, 2008) that focused on the “No Child Left Behind’ provision which requires mandated tutoring for struggling students when a public school falls short on test grades. This article stated that several recent studies in Tennessee, Alabama, Georgia, Michigan and Kentucky showed no significant difference in test scores after mandatory tutoring was implemented. The article goes on to report that there is speculation that tutoring is working in large urban school systems, however, recruiting students for tutoring in others may be lacking. Reasons cited include some schools have been slow to develop tutoring programs, and/or some tutoring services have not been effective. Clearly numerous components and intricacies are involved in implementing education policy.

Hope and Pigford (2001) stated that “policy makers generally have a limited understanding of the challenges of implementing many of their well-intentioned policies” (p. 44). If education policy conflicts with local economical, social capital, political, and cultural needs procuring necessary assistance to implement will prove difficult (Honig, 2006). Education policy makers and policy implementers need to work together during development, design, and implementation phases. Additionally, all stakeholders should be kept informed which is considered critical (Hope & Pigford). Studies have revealed that people’s participation is essential as well (Honig). Therefore, even though leadership is about creating purpose, human relationships, understanding complexity science,

and being an inspiration for others to follow through change (Fullan, 2001) other factors of education policy implementation are at work. Factors include participants' interpretations of the policy, stakeholder support for the policy, and status of local economics or culture.

Theories of Change

During change people can resist imposed policies for a variety of reasons such as perceptions that the new policy/program is too costly or culturally unacceptable. Significant change when successful, such as when educational leaders introduce and implement new policy and technology for teaching and learning, can change an institute's cultures (Bates, 2000). Consequently, understanding theories of change is helpful. Theories of change in this discussion are inclusive of Rogers' (2003) diffusion and adoption of innovations theory, social cognitive theory, and the two major categories of instructional technology related diffusion theories of systemic change theories (organizational change or school change in which technology plays a major role).

Implementation is a significant element in all of these change theories and specifically in the innovation process of change in an organization (Fullan, 2001; Keller, 2005; Nachmias, Mioduser, Cohen, Tubin & Forkosh-Baruch, 2004; Rogers, 2003; Surry 1997). Rogers stated that an organization or institution that decides to adopt an innovation goes through an innovation process which includes: agenda-setting, matching, redefining/restructuring, clarifying, and routinizing. The first two, agenda-setting and matching are part of the initiation

activities. The last three items, redefining/restructuring, clarifying, and routinizing are components of the implementation.

During the first stage, agenda-setting, the institutional leader needs to form a group of change agents and opinion leaders made up of deans, department chairs, and key faculty/staff members, and involve them in diagnosing, planning, designing, carrying out and evaluating outcomes. This relates to Bennis' (1997) insight on forming great groups to carry out specific projects and shifts/shares ownership of the diffusion and adoption process. This essentially decentralizes the effort. Additionally, deans, department chairs, and key faculty/staff members have a higher degree of homophily (similar social status) with faculty and staff (masses) allowing for better communications and credibility (Rogers, 2003) to facilitate change.

The second stage, matching, includes developing incentive programs to match the problem of motivating faculty and staff. The educational leader acts as a champion to provide for this type of encouragement with budgetary support and linking the group with the necessary resources. Additionally, educational leaders need to continuously help change agents, opinion leaders, and in turn faculty visualize advantages of implementing the desired innovation by stating clearly how this change will fit with existing curriculums and research programs. Imparting this shared vision and desired outcome can facilitate reaching the critical masses.

Implementation starts in the third stage, redefining/restructuring. When developing a pedagogical innovation, for example, it is recommended that the change agents/opinion leaders fit the innovation to the organization's needs and the organization is expected to change to accommodate the innovation (Rogers, 2003). Ideally as discussions of the innovation continue by the change agents and opinion leaders, the university's faculty and staff (masses) start to take ownership of this idea as well. If key members, deans and department chairs, participate as change agents and opinion leaders involved in the innovation process, programs are more likely to succeed and be sustained (Rogers).

The fourth stage, clarifying, must be handled with care so as not to implement development of innovations too quickly (Rogers, 2003). At this stage, faculty and staff (masses) should be enticed to participate through various incentive programs deployed by the change agents/opinion leaders. Faculty and staff should also receive training and all the resources needed so the innovation being introduced becomes a natural part of their unit or program.

Routinizing completes the authority innovation process; however, this is where sustainability becomes an issue. Some suggested signs of sustainability would be re-invention of the innovation. For example, a course management systems used for online teaching being utilized in face-to-face classes (Web enhancement) can be viewed as re-invention of the innovation and would suggest even further sustainability. Undesirable, indirect, and unanticipated consequences may not be predictable, but can indicate either sustainability or

backward movement. A watchful eye is required and if needed quickly deploying necessary corrective action. Additionally, gaps in affluence and communication may indicate an increase in the digital divide. Activating various strategies to minimize the digital divide, helps produce a dynamic equilibrium.

Research also suggests there are certain leadership strategies or frameworks that have an affect on the external and internal barriers to implementation of new innovations or technology. Results from Kozma and Johnston's 1991 study mentioned an approach to change where instructional innovations are adopted collaboratively by faculty members and administrators, typically a department chair. Shared ownership gains and actually expands institutional acceptance and formalizes into programs, offices, or centers. Ensminger and Surry's (2002) study stated leadership that provides support, encouragement, and role modeling of innovation was one of eight key faculty perceptions that factor into implementation of technology innovations. Indicating this type of supportive leadership should be an essential part of the organization's or institution's culture.

Boulard (2004) asked why some schools are using technology innovations thoroughly and others are not? His response is that technology must become part of the culture to be successful. Academic leaders are nurturers of that culture and leadership effectiveness is linked to symbols and culture (Bolman & Deal, 2003). Senge (1996) suggests that leaders must have guiding principles that include becoming a persuasive role model, creating an environment open to

new ideas responsive to change, requiring collective intelligence, and understanding the content and culture in which they work. Today educational leaders are changing institutional cultures by introducing and implementing distance education, and these changes are creating education policies that are having systemic and large-scale educational effect.

Conclusion

The UNC-Chapel Hill/ECSU PharmD Partnership Program is a unique distance education curricular joint venture and collaboration that has the potential of influencing education on a large scale. This distinctive program model is the approach adopted by the UNC system to address the pharmacist shortage in North Carolina and will be replicated in additional satellite professional degree programs throughout the UNC System as needed to address manpower needs. The focus of this research is on the UNC-Chapel Hill/ECSU PharmD Partnership Program and closely describes the foundations of this program model, development and implementation process, and efficacy.

This program's curriculum is delivered entirely at a distance to pharmacy students at a remote location via cutting edge hybrid VTC technology. Every aspect of the UNC-Chapel Hill/ECSU PharmD Partnership Program's curriculum is delivered to the remote site at a distance, including office hours and compounding in the laboratory. Using several modes of CMC provides 24 hours a day and 7 days a week access to content, and communication with fellow students and instructors. Currently not a lot of literature is available on this type

of unique curriculum joint venture program or technology used. Therefore, this study's description of the historical decision making that initiated the UNC-Chapel Hill/ECSU PharmD Partnership Program, examination of the participant's roles in delivering a professional PharmD program entirely through hybrid VTC, and then evaluation of implementation, the change that took place, and surfacing themes and trends contributes to an emerging knowledge base and add to distance education, education policy implementation, and diffusion and adoption research. Chapter 3 will now follow and present the methodology used in this contributing case study.

CHAPTER 3: METHODOLOGY

This intrinsic case study provides an analysis of the complexities involved in inception, development, and implementation of a new UNC-Chapel Hill/ECSU PharmD Partnership Program. Using multiple sources of evidence, this case study begins with a close examination of the four main foundation elements in implementing this new program model: (1) the national and regional pharmacist shortage; (2) education's response to this shortage/community need, (3) new policy design to address this community need, and (4) what went into building a new model for pharmacy education using distance learning. Rich description relating the course of interaction among the four elements includes observations of, policy, people, places, technology, economics, politics, social capital, and culture. Yin (2003) recommends acquiring multiple sources of evidence including interviews, documents, archival records/materials, direct observations, participant-observations, and physical artifacts. Multiple data sources produced triangulation of data resulting in a reliable holistic examination of the entire case (Merriam, 1998; Patton, 2002; Yin, 2003). Information collected by different methods assisted in collaborating findings and reduced bias.

Researcher gathered and analyzed data for themes that provided pragmatic answers for each of the following research questions posed:

1. What were the intended consequences from implementation of this new program model?

2. What were the unintended consequences from implementation of this new program model?
3. How did interaction among policy, place, people, and technology shape the implementation process?

Finally, this case study considered the overall program extent and efficacy of the UNC-Chapel Hill/ECSU PharmD Partnership Program pedagogical innovation utilizing hybrid VTC. Specifically, the study addressed what got implemented, the reasons why implementation occurred as it did, and what worked.

Context

An intrinsic case study was chosen because this study explored one bounded system‘s implementation of a new program model with focus on the case itself, examined multiple data sources of a real occurrence, and utilized triangulation for reliability (Creswell, 2003, 2007; Yin 2003). The boundaries are set in terms of time, place, event, and processes. The time frame begins with the introduction of North Carolina legislation in 2001 (SB 1005, Chapter 424, Section 31.10(c)) directing the UNC Board of Governors to study the feasibility of establishing a school of pharmacy at ECSU and ends after the first year of program/policy implementation in spring 2006. This study looked strictly at one university system’s solution to a community need which resulted in the formation and implementation of a unique curricular joint venture, the UNC-Chapel

Hill/ECSU PharmD Partnership Program. Research focused on the inception, development, implementation, and efficacy of this distinctive program.

Selecting a case study approach was also judicious because this investigation examines a real-life phenomenon in context with a distinct situation which has multiple sources of evidence that guided data collection and analysis (Creswell, 2003, 2007; Yin, 2003). Furthermore, data triangulation tested for consistency and offered opportunities for deeper insight (Patton, 2002). Providing a detailed description of the case in this manner can assist other politicians, federal and state agencies, educational leaders, instructional program designers, education administrators, faculty, and staff in understanding the complexities involved with inception, development, and implementation of a program of this type.

Participants

Qualitative inquiry strategies employed in this case study were maximum variation sampling and when indicated during the interview process, opportunistic sampling or snowballing approaches (Creswell, 2007; Miles & Huberman, 1994). Therefore, initial participants who indicated other individuals conversant with the UNC-Chapel Hill/ECSU PharmD Partnership Program's inception, development, or implementation incited further inquiries (i.e., opportunistic sampling or a snowballing approach). The goal of these interviews was to supply multiple perspectives to ensure insight is gained from the entire spectrum of this case (Creswell, 2007).

Using participant's titles from the time frame studied, interview participants included the following list of individuals (see Table 2). Participants included two long term members of the North Carolina General Assembly both from their respective first districts and who initiated and supported the idea of a pharmacy program at ECSU. One legislator was from the state senate and the other was from the state house of representatives. Then moving down the list in Table 2, the UNC's Senior Vice President for Academic Affairs was included and recommended by the UNC President. The UNC President who was first contacted indicated that the UNC Senior Vice President for Academic Affairs was the more appropriate person to interview because of her more primary involvement.

The five individuals interviewed from ECSU included the Chancellor, School of Mathematics, Science and Technology (SMST) Dean who became the Interim Vice Chancellor of Academic Affairs/Provost during the time period studied, Chair of Biology who became the SMST Dean and then later Provost during the time period studied, Director of the Office of Design and Construction/Architect, and a Faculty member who was also a member of NC AHEC during the inception and planning stages of the pharmacy partnership program. All five of the ECSU interview participants were chosen for their primary roles on the ECSU campus during inception, development, and implementation.

The five persons interviewed at UNC-Chapel Hill also chosen for their primary roles. They consisted of the UNC-Chapel Hill School of Pharmacy's

Table 2

Interview Participant's Title and Affiliation

Title	Affiliation	Strategy
NC State Senator	NC General Assembly	Maximum Variation
NC House Representative	NC General Assembly	Maximum Variation
UNC's Senior Vice President for Academic Affairs	General Administration's Office of the President	Snow-balling
Chancellor	ECSU	Maximum Variation
Interim Vice Chancellor of Academic Affairs/Provost	ECSU	Maximum Variation
Biology Chair/SMST Dean/Provost	ECSU	Maximum Variation
Director of the Office of Design and Construction/Architect	ECSU	Maximum Variation
AHEC/Faculty	ECSU	Maximum Variation
New Dean	UNC-Chapel Hill SOP	Maximum Variation
Program Coordinator	UNC-Chapel Hill SOP	Maximum Variation
Faculty	UNC-Chapel Hill ILS	Maximum Variation
Lead Instructional Technology Specialist	UNC-Chapel Hill SOP	Maximum Variation
ISL Project Manager	UNC-Chapel Hill SOP	Maximum Variation

(SOP) Dean who arrived and inherited the UNC-Chapel Hill/ECSU PharmD Partnership Program during the development stages, the UNC-Chapel Hill SOP Program Coordinator concerned with and whom had the responsibility for all the logistics of this program, SOP Associate Professor who taught the first semester in the hybrid VTC learning environment, SOP lead Instructional Technology Specialist involved in researching the technology to be use in the partnership program, and the Project Manager with the Institute for Science Learning (ISL) at UNC-Chapel Hill responsible for understanding the mission of the project and translating that into the initial design and resulting hybrid VTC learning environment.

All individuals were initially contacted by email. Two individuals initially contacted by email for interviews, a member of the North Carolina General Assembly's Black Caucus and Director of the Institute for Science Learning at UNC-Chapel Hill, never responded and were not interviewed. With those who did respond, effort was made to meet in person when possible, however, one interview was by VTC and five were by telephone due to distance and busy schedules. Each interview was recorded, transcribed, coded using HyperResearch software, and lasted anywhere from 30 minutes to 1 hour and 20 minutes.

Additionally, information about the SOP faculty, staff, and students was obtained from documents, archival records/materials, direct observations, participant-observations, and physical artifacts that focused on UNC-Chapel Hill's

SOP. A 2008 email inquiry response from UNC-Chapel Hill's SOP human resources (HR) office indicated there were 130 SOP faculty members and sixty (60) pharmacy school full-time permanent staff members employed on the UNC-Chapel Hill campus (15 are research positions). Three of the 130 faculty members have UNC-Chapel Hill joint appointments, and are employed by and located at ECSU. Additionally, 4 full-time permanent staff members are employed on the ECSU campus. Of those staff members mentioned above, 4 from UNC-Chapel Hill and 2 from ECSU are specifically assigned to support the VTC technologies that are crucial to this program's daily operation and success. Students in the pioneering class of 2009 at both universities are populated as indicated in Table 3.

Researcher's Role

The researcher's role was to gain access**,** collect, and analyze the data from multiple sources to include: interviews, documents, archival records/materials, direct observations, participant-observations, and physical artifacts. The researcher was also responsible for developing a detailed analysis of the case to include: events leading up to creation of the UNC-Chapel Hill/ECSU PharmD Partnership Program, process of implementation, description of the program, and individual perspectives of the program. Through description of the case, the researcher presents teased out and uncovered themes of the case (Creswell, 2007).

Table 3

Student Population

Class	Current PY Level	UNC	ECSU	Class Total
2009	PY4	134	13	147

Furthermore, the researcher is also employed at ECSU as the Coordinator of Instructional Technology for the UNC-Chapel Hill/ECSU PharmD Partnership Program providing an insider (emic) perspective. This fact was beneficial when seeking data as a participant observer, but added to the challenge of maintaining objectivity as the researcher began the research process as more of a historian. This case study begins with an investigation and description of the policy origination and details which led up to the formation of the UNC-Chapel Hill/ECSU PharmD Partnership Program. During the initial policy design, the researcher was not working for the program nor had any knowledge of the early planning for this program. For this preliminary period of the study the researcher's role is that of an outside investigator.

Two prior assumptions that the researcher made about the UNC-Chapel Hill/ECSU PharmD Partnership Program were (1) this partnership is beneficial for ECSU, UNC-Chapel Hill, the UNC system, students at the distant site, and higher education in general, and (2) implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program might not be as cost effective as initially thought for the number of pharmacy students currently enrolled at ECSU. When these assumptions were challenged during any stage of this research, the researcher was obligated to follow the facts and had no objection to correcting postulation. These assumptions are speculative in nature and the examination of multiple data sources acted as a check and balance system to equalize them.

Researcher also engaged in reflection throughout the research process to identify subsequent assumptions that surfaced so that those consequential assumptions could be tested against the data that emerged. Having a sole researcher required a conscious effort be made to step back and recognize relationships, themes as an outsider and observer. Obtaining data from multiple sources provided balance of perspectives along with member-checking to determine the accuracy of findings (Creswell, 2007).

Data Source

Interviews, documents, archival records/materials, direct observations, participant-observations, and physical artifacts were collected. Triangulation of data strengthens the case study resulting in deeper insight (Creswell, 2003, 2007; Yin, 2003). However, obtaining multiple data sources was limited to the time frame of this study, available budget, and political constraints that precluded permission to report on student achievement. Overall though, the variety of methods listed above provided cross-data validity checks (Patton, 2002) to provide an inclusive analysis.

Procedure – Data Collection

First Phase

The first phase of this case study began with data collection from multiple data sources. Information necessary for a comprehensive description of the initial response from legislators and educational leaders when presented with a national/state/local pharmacist shortage problem, and the conception and

implementation of a new state educational program model were collected. Data collection focused on information that illuminated interactions among policy, people, places, technology, to better understand the economic, social capital, political, and cultural elements. Data collection methods used are as follows.

Interviews. Interviews conducted with individuals who have participated in establishing and/or continue to support the UNC-Chapel Hill/ECSU PharmD Partnership Program provide various perspectives necessary for a more accurate accounting of events. Key respondents/informants were initially chosen using a maximum variation sampling strategy (Creswell, 2007; Miles & Huberman, 1994) and asked open-ended interview questions (see Appendix A). These questions were asked in an unbiased and non-threatening manner (Yin, 2003). The interview questions typify the study's conceptual framework (see Figure 1) by asking questions about the four main elements, interactions among the sub-elements, and intended and unintended consequences. When indicated, the scope of the interview process was broadened to followed-up on key respondents/informants suggestions to interviews additional persons.

HyperRESEARCH™ version 2.8 computer software assisted in the efficient coding, retrieval, and examination of interview data. Transcribed data from interviews and field visits are coded along with notes taken in the field to strengthen credibility (Miles & Huberman, 1994). Using HyperResearch Software the coded interview data produced frequency charts that helped summaries this set of data categorically. To assist with data organization an initial code list was

created (see Appendix B). Coding was aligned with the research questions. As data were collected additional codes evolved and/or change as necessary.

Documentation. Documentation reviewed included studies regarding the supply and demand of pharmacists in North Carolina, memorandum of understanding (MOU) between UNC-Chapel Hill and ECSU for the PharmD Partnership Program, emails saved between and among faculty, staff and students, written reports of events including yearly program report and articles about the newly formed PharmD Partnership Program. These documents helped to establish a historical timeline of events and a better understanding of how the program was initiated and implemented. When examining documents, the researcher took into consideration that these documents were not written for this case study and they may not all contain full or accurate accountings. Documentation collected was critically examined to determine the original objective, and minimizing misleading interpretations (Patton, 2002).

Archival records/materials. Archival records/materials include pre-existing PharmD student survey data. Pre-existing PharmD student survey data came from surveys designed by the researcher and ECSU's Director of UNC-Chapel Hill/ECSU PharmD Partnership Program and executed fall of 2005, and spring 2006 prior to start of this study (see attached surveys in Appendices C and D). Pre-existing survey data were gathered on a volunteer basis from the student of the pioneering graduating class of 2009. Student participation was on a volunteer basis and included PharmD students at both partnership universities campuses.

No right or wrong answers where preconceived for any of the surveys. Identity remained anonymous, and these survey instruments were completely confidential. No risks or potential benefits accompanied completion of these questionnaires, but note that not all risks can be anticipated. Respondent's answers were transferred through electronic form generated by the survey website into a database containing no identification descriptors. Respondents had the right to discontinue participation without penalty, however, they were encouraged to answer all questions before clicking on the submit button. The Pre-existing PharmD student survey data analyzed utilizing the SAS/DAP software system provided information to determine the level of student satisfaction and supplied the student perspective for this case study. Careful attention was also given to archival records/materials to ascertain accuracy and created purpose.

Direct observation. Direct observations encompassed formal and informal data collected during the course of this study. These observations included environmental conditions, relevant behaviors from participants, and observations on the technology infused to help convey certain relevant characteristics of this case (Yin, 2003). These observations provided information not available in other formats.

Participant observation. Participant observations were performed by the researcher who has been immersed in the boundaries of this case study since the spring 2005. The participant observer has been and continues to be located

at ECSU. Access included being in the VTC classroom every day and all day at the remote site most of the first school year that the UNC-Chapel Hill/ECSU PharmD Partnership Program was implemented. This extensive access provided the researcher with a sound understanding of many aspects of this case study. Since late spring 2006 when the ECSU instruction site relocated from its original three classroom VTC suite in ECSU's Jenkins Science Building to the ECSU Pharmacy Temporary Building, the researcher's role has been more as an external observer, but still assuming advocacy roles to facilitate and ensure all learning opportunities are provided.

Physical artifacts. Physical artifacts were a further means of data triangulation. The main physical artifact observed in this case study was the use of VTC technology in the classroom along with various CMC tools to ascertain the effectiveness of CMC intervention in the learning environment. Description of the VTC technology proves valuable to the reader in understanding all the elements of a hybrid VTC classroom.

Second Phase

The second phase of this study included a complete examination of all data collected. This examination takes a closer look at the roles and interactions of participants to gain understanding of what part the community, state and local policy makers, university system, the partner universities, and university faculty, staff, and students each had. Data collection culminated in an examination of evidence, including, interviews, documentation, direct participant, participant

observations, physical artifacts, and archival records/materials that was performed together so a convergence of information resulted (Yin, 2003). This process was guided by affixing codes to interview data, sorting and sifting through documentation and analysis of pre-existing data.

Additionally, a document summary form (see Appendix E) was generated for documents obtained throughout the data collection process. During the interview process, a contact summary form (see Appendix F) was created for each interview as soon as the field notes taken were written up. These summary forms assisted with organization of data, allowed for rapid retrieval, and helped with computer assisted indexing. Both summary forms were based on examples provided by Miles and Huberman (1994).

Third Phase

The third and final phase was to evaluate the data for themes. Once these themes were identified, the researcher drew certain plausible conclusions about the program implementation and change process being studied to answer the research questions. A chronology approach (Yin, 2003) was used to compare the chronology with education policy implementation (Honig, 2006) and diffusion and adoption (Rogers, 2003) theories. By testing the plausible conclusions, this study moved data from conceptual overview to suggest causal inference (Miles & Huberman, 1994; Yin).

Design/Data Analysis

A pre-structured case data analysis outline which was developed before any data were collected was followed since this case study had a clear conceptual framework, a specific set of research questions, and a defined sampling plan (Miles & Huberman, 1994, p. 84). Using a pre-structured case outline helped focus and streamline data collection and analysis by collapsing data collection, analysis, and report writing into one procedure. Driven by the outline as well as emerging conclusions, this procedure was iterated until data analysis was completed (Miles & Huberman). The pre-structure case outlined is aligned with the conceptual framework in Figure 1 as follows:

A. An overview/background of the four main elements
    1. National and Regional Pharmacist Shortage
        a. State and Local Policy Makers
        b. Community
    2. Educational Response to Community Need
        a. University System
        b. UNC-Chapel Hill
        c. ECSU
    3. Policy Design
        a. Policy
        b. People
        c. Places
        d. Technology
    4. Building New Model for Pharmacy Education Using Distance Learning
        a. Economics
        b. Politics
        c. Social Capital
        d. Culture

B. The program implemented
    1. Interactions that shaped education policy implementation
    2. Change – Diffusion and Adoption

C. Overall program extent and efficacy of the Pharmacy Partnership Program pedagogical innovation utilizing hybrid video teleconferencing (VTC)
    1. What were the intended consequences from implementation of this new program model?
    2. What were the unintended consequences from implementation of this new program?
    3. What got implemented, the reasons why implementation occurred as it did, what worked

The pre-structured case data analysis begins with a description of the program's originating main elements, then concentrate on more case specific issues, interactions, and consequences, and conclude with responses to the research questions and a discussion regarding the overall program extent and efficacy. Evidence that fell outside the original framework, such as the discovered policy reform, was also included in the data analysis.

Summary of the Methodology

Throughout this case study as the researcher gained access, collected, and analyzed the data from multiple sources, the focus was to seek answers to the research questions. In doing so, multiple data collection methods were applied to provide a rich and comprehensive case study description. A pre-structured case data analysis now follows in Chapter 4 keeping clearly in mind the chronology and outline presented above and inclusive of revealed evidence that fell outside this original structure.

CHAPTER 4: RESULTS

Three levels of analysis are incorporated in this case study. The results that follow begin with the first level of analysis to include an overview/background of the four main elements: (1) national and regional pharmacist shortage, (2) educational response to community need, (3) policy design, and (4) building a new model for pharmacy education using distance learning. The overview/background provides a chronology of education policy origination, includes descriptions of individual roles of participants, and the process of interactions from the second level of analysis. The second level of analysis reports on and offers additional insight of interactions that shaped education policy implementation; information related to the program as planned; and processes used to address diffusion and adoption. Finally, a third level of analysis focuses on the overall program extent and efficacy by presenting pragmatic answers to the research questions and answering the overriding question of how UNC-Chapel Hill and ECSU worked together to create and implement the UNC-Chapel Hill/ECSU PharmD Partnership Program.

This analysis also includes a synthesis of reasons why implementation occurred as it did and identification of emerging themes resulting from the inception, development and implementation of the newly formed collaboration. A chronology approach (Yin, 2003) was used to compare the chronology with education policy implementation (Honig, 2006) and diffusion and adoption (Rogers, 2003) theory. The chronology of events in this case study covers many

types of variables. Therefore, comparing the chronology with explanatory theories from the theoretical framework which follows predicted sequences of events drew out the causal inferences relevant in this case study. The results are presented using the pre-structured case data analysis outline presented in chapter 3.

Overview/Background of the Four Main Elements

The UNC-Chapel Hill/ECSU PharmD Partnership Program Implementation Timeline in Figure 2 provides a chronological organization of documented events uncovered during this case study. The timeline serves as a heuristic devise to highlight major events described and presented in the overview/background section and throughout chapter 4. Significant legislation events in Figure 2 are shaded in gray and discussed in the first of the four main elements which now follows.

National and Regional Pharmacist Shortage

Following the conceptual framework of this case study, Figure 3 highlights the first main element, the national and regional pharmacist shortage. In this case study the national and regional pharmacist shortage operates as the precursor for education policy implementation and a basis for change (Gornitzka et al., 2007). According to the National Pharmacist Workforce Survey (Mott, Doucette, Gaither, Kreling, & Schommer, 2005) which examined the changes in the pharmacist's workforce from 2000 to 2004, the pharmacists' shortfall was worsening at the same time pharmacists were indicating they

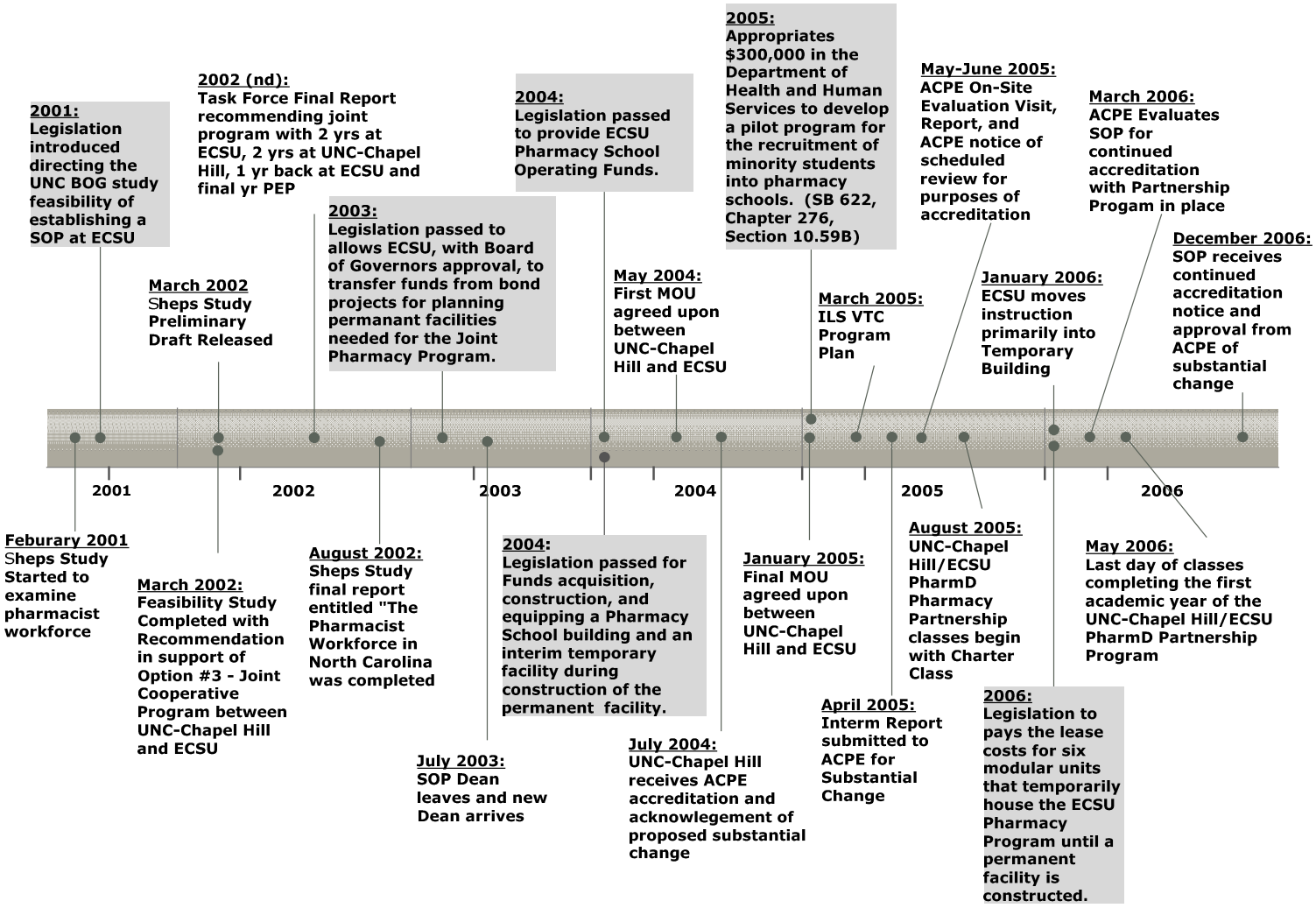


Figure 2. UNC-Chapel Hill/ECSU doctor of pharmacy partnership program implementation timeline.

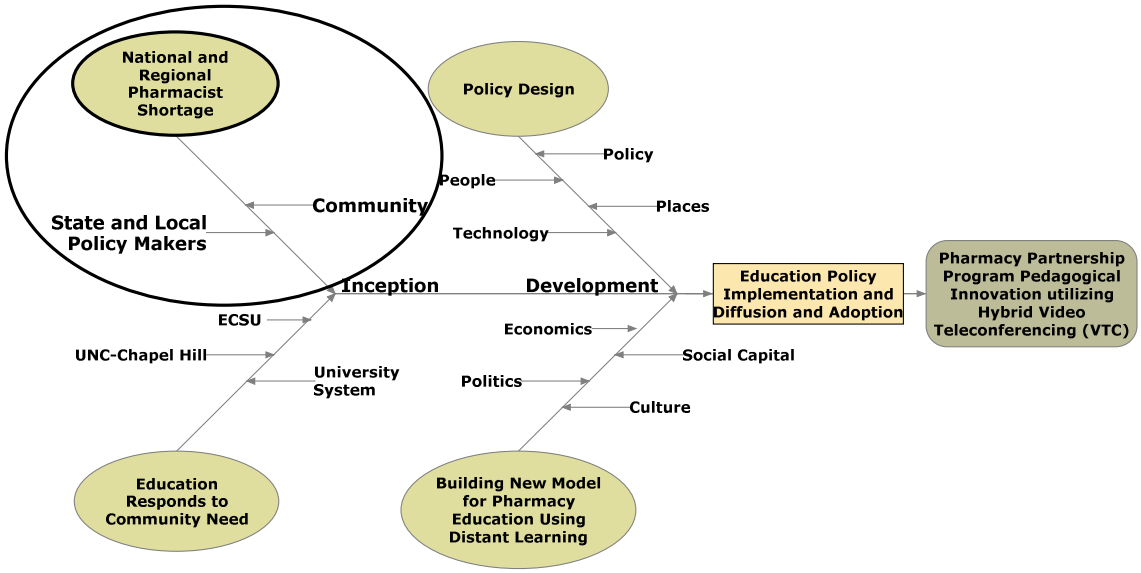


Figure 3. Conceptual framework highlighting first main element.

wanted to spend less time dispensing medications and more time providing patient-centered services such as counseling and coaching. Overall, society is living longer and consuming more prescription drugs: for example from 1990-2000, prescription volume in North Carolina increased by 50% (North Carolina Public Radio, 2005; Owens, 2003). Unfortunately pharmacy programs within the state are having difficulty keeping up with this rising volume and producing enough pharmacists to handle this proliferation.

Legislative Response

These pharmacist shortage facts fueled the idea to initiate a school of pharmacy at ECSU; this idea was first introduced in 2001 by a long-standing, powerful North Carolina General Assembly State Senator. A school of pharmacy, however, was not the senator's first idea for a professional program at ECSU. This senator had been looking for some time to support a professional program at ECSU to provide "better income opportunities to people in northeastern North Carolina" and help with social-economic development in this rural region that he represented. The senator shared during an interview that he first thought about engineering, but the costs associated with starting an engineering program would be "out of proportion of what, maybe, I could sell." Then he thought about starting a school of dentistry at ECSU. Here again, ECSU had no undergraduate preparation program for this type of professional program and the senator also felt there would be powerful resistance to this idea from the association of dentistry. Subsequently when he heard of the national and regional pharmacist

shortage, he asked his staff to investigate the possibilities of establishing a school of pharmacy at ECSU.

The senator confided that he thought no one could argue that there was a serious pharmacist shortage; he thought the documented shortage would work as an advantage and help to gain enough support to establish ECSU's first professional program. However, the senator said when he introduced the initiative initially there was a "huge number of people that opposed" the idea of a school of pharmacy at ECSU. He said, the "pharmacists of North Carolina organized pretty good in opposition" of his idea. The senator said too that initially, "UNC-Chapel Hill came out hard against ECSU" and then "eventually in time, we got UNC-Chapel Hill to support this concept, this idea." Once UNC Chapel Hill's support was secured, the other stakeholders followed suit.

Nonetheless, the senator had pivotal support in the right places. A local state house representative from northeastern North Carolina who was interviewed said that he expressed his support for the senator's idea right from the start. The local state representative was also the appropriation chair in the North Carolina House of Representatives. He pushed from his district which is located in the ECSU's service area, and said the senator did likewise on the Senate side as "it takes both sides to get your appropriation." The initial appropriations for ECSU during this case study are presented in Table 4. These documented provisions and appropriations demonstrate the legislative and

Table 4

Legislative Appropriations

Program Name	Budget Year	Budget Amount	Session Year	Expenditure Type	Campus	Explanation
ECSU Pharmacy	2001-02		2001	Provision	ECSU	Directs the Board of Governors to study the feasibility of establishing a School of Pharmacy at Elizabeth City State University. (SB 1005, Chapter 424, Section 31.10(c))
Joint Pharmacy Program	2003-04		2003	Bond	ECSU	Allows ECSU, with Board of Governors approval, to transfer funds from bond projects for planning facilities needed for the Joint Pharmacy Program. (HB 397.Chapter 284, Section 9.3 (a1))
Pharmacy School	2004-05	$28,000,000	2004	COPS	ECSU	Funds acquisition, construction, and equipping a Pharmacy School building and an interim temporary facility during construction of the facility. (HB 1264, Chapter 179)

Table 4

Legislative Appropriations (continued)

Program Name	Budget Year	Budget Amount	Session Year	Expenditure Type	Campus	Explanation
ECSU Pharmacy School Operating Funds	2005-06	$985,815	2004	Recurring	ECSU	Provides money to ECSU for the operations of its pharmacy school program
Pharmacy Minority Students	2005-06	$300,000	2005	Provision	ECSU, UNC-CH	Appropriates $300,000 in the Department of Health and Human Services to develop a pilot program for the recruitment of minority students into pharmacy schools. (SB 622, Chapter 276, Section 10.59B)
ECSU Pharmacy Space	2006-07	$43,000	2006	Non-Recurring	ECSU	Pays the lease costs for six modular units that temporarily house the ECSU Pharmacy Program until a permanent facility is constructed

community support over time for the resulting UNC-Chapel Hill/ECSU PharmD Partnership Program.

Summary of Pharmacist Shortage and Legislative Response

ECSU was chosen as the remote site mainly because ECSU is located in a rural, economically challenged part of the state, had the support of a powerful state senator and legislator who shared a vision for the northeastern North Carolina community, and the data supported the need. According to the ECSU Chancellor, introduction of legislation in 2001 (SB 1005, Chapter 424, Section 31.10(c)) directing the UNC Board of Governors to study the feasibility of establishing a school of pharmacy at ECSU gave ECSU "a head start in brokering the deal with Chapel Hill."

Educational Response to Community Need

Figure 4 highlights the second of the four main elements, the educational response to a community need. The University System's involvement in the inception of the UNC-Chapel Hill/ECSU PharmD Partnership Program is discussed first, followed by specific information pertinent to each university in the partnership. Specifically, considerations unique to each university that were consequential in the policy implementation decision-making process are presented.

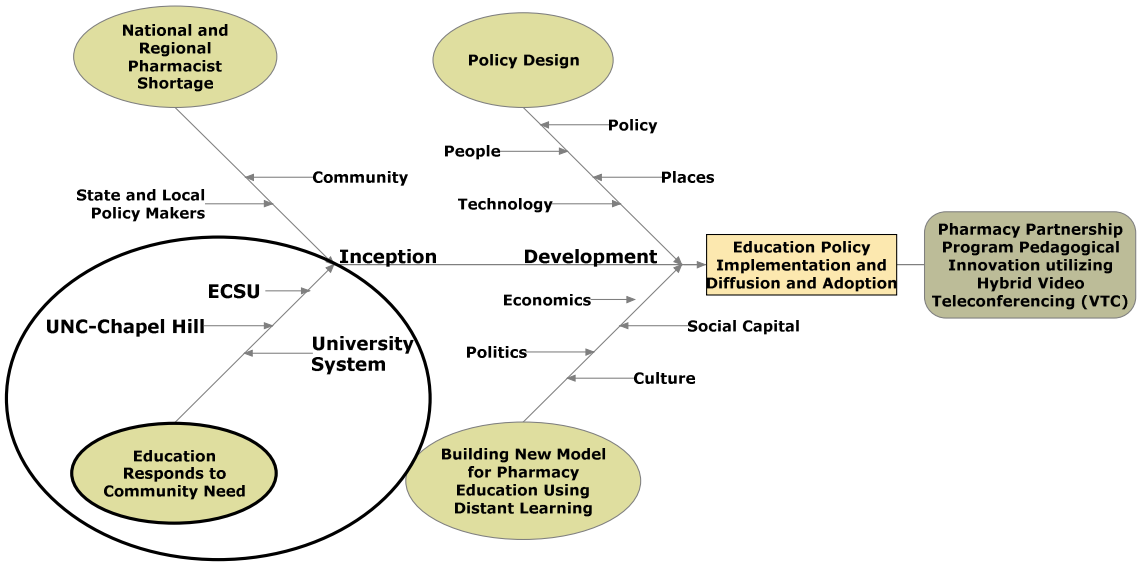


Figure 4. Conceptual framework highlighting second main element.

University System

Two separate studies were influential in the educational response to the pharmacist shortage. The first study, The Cecil G. Sheps Center for Health Services Research, UNC-Chapel Hill study (Sheps Study) (Fraher et al., 2002), was funded by the North Carolina General Assembly and was performed after the UNC's Board of Governors requested the North Carolina Area Health Education Center (NC AHEC) Program to study the North Carolina pharmacist work force. The second study, The 2002 Feasibility Study (Riffee, Early, & McKay, 2002), was legislatively directed and commissioned by the UNC Office of the President on behalf of the UNC Board of Governors to specifically examine the possibilities of establishing a school of pharmacy at ECSU. Both studies were concurrently reviewed by the North Carolina General Assembly (Fraher et al.). Together these studies supplied decision making information used for state-wide education and health care policy planning.

During the Sheps Study (Fraher et al., 2002) entitled *The Pharmacist Workforce in North Carolina* pharmacy workforce stakeholders were interviewed and indicated a perceived pharmacist shortage due to unfilled vacancies in retail and hospital pharmacies, difficulty in recruiting and retaining faculty in pharmacy schools and preceptors within the NC AHEC Program, and job dissatisfaction in retail because of the high volume of prescriptions along with the pressure to fill more prescriptions with fewer pharmacists and limited time. Data were also gathered from licensure records, permit files, IMS health reports regarding

pharmaceutical sales, state schools of pharmacy, the American Association of Colleges of Pharmacy, and the Census. (Fraher et al., pp. 18-19). The resulting report makes a distinction between a perceived pharmacist's shortage and a quantitative data-driven "imbalance" in the supply and demand for pharmacists. Specifically the study stated:

> …there is an imbalance in the supply of, and demand for, pharmacists practicing in retail, rural and hospital settings. The data also indicate that African-American and Hispanic/Latino pharmacists, as well pharmacists who can communicate in a language other than English, are underrepresented in the workforce. (Fraher et al., p. 91)

The Sheps Study (Fraher et al., 2002) identified policy options for The University of North Carolina to address pharmacist workforce issues. Conclusions included establishing a new pharmacy program(s) and taking into account some graduates will pursue "non-dispensing" or "other" pharmacy type employment, recruiting adequately trained students from under-represented minority groups, and that graduates are more likely to stay and practice in the local communities were they went to school.

The final Sheps Study (Fraher et al., 2002) stated that a preliminary draft of interim findings was distributed to a panel of pharmacy workforce stakeholders for their review as part of the study. The workforce stakeholders represented pharmacist and pharmacy technicians who were practitioners, educators,

employers, and regulators (Fraher et al., 2002, p. 83). These interim findings prompted legislation (SB 1005, Chapter 424, Section 31.10(c)) directing the UNC Board of Governors to study the feasibility of establishing a school of pharmacy at ECSU.

The 2002 Feasibility Study (Riffee et al., 2002) focused specifically on the feasibility of a school of pharmacy at ECSU. Three external experts from the Schools of Pharmacy at University of Florida, University of Toledo, and Shepherd University were hired to perform the study. The Vice President for Academic Affairs for the UNC University System described the use of the consultants in the following comments:

> We brought in the three consultants and given the participation of East Carolina [University], the possibilities of having this program at Elizabeth City, which was the impetus for the study in the first place, and recognizing the strong AHEC programs we have in North Carolina, we decided that we needed to have a fairly intensive visit for these consultants. Because, they also needed to consult with the folks at Chapel Hill, where the pharmacy program is nationally known, and an excellent program; well staffed, good facilities.

ECSU is one of sixteen (16) constituent institutions in The UNC System and as the ECSU Chancellor related had competition from two other sister schools: East

Carolina and Winston-Salem State University who were also interested in starting a school of pharmacy on their campuses.

The Feasibility Study (Riffee et al., 2002) looked at the physical facilities available to accommodate a new program, faculty with expertise, administrative support for a new program, evidence that pharmacy education was a priority at that university, and the fiscal viability of the university. The consultants offered three possible responses for The UNC Board of Governors to consider when establishing a new school of pharmacy at ECSU that are contained in Table 5. According to the ECSU Chair of Biology/Dean of Mathematics, Science, & Technology/Provost, this study "was just for the UNC system, went to the legislatures and UNC general administration," and contained cost estimates. Options included establishing a stand-alone school of pharmacy at ECSU, a joint pharmacy school program involving ECSU and East Carolina University (ECU), or a cooperative program with UNC-Chapel Hill.

As stated in the Vice President for Academic Affairs letter dated March 11, 2002 to the Joint Legislative Education Oversight Committee regarding the School of Pharmacy Feasibility Study (Riffee et al., 2002), the Educational Planning, Policies, and Programs Committee recommended to the Board of Governors Option #3. Option #3 was to develop a joint cooperative program between ECSU and UNC-Chapel Hill for the following reasons:

1. Address the shortage of pharmacists in the State as presented in the Sheps Center study.

Table 5

2002 Feasibility Study Educational Response Recommendations

Options	Set-up	Cost
Option 1: Establishing Stand-Alone School of Pharmacy at ECSU	All instruction would take place at ECSU	One-time cost for facilities of $7-10 million, and recurring costs of $4.4-5.1 million
Option 2: Creating a Joint Pharmacy Program offered by East Carolina University (ECU) and Elizabeth City State University (ECSU)	Instruction would be delivered collaboratively	Costs and funds would be divided between the two institutions
Option 3: Establishment of a cooperative program between UNC-Chapel Hill and ECSU	Where students would be co-admitted to UNC-Chapel Hill and ECSU. Pre-pharmacy course work would take place at ECSU, after which student would be formally admitted to UNC-Chapel Hill School of Pharmacy, with their fourth and fifth year of instruction via technology based delivery from UNC-Chapel Hill before the student would then participate in the AHEC advance clinical practice sites in their sixth year	One-time cost for facilities of $2.3 – 3.3 million and recurring costs of $2.6 - $3.2 million

Note. (Campbell, Mahoney, Joyner, Blackmon, Shrewsbury, Khan, Sollecito, Raasch, & Stevenson, n.d.).

2. Address the need for more minority pharmacists in North Carolina.
3. Take advantage of the existing financial and faculty resources already available in the UNC-Chapel Hill School of Pharmacy
4. Offer the most cost-effective approach during a time of difficult fiscal circumstances for postsecondary education.
5. Produce measurable results in a more timely manner than option #1 and #2.
6. Make effective use of the NC AHEC system and increases likelihood graduates will remain in Northeast region.
7. Provide immediate academic program enhancement for Elizabeth City State University.
8. Address the need for economic development in Northeast North Carolina (Bataille, 2002 pp. 1-2).

At the implementation of this partnership in 2005, *U.S. News and World Report*'s America's Best Colleges ranked UNC-Chapel Hill's PharmD Program among the top three in the nation (UNC-Chapel Hill, 2008), and ECSU was ranked third among Top Public Comprehensive Colleges in the south (ECSU, 2006). Each university brought certain strengths to the collaboration that could contribute to the success of this new initiative in addition to advancing the academic objective of each partnering institution.

UNC-Chapel Hill

UNC-Chapel Hill was the nation's first state university and is a research university. UNC-Chapel Hill has been ranked 5th in best public university for the last eight years (UNC-Chapel Hill, 2009). The fact that UNC-Chapel Hill has the only School of Pharmacy in the state university system and is also consistently ranked within the top 10 schools/colleges of pharmacy in the United States (Riffee et al., 2002; UNC-Chapel Hill, 2008) was one of the consequential reasons for deciding which of the three alternatives to proceed with. UNC-Chapel Hill SOP already had a successful professional pharmacy program with high standards and was a source of knowledge.

UNC-Chapel Hill SOP's PharmD student acceptance requirements include pre-requisite undergraduate course work along with a high grade point average and high Pharmacy College Admission Test (PCAT) score. These high acceptance standards continue even in the face of a national pharmacist shortage (North Carolina Public Radio, 2005). During a North Carolina Public Radio show on July 25, 2005 Dr. Robert Blouin, Dean of UNC-Chapel Hill Pharmacy School, stated that there are ten (10) applicants for every seat at UNC-Chapel Hill. This indicates that pharmacy schools are full and that supply is definitely there for the demand, just not enough seats in the lecture halls.

There are three universities located in North Carolina with schools of pharmacy and all with high standards and limited enrollments (see Table 6). Pharmacy graduate studies in North Carolina include didactic instruction with

Table 6

Schools of Pharmacy located in North Carolina

School of Pharmacy	Location	Enrollment Limits	PCAT Range	State/Private
UNC-Chapel Hill	Chapel Hill – West of Raleigh, NC	140	85%	State
Campbell	Buies Creek, Near Raleigh, NC	200	70%	Private
Wingate	Wingate, South of Charlotte, NC	70	71%	Private

rotations in various pharmacy work environments. UNC-Chapel Hill's SOP students spend their last year of study going through a professional experience program (PEP). During PEP, students are assigned to a NC AHEC office where they receive real-world experience at pharmaceutical care centers across the state. Students rotate through ten months of required practical pharmacy experience in the following areas:

1. Hospital Pharmacy
2. Community Pharmacy
3. Advanced pharmacy practice in Inpatient Medicine, Ambulatory Care, Medicine Specialty, Advanced hospital or advanced community, Four electives (UNC-Chapel Hill SOP, 2006b)

ECSU

ECSU is a small baccalaureate university which had an enrollment of 1976 students fall 2002 (EdRef.com, 2009) that grew to 2664 student by fall 2005 (Pasquotank County NCGenWeb, 2009). According to the legislative docket, ECSU is one of the seven focused growth institutions (NCGA, 2009). Originally established as "normal school" in 1891 for African-American students, ECSU is a constituent institution of the UNC system and has an increasingly multicultural student body (ECSU, 2009). The three experts brought in for the Feasibility Study (Riffee et al., 2002) noted that ECSU, one of North Carolina's Historically Black Colleges and Universities (HBCU), would offer African-Americans greater access and opportunity to earn a Doctor of Pharmacy degree. Access would be

due to the actuality that “HBCU Colleges of Pharmacy are responsible for 55% of African-Americans enrolled in four-year PharmD Programs” (Riffee et al., p. 3). Furthermore, in 2002 African-American enrollment at two North Carolina Pharmacy Schools, Campbell and UNC-Chapel Hill consisted of only 0.48% of admitted students (Riffee et al.).

A consideration that was also unique to ECSU was that 27.7% of employees are alumni which would assist in attracting faculty to ECSU. The Feasibility Study asserted that the “African American community in general, persons who have special skills, knowledge and training look with favor on opportunities to give back to the community” (Riffee et al., 2002, p. 2). Therefore, the experts felt confident in ECSU’s ability to recruit pharmacy faculty for a pharmacy partnership program. With that said, they noted concern that there “did not appear to be significant numbers of basic science faculty with expertise in the basic pharmaceutical sciences nor are there any pharmacy-based clinical scientists currently on faculty (Riffee et al., p. 2). This lack of expertise created some concern regarding the rigor of a pre-pharmacy curriculum.

Summary of Educational Response

With the North Carolina legislators interested in funding a pharmacy program that would impact the northeastern North Carolina region and in consultation with the UNC Board of Governors; on March 6, 2002 the Feasibility Study’s (Riffee et al., 2002) recommendation to proceed with Option #3 was approved (Bataille, 2002). A joint UNC-Chapel Hill and ECSU Task Force would

now work to develop an implementation plan which would address the demand of increased enrollment in the Doctor of Pharmacy Program at UNC-Chapel Hill through a UNC-Chapel Hill/ECSU PharmD Partnership Program. This unique partnership program arose from the Sheps Study (Fraher et al., 2002) published in August 2002 and a 2002 Feasibility Study (Riffee et al.) which were both mandated by the UNC Board of Governors and the Office of the President. The Sheps Study (Fraher et al.) highlighted the imbalance in supply and demand for pharmacists in North Carolina, especially in rural areas and Feasibility Study (Riffee et al.) looked at the resources and options that would best address the imbalance.

Policy Design

With the imbalance identified and decision/mandate made to develop a joint program between Elizabeth City State University and UNC-Chapel Hill, design of an implementation plan was the next step. Policy design which is the third of the study's four main elements (see Figure 5) from the conceptual framework focuses on how policy, people, places, and technology factors interact to influence policy design outcome. Technology is included in this discussion because in this case study technology plays a major role in policy design, implementation, and sustaining the UNC-Chapel Hill/ECSU PharmD Partnership Program. The following section provides a description of the original task force's program goals and policy design, people who were affected by and influenced

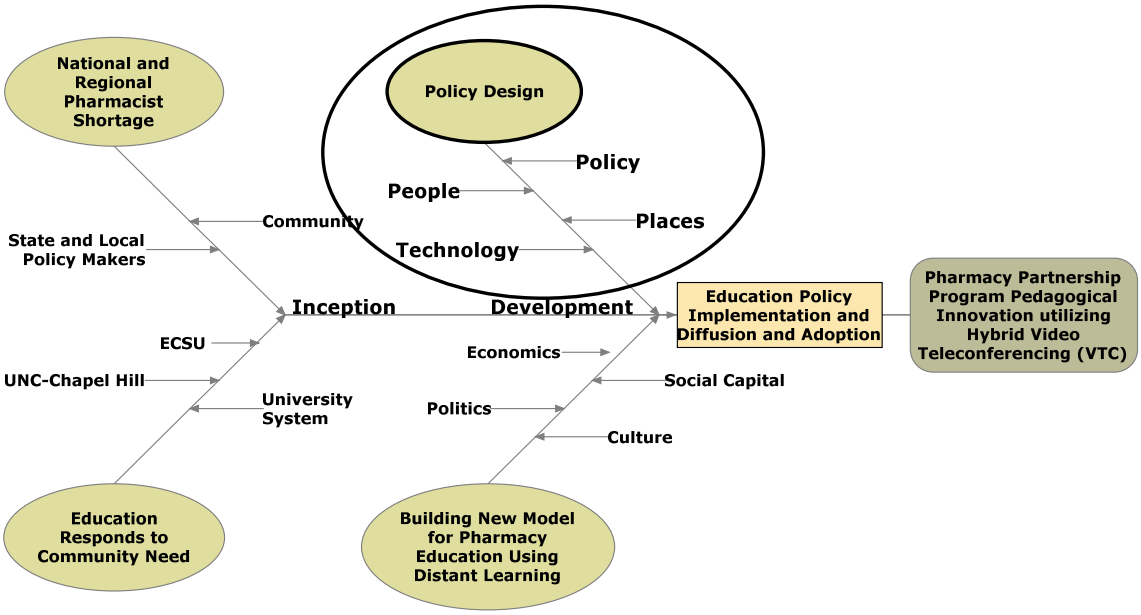


Figure 5. Conceptual framework highlighting third main element.

implementation and policy redesign/reform, policy reform and associated mandate, how each university operated in the design process (Honig, 2006), and technology interactions and challenges.

The policy design of the UNC-Chapel Hill/ECSU PharmD Partnership Program begins with the establishment of a UNC Pharmacy Task Force. According to the Task Force's Final Report (Campbell et al., n.d.), the Task Force was co-chaired by the Dean of the UNC-Chapel Hill SOP and Interim Vice Chancellor of Academic Affairs/Provost at ECSU. Additional members were comprised of three members from each respective campus, plus one more person from ECSU campus with distance learning technologies background (see Table 7). The UNC Pharmacy Task Force convened July, 2002 and was enjoined to develop an implementation plan for Option #3, develop a joint cooperative program between ECSU and UNC-Chapel Hill (Campbell et al.). The Task Force members reviewed and compared curricula, identified a variety of resources, assessed feasibility, and created a collaborative program model recommendation.

This original proposed educational model was eventually revised. However, as a foundation, both models (original and final) included (1) Pre-Professional Curriculum – 2-4 years standard pre-pharmacy curricula and (2) Professional Curriculum – 4 year curriculum to be completed with award of the Doctor of Pharmacy (PharmD) degree. Figure 6 depicts the educational model as it relates to both campuses. Noteworthy, is that the non-license track is only

Table 7

Task Force Members

Members from UNC-Chapel Hill	Members from ECSU
Dean, School of Pharmacy	Interim Vice Chancellor for Academic Affairs/Provost
Associate Dean, School of Pharmacy Professional Education	Professor and Chair Biology Department
Associate Professor School of Pharmacy	Professor Physical Sciences Department
Professor and Director Public Health Leadership Program School of Public Health	Interim Chair Division of Pharmacotherapy
	Director of the Virtual College

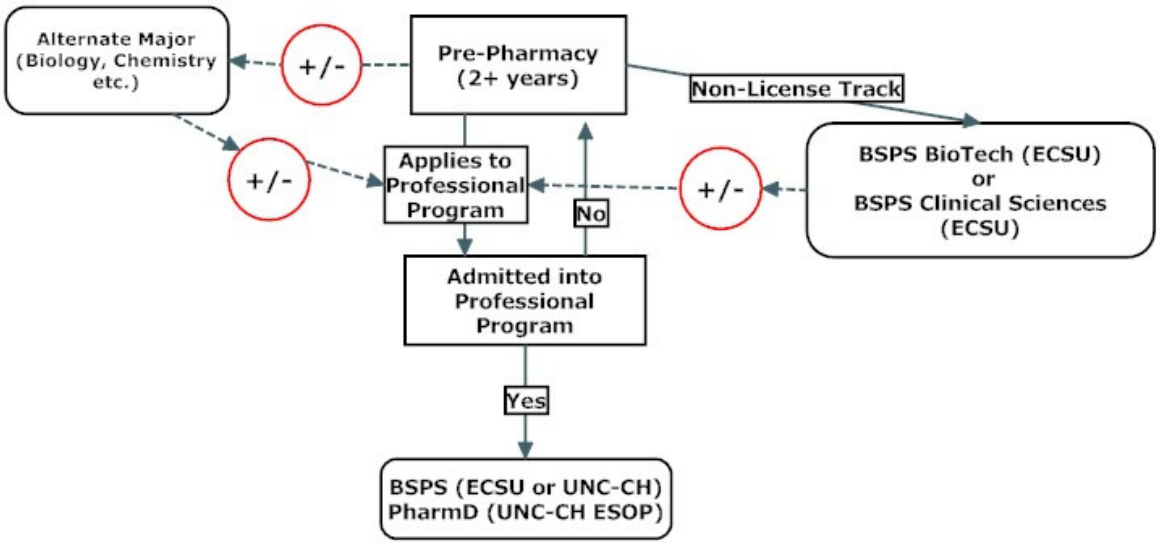


Figure 6. Pharmacy educational model.

offered at ECSU. This feature of the educational model provides ECSU with a new degree-granting opportunity and authorization to award a Bachelor of Pharmaceutical Sciences. Table 8 outlines the 4 year PharmD curriculum and provides a description for each year which is helpful knowledge in the discussions to follow regarding policy, people, places, and technology.

Original Policy

In the original model the pharmacy pre-requisites would be obtained by ECSU students at ECSU. Then the first two pharmacy program years (PY1 and PY2) ECSU students would be at UNC-Chapel Hill SOP. Upon completion of the PY2 year students would be eligible to receive a Bachelor of Pharmaceutical Sciences from ECSU. The Task Report stated degree award would provide students with a noteworthy milestone in their progress. The third year (PY3) would then relocate students back to ECSU at which time ECSU should have faculty and support staff, plus a specialized teaching laboratory in place to serve these pharmacy students. In addition, VTC classrooms would be required at both campuses because PY3 coursework from UNC-Chapel Hill would be transmitted via VTC to the students at ECSU along with the use of on-line course materials. In the fourth year it was anticipated that ECSU students would be accommodated through the Eastern NC AHEC program and graduate with a Doctor of Pharmacy Degree with the wording “The University of North Carolina at Chapel Hill in cooperation with Elizabeth City State University” (Campbell et al., n.d., p. 4).

Table 8

Doctor of Pharmacy Curriculum

Year and Description	Facility Requirements
Year 1 (PY1) – Basic Science	Integrated Teaching Laboratories-1
Year 2 (PY2) – Science/practice Interface	Integrated Teaching Laboratories-2
Year 3 (PY3) – Pharmacotherapy Applications	Integrated Teaching Laboratories-3
Year 4 (PY4) – Clinical Experiences	NC AHEC

The Task Force's Final Report (Campbell et al., n.d.) also discusses that prior to ECSU students' PY1 year and attending professional classes on the UNC-Chapel Hill campus, they would attend an eight-week program over the summer costing approximately $3,400 per student entitled Science Enrichment Program (SEP). These fees would cover housing tuition/fees, a small stipend, and would need to be included in the program's budget. The UNC-Chapel Hill SOP Program Coordinator, whom had the responsibility for all the logistics of this program, said that the overall opinion held by UNC-Chapel Hill SOP administrators at that time and currently by herself was that "some sort of remedial supplemental" should be in place to address the difference in rigor of undergraduate courses taught at ECSU versus UNC-Chapel Hill. The Task Force member's stated in their report that attending SEP would help the students adjust from rural to urban living environments and the rigorous academics of the UNC-Chapel Hill School of Pharmacy program. SEP is a service being provided to minority and disadvantage students in the UNC-Chapel Hill School of Medicine and was strongly recommended by UNC-Chapel Hill's School of Medicine support services representatives as a necessary requirement for the Pharmacy Program. The Task Force Final Report (Campbell et al., n.d.) stated counseling, advising, and support services would also be necessary and would need to be reflected in the programs budget as well.

A fall 2003 start date was recommend by the Task Force for a joint pharmacy program between UNC-Chapel Hill and ECSU with the following pre-requisites:

1. Enrollment expansion budget must be in-hand or assured to the satisfaction of respective Chancellors and Boards of Trustees.
2. Application and admission deadlines adjusted for determining eligibility and aid packages for the following year.
3. Time allotted for adequate review and discussion at the central administration level of UNC Chapel Hill and ECSU to allow a “go-no go” decision by January 1, 2003.
4. Acquire authorization for ECSU to award a baccalaureate in pharmaceutical science degree upon completion of the fourth year of the joint program.
5. Clarification of the procedures whereby “joint program” status will be conferred; i.e., acknowledgement on diploma.
6. Determination “counting” of students with UNC-Chapel Hill and ECSU for purposes of FTE, budget and other administrative matters (Campbell et al., n.d.).

However, according to the UNC-ECSU Doctor of Pharmacy Collaboration Status Update released in June 2004 (Status Update) and confirmed by many of those interviewed, changes were made to the original implementation plan triggered by the arrival of a new Dean at the UNC-Chapel Hill SOP in July 2003 and the

original fall 2003 start date did not happen. Nonetheless, most of the pre-requisites (1 & 4-6) were addressed as they would continue to have relevance with the reformed educational model to ensue.

Policy Reform

In the reformed educational model, the ECSU campus is an extension of the UNC-Chapel Hill Doctor of Pharmacy program through a collaborative partnership between the two campuses. ECSU students would remain on the ECSU campus for all didactic coursework that would be delivered at a distance from UNC-Chapel Hill's SOP via VTC and supplemental web-based instruction for course content. Eventually, ECSU faculty with appointments at UNC-Chapel Hill would develop courses to be taught from ECSU with distance education delivery to UNC-Chapel Hill.

All parties involved wanted to create a model that would keep the pedagogy/andragogy as a priority, stimulate economic growth and development in northeastern North Carolina, continue to deliver a high level of pharmacy education, and deliver a seamless enrollment and matriculation process. These goals were consistent with UNC-Chapel Hill's SOP's reputation. The Task Forces' Final Report (Campbell et al., n.d.) made the statement that there was significant potential for expanding the original model to other institutions in the UNC system once experience with sharing curricular responsibilities between two institutions and distance learning technologies was gained. Clearly the Task Force was intending to build a state-wide model of pharmacy education from the

beginning and this intent was part of the conversation throughout the partnership program's metamorphosis as indicated by those interviewed.

The program model was substantially agreed upon in a Memorandum of Understanding (MOU) dated May 17, 2004 between the two universities (UNC-Chapel Hill SOP & ECSU, 2004). Significant details include the intent to enroll a maximum of 10 students in the initial ECSU cohort the fall 2005 semester, the agreement that ECSU students would remain on the ECSU campus for all three years of didactic instruction, and that instruction would be delivered via distance technologies, primarily synchronous hybrid VTC with supplemental web-based course enhancement. The 2004 MOU (UNC-Chapel Hill SOP & ECSU, 2004) affirms much of the recommendations from the Task Force's Final Report (Campbell et al., n.d.) and includes auxiliary details regarding the inter-institutional collaboration between UNC-Chapel Hill SOP and ECSU.

Further discussions among the education leadership at both campuses resulted in a revised/second MOU dated January 2005 which superseded the 2004 MOU. The 2005 MOU (UNC-Chapel Hill SOP & ECSU, 2005) was formalized among UNC-Chapel Hill SOP, ECSU, and the UNC Office of the President and triggered final policy design and preparations. The 2005 MOU served to elaborate, clarify, "reaffirm or revise, and replace key recommendations for the collaboration" (p. 1) which was detailed in the Task Force's Final Report (Campbell et al., n.d.) and in the previous 2004 MOU. The 2005 MOU kept the fall 2005 start date, increased the enrollment in the initial ECSU cohort to 10-15

students, stated that UNC-Chapel Hill would also explore granting a B.S. Pharmaceutical Sciences degree to students on the UNC-Chapel Hill campus to prevent unfairness, agreed to development of a dual-campus funding model, and stated that revisions to the 2002 budget proposals would be sought due to the changes in student location and method of instruction. Specifics regarding hiring two faculty positions at ECSU, funded through recurring operational funds allocated by the UNC Office of the President, with secondary faculty appointments at UNC-Chapel Hill having full faculty rights and privileges on both campus was outlined. Additionally, ECSU installing a temporary modular structure with VTC equipped classrooms to house the collaborative PharmD program until a permanent building could be constructed with monies promised by legislators was listed as essential.

The policy design reform focused on student equality, supplying guidelines to promote communication, and assisted in imparting the need for consistency which in turn promotes operation of a single professional program. The reformed policy design along with the mission and goals of the partnership indicate attentive leadership necessary to set the tone for everyone involved in the partnership. The new Dean said “if that tone was not clear, if the mission wasn’t clear then it would be easy for others to misinterpret.” This point was echoed in statements by many interviewed who indicated numerous meetings at various levels of the organization took place to set the climate of the program’s implementation. As this exchange indicates, people were considered a principal

interaction in the policy implementation process (Honig, 2006) and thus people engaged in the process are representative of communication channels being present which is an essential pre-requisite for diffusion and adoption of innovations (Rogers, 2003).

People

Contemporary education policy implementation research (Honig, 2006) contends that people, both policy makers and implementers, are consequential to how policy is designed and implemented. The interactions with one another, the environment, and policy set forth can have significant impact on what gets implemented. This section highlights the significant influences found that provoked or effected policy designed and implementation that "reveals implementers as significant drivers of policy and policy makers as key implementers" (Honig, p. 18).

This first key interaction took place when the original legislative line-item posted in 2001 instructed the UNC Board of Governors to study the feasibility of a free-standing school of pharmacy at ECSU. UNC-Chapel Hill's SOP's Dean at that time responded by sending letters to ECSU and ECU (another sister university also interested in starting a SOP) offering assistance. His efforts to create a "climate of cooperation" and avoid competition/fighting for state funding (UNC-Chapel Hill SOP Alumni Association, 2006) yielded agreement as evidenced in the Feasibility Study (Riffee et al., 2002) and noted in the Task Force's Final Report (Campbell et al., n.d.). When monies were finally

appropriated for a joint program, not a free-standing school at ECSU, his desire to have one UNC-Chapel Hill SOP with multiple sites was realized. The extended offer to collaborate was significant in the formation of the resulting UNC-Chapel/ECSU PharmD Partnership Program.

Then, picking up from the policy reform section above, the original proposed educational model for the joint program eventually was restructured with the arrival of the new Dean of the School of Pharmacy at UNC-Chapel in July 2003. Upon the new Dean's advent the groundwork for the partnership had been established and agreed to by his predecessor. Implementation and roll-out were the next steps. The new Dean openly and honestly admitted he had "trepidation" with proceeding with the original design plan. The ECSU Chancellor explained that he understood both Dean's concerns and said that he could see how UNC-Chapel Hill SOP would be "concerned that they were collaborating to develop a potential competitor." The new Dean shared his perspective saying that he began to discuss philosophically with his colleagues at ECSU whether or not the original program model was the "ideal arrangement." He said,

> So we began to think whether or not this was the best plan, and in part we sort of returned to what was behind the mandate. What was the philosophy behind the mandate of the legislature and when we read that, you know, what really struck us was that we wanted to really create something special for the Northeast part of the state. We wanted to attract individuals who had grown up in that area who

> wanted to stay in that area and that by relocating them to Chapel Hill during the first two years we felt perhaps would be somewhat of a disservice not only to them but to the philosophy of the program or perhaps the spirit of the program.

The UNC-Chapel Hill SOP Program Coordinator at UNC-Chapel Hill and the Chair of Biology/SMST Dean/Provost said the new Dean basically wanted to know why this way was the best option.

This continuing line of questioning led to many controversial discussions and had a profound influence on implementation plan reform. The new Dean became a significant driver of policy rather than only an implementer. The senator said the new Dean came to his office and explained how a new model using technologies could become a model used across the country. A Status Update (UNC-Chapel Hill SOP, 2004) was the only written material located that provides a brief description of what took place from July 2003 until May 2004. The Status Update (UNC-Chapel Hill SOP, 2004) indicates that during this time educational leaders at both campuses continued discussions and efforts to revise the original proposed pharmacy educational model into the model that was implemented. The willingness of these leaders and the senator to discuss and compromise set the stage for collaboration and trust.

The Status Update (UNC-Chapel Hill SOP, 2004) also recounted the new Dean's reassignment of two UNC-Chapel Hill employees (Program Coordinator and lead Instructional Technology Specialist) to work solely on the partnership

program effort, and further investigations of what other pharmacy schools and science programs were doing to deliver instruction at a distance. The Status Update (UNC-Chapel Hill SOP, 2004) noted numerous issues to consider including admissions, recruitment, and students services. Since there were no models for administration of a dual enrollment and joint degree granting program resembling the partnership program being created, they had to be developed. The UNC-Chapel Hill Program Coordinator pointed out that with no system, policies, or procedures available to follow as an example this made it difficult to "figure out how and where we could code students so that they would be recognized as our students on both campuses." Compounding these logistics was the fact that the computer systems on both campuses were fairly antiquated and inflexible, and would not accept new student classifications. Therefore, out of necessity the UNC-Chapel Hill Program Coordinator and individuals in registration and student services on both campuses had to construct new systems to augment the reformed educational model.

The interview participants reported robust discussions, revised implementation plans, and numerous logistics challenges. They described these experiences in an upbeat manner. The one word that came to mind after speaking with the interview participants who were all highly involved in setting the tone of the program is "tenacity." The legislators and educational leaders involved in the initial formation, the educational leaders, staff member, and vendors involved in the policy design and development, and the educational

leaders, faculty, and staff members involved in the implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program all seemed to possess a trait of persistence. While interviewing the participants they would say things like:

1. “Well, you keep fighting! You keep arguing why.”
2. “I think that there was probably trepidation on both sides.”
3. “There were some serious and mean and nasty battles that went on. …It was torture going through. “
4. “The most important time that you test whether or not there’s trust is when you have challenges and crises. It’s easy to trust on good days, it’s harder perhaps on bad days.”
5. “I felt like I was sort of caught in the middle.”
6. “We had resistance in different areas for different reasons, and that’s one of the things that made the project really exciting and interesting for me personally.”
7. “A thoroughly exhaustive consultative process… thank God we sorted through it as effectively as we did; it could have been a disaster… I’ve aged 10 years in the last 3.”
8. “I mean, there were times I was overwhelmed and overloaded.”
9. “It takes an awful lot – it’s very difficult to do a program like that, period. But, it’s made easier if all of the constituencies, all of the people who need to be involved, are on board.”

10. “So much was going on and trying to get it all working… So it was really learning as we were going, so it was, you know naturally really chaotic.”

Despite the difficulties described in these statements the interview participants’ eyes would light up and there were sometimes actual smiles on their faces and laughter as they recalled their experiences. The words were strong and usually used to describe something distasteful, however, their faces told a different story of excitement and of their challenges faced, won, and yet to be conquered. The challenges of creating an educational model that had never been done before may have caused some concern for each individual involved in this process, and was stated as much in the interviews. Nonetheless, their facial expressions in remembrance were evidence that they considered their past challenges as an opportunity.

The Biology Chair/SMST Dean/Provost shared they had “really good people” who worked diligently. He summed it up by saying: “if you have to choose between where to put the resources, put the resources in the people.” In this case study the agreement was strong among those interviewed that the people interaction between and among both campuses played a significant role in the outcome of this education policy implementation and its final form. This is not to say that another group of individuals would not be as effective. Moreover, education policy implementation and diffusion of innovation research recognize that organizations adapting policy or innovations typically involve a number of

people; some supportive while others are opposed to the new idea; both impact what gets implemented and what works.

Places

UNC-Chapel Hill's SOP is located in the central part of North Carolina near Raleigh. ECSU is located in the northeastern part of North Carolina in Elizabeth City. The campuses are roughly located 200 miles from each other. According to the 2000 U.S Census Bureau Report Raleigh has a larger White population than the minority population combined while the population in Elizabeth City has a larger Black population than White population (U.S. Census Bureau). Creation and implementation of this partnership would concentrate on the cultural imbalance of pharmacists originating from northeastern North Carolina as reported in the Sheps Study (Fraher et al., 2002) who would be more likely to stay and serve the minority and underserved northeastern North Carolina population.

As mentioned, there was strong support from the North Carolina General Assembly for ECSU to have a school of pharmacy. The UNC-Chapel Hill SOP Program Coordinator interviewed captured this dimension saying "northeastern North Carolina probably is the most underserved portion of the state but western North Carolina's not too far behind." She went on to explain that the state senator "was not from western North Carolina he's from northeastern North Carolina." There was also the desire on the part of the North Carolina General Assembly and the UNC system to support ECSU in expansion as ECSU was one of the

seven focused growth campuses with the goal to increase enrollment and increase programs offerings (NCGA, 2009).

ECSU was ranked third among Top Public Comprehensive Colleges in the south (ECSU, 2006) and UNC-Chapel Hill's PharmD Program was ranked among the top three in the nation (UNC-Chapel Hill, 2008). This combination is proof that both universities have committed to a pursuit of excellence. Plus, there was the common sense knowledge of "why recreate the wheel" as UNC-Chapel Hill had already established itself a one of the best PharmD schools in the nation. As evidenced, both universities brought different strengths and weaknesses to the partnership and both universities brought concerns about the other as well.

UNC's Senior Vice President for Academic Affairs said that folks at ECSU thought maybe Chapel Hill was so "big" they would not help. She shared that folks at Chapel Hill, who had never been to Elizabeth City, did not think ECSU had much to offer. What each school found out was just the opposite. According to the UNC's Senior Vice President for Academic Affairs, UNC-Chapel Hill found that on the Elizabeth City's campus there was some ECSU faculty doing rather important research and possessing great expertise. In comparison she affirmed that ECSU faculty found that the faculty at Chapel Hill "truly wanted to make a difference" and in the end wanted to help them develop this program. The new Dean confirmed the desire of making a difference in people's lives. These sentiments are also reflected in the UNC-Chapel Hill SOP's mission's statement which imparts the aspiration to "advance health care through innovation and

collaboration in pharmacy practice, education, research, and public service" (UNC-Chapel Hill SOP, 2009). The new Dean added that this "greater loyalty to our discipline of pharmacy and to students" is what both universities agreed to and proceeded on with as partners rather than as competitors.

An additional concern mentioned throughout the interviews included the fact that UNC-Chapel Hill is the UNC system's cap-stone school. UNC-Chapel Hill SOP is also a leader in health care and keeping this status was important to the school and NC AHEC community. The new Dean shared that there are many aspects to a professional degree granting program that go beyond the classroom. He said that includes "professionalism, …culturalization of the student, …just growing up as a student and maturing as an individual and the culture that you do that within." Making sure the students on both campuses have these same experiences was a priority and a challenge to the partnership.

The desire by both universities to pursue excellence in education, make a difference in the community, and have similar experiences for student on both campuses created a social system (Rogers, 2003) with common objectives that bound these two distinctively different universities together in a community of practice (Coburn & Stein, 2006). A community of practice is a group of individuals who "through the pursuit of a joint enterprise, have developed shared practice, historical and social resources, and common perspectives" (Coburn & Stein, p. 28). Their history is acquired through negotiation with one another and their response to shifting environmental conditions.

If the social system is in disagreement with what the policy-makers are rolling out, the desired results will not be achieved. There are many levels in a system or organization where the shape and meaning of policy can be derailed. Having two separate social systems with different beliefs and communicating two different messages to the individuals of those social systems can affect the diffusion and adoption process negatively (Rogers, 2003) as well. Creating a formal structure with common objectives minimized the interference that interpersonal networks can have and instead facilitates a community of practice. The community of practice found in this case study is made up of both universities (UNC-Chapel Hill and ECSU) and their connection is the shared objectives to address the pharmacist shortage by pursuing excellence, making a difference, and having similar experiences for student at both universities.

Technology

Convincing faculty, staff, and stakeholders such as the regional NC AHECs that students on both campuses would have the same experiences was made easier when the technological design plan was completed. As reported by the new Dean, ECSU's Interim Vice Chancellor of Academic Affairs/Provost, and ECSU's Biology Chair/SMST Dean/Provost they had all three agreed that the pedagogy and technology had to be the best. ECSU's Chancellor stated that his sense was that the focus placed on instruction and the technology used "probably turned the course of support." There was a collective embracing of the technology which was also used as a selling point to faculty.

On March 16, 2005 a VTC Program Plan between UNC-Chapel Hill's SOP and Institute for Science Learning (ISL) was finalized that initiated technical design and procurement process of four VTC classrooms (two large and two small) and a central "TechCore" at UNC-Chapel Hill. As delineated in UNC-ECSU Doctor of Pharmacy Collaboration Status Update (UNC-Chapel Hill SOP, 2004), UNC-Chapel Hill's SOP had been investigating the UNC-Chapel Hill Partnership for Minority Advancement in the Biomolecular Sciences (PMABS) program's VTC instruction since March 15, 2004. The PMABS was designed by, supported by, and part of the Institute for Science Learning (ISL). The VTC Program Plan (ISL, 2005) stated that based on information gathered at pedagogical, technology, and those previous investigatory meetings, ISL was going to start the design, procurement, and installation process necessary for technology to be in place by August 2005 and the start of fall 2005 classes.

There is no mention in this agreement about the ECSU campus design, procurement, and installation process. However, in an interview with the ECSU Director of Design and Construction she stated that ECSU's VTC classroom design was planned to be identical to UNC-Chapel Hill's SOP. Procurement and installation process would be managed through ECSU's Academic Affairs Administrative Offices and the Design and Construction department using the same vendors along with the installation of the ECSU pharmacy temporary buildings being erected on the ECSU campus.

Classroom design and planned avenues for communication. UNC-Chapel Hill/ECSU PharmD Partnership Program enrolled its first cohort of students on the Elizabeth City campus in fall 2005. The program used technology to bridge the 200-mile distance between Chapel Hill, NC and Elizabeth City, NC and their respective faculty and students. Instruction travels in both directions depending on the course and location of the instructor. To build this new hybrid VTC learning environment the UNC-Chapel Hill/ECSU PharmD Partnership Program employed two innovative computer mediated communications (CMC) systems to deliver classroom and laboratory instruction at a distance. The first system known as video-teleconferencing (VTC) allows instruction to be delivered synchronously to remote sites through interactive two-way audio/video communications over Internet2 (advanced leading edge network). Communication server software is the second system that provides a rich web on-demand collaboration environment were multimedia content can be delivered. Both of these CMC systems are implemented simultaneously during instruction with students attending class at both sites and permitting instruction to originate at either site. This CMC combination creates a hybrid VTC system that is designed to provide rich media learning environment that supports high levels of interaction as depicted in Figure 7.

Primarily the classroom lessons are delivered through VTC and communication server software; however, many other CMC tools are utilized

Figure 7. VTC classroom schematic.

throughout the educational experience to facilitate and augment instruction. CMC is communication between two or more individuals at different locations interacting through the Internet using computers with software (Instant message software, email software, etc.) that allows individuals to communicate asynchronously as well as synchronously depending on the chosen software. This software is the media or vehicle for transmitting the communication. Focus is on how people communicate rather than on the method itself (Lane, 1994). A variety of technology communication tools provide for CMC. Asynchronous CMC tools include email, class list serves, discussion forums, blogs, and bulletin boards or newsgroups. Synchronous CMC tools include chat rooms, virtual internet environments, desktop video-conference, telephones, and classroom VTC. CMC tools permit instructors and students to interact in and outside of classroom walls.

Macromedia Breeze (now Adobe® Acrobat® Connect™ Pro) was the communication software chosen to support the content instruction due to the fact that the UNC-Chapel Campus SOP (Medical School) already had access to a “Breeze” server on campus. Breeze allows the instructor to share media content, and when paired with Smart™ technology hardware (Smart™ Board or Smart™ Sympodium) permits the instructor to start an equation (such as 2 + 2) using the Breeze writing tools and the student at the opposite site to finish the equation (= 4). At any given time in the remote classroom any student can look up at either the front or back of the classroom room and see and hear the local site

(audio/video stream) on one screen and the course content (PowerPoint presentation, VHS, DVD, web site, etc.) on another screen. Students at the local site see the instructor and content on two-three large screens in the front of the room and content and the remote class in the back of the room on two large screens as shown in Figure 8.

Two-three video cameras are located in each classroom: one to broadcast the instructor's image and another one or two to broadcast images of the students. When students have questions or comments in the large classrooms mainly used for lecture, microphone buttons located on the student desktops throughout the classroom must be depressed to activate student microphones. Depressing a student microphone also triggers the student camera to zoom into the area of where the student is sitting. The image of the student, either remote or local, then momentarily replaces the center front content screens in the local classroom and appears in the picture-in-picture (PIP) image at the remote site. These camera programmed features allow for continuously face-to-face communications between the distant site students and the local site students and instructor.

Smaller VTC classrooms, as shown in Figure 9, have been designed in a similar fashion; however ceiling microphones were installed instead of desktop microphones. Ceiling microphones are left on at both the remote and local sites and produce a more natural setting for conversing. All the students have to do is

Figure 8. UNC-Chapel Hill's large VTC classroom.

Figure 9. ECSU's small VTC classroom.

talk to be heard. These small classrooms were designed for small group activities that take place in skills lab and work well for organizational meetings.

At each lecture podium, at both the remote and local site, the instructor has the ability to use a computer attached to a Smart™ Sympodium (large classroom) or Smart™ Board (small classroom), flex camera (large classroom only), videocassette recorder (VCR), and digital versatile disk (DVD) player. An AMX control panel allows the instructor to alternate easily among these technologies, regulate, mute or un-mute sound, and adjust video cameras. Instruction can and does get delivered face-to-face from either site (UNC-Chapel Hill or ECSU) at anytime making this a hybrid VTC configuration.

For VTC connections in the laboratory settings, mobile carts (see Figure 10), with all-in-one interactive two-way communications and camera units, sit atop LCD plasmas. Content can be shared by attaching a laptop or tablet computer to the mobile unit. Digital microscopes can be connected to the computer and shared in this manner as well. The mobile VTC carts can only display video or content at one time, not both as experienced in the classrooms.

Computers with VCON VPoint desktop video-conferencing software are available at both locations for office hours. During office hour appointments, both the instructor and the student are connected face-to-face using VCON VPoint desktop video-conferencing software while also exchanging and sharing information through Breeze (now Adobe® Acrobat® Connect™ Pro) on a tablet

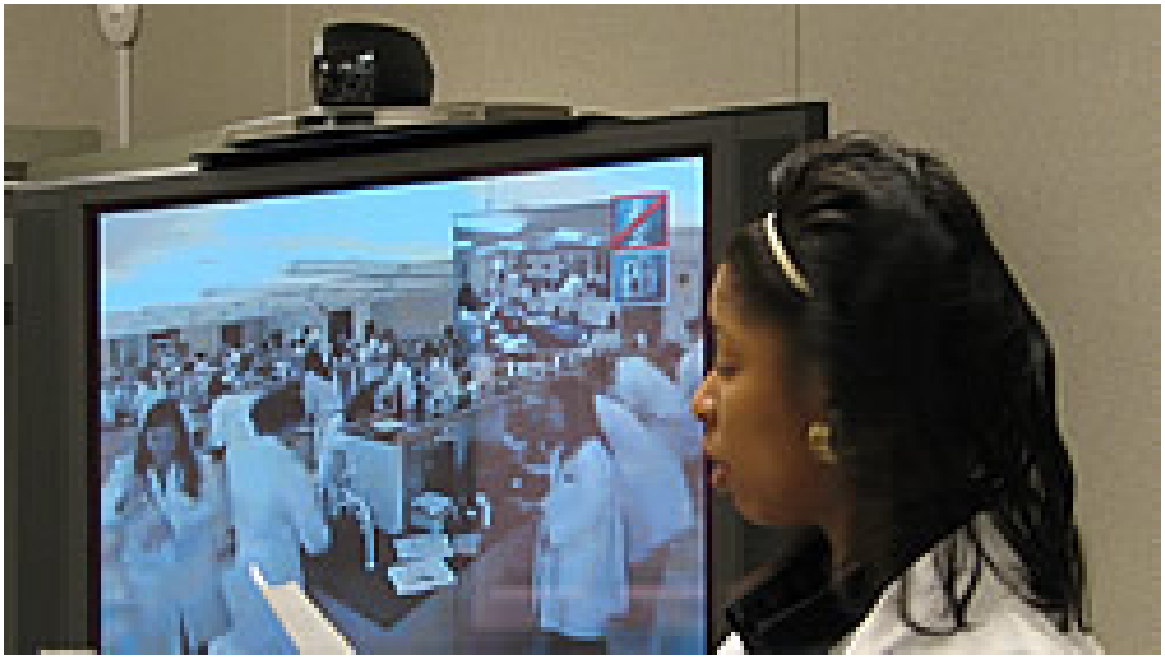


Figure 10. ECSU's VTC mobile cart.

PC as shown in Figure 11. This set-up produces the same face-to-face interactive exchange of communication and is the next best thing to being there.

All the technologies described above created the connectivity that would emulate “timely and appropriate interaction between students and faculty and among students” (Southern Association of Colleges and Schools Commission on Colleges, 2006, p. 1). Timely interaction is required by one (CS 3.4.5) of many comprehensive standards that must be followed to be in compliance with the Principles of Accreditation (SACS Commission on Colleges, 2001). Therefore, the challenge of creating and delivering the “best” distance learning environment, as prescribe by the new Dean et al., while also taking into consideration the Southern Association of Colleges and Schools’ (SACS) Distance Education Policy Statement was done by ISL within an extremely short amount of time. The time constraints created monumental challenges.

Technology challenges. As the anticipated fall 2005 start-up approached for roll-out of the new model for pharmacy education using distance learning, preparation and planning for implementation of the program intensified and is captured in the statement below by the ECSU Interim Biology Chair/SMST Dean/Provost. He recalled:

> Those months before we started the program, I probably had a headache every day. I have never been under that much pressure in my life, because I have never had a situation where it had to

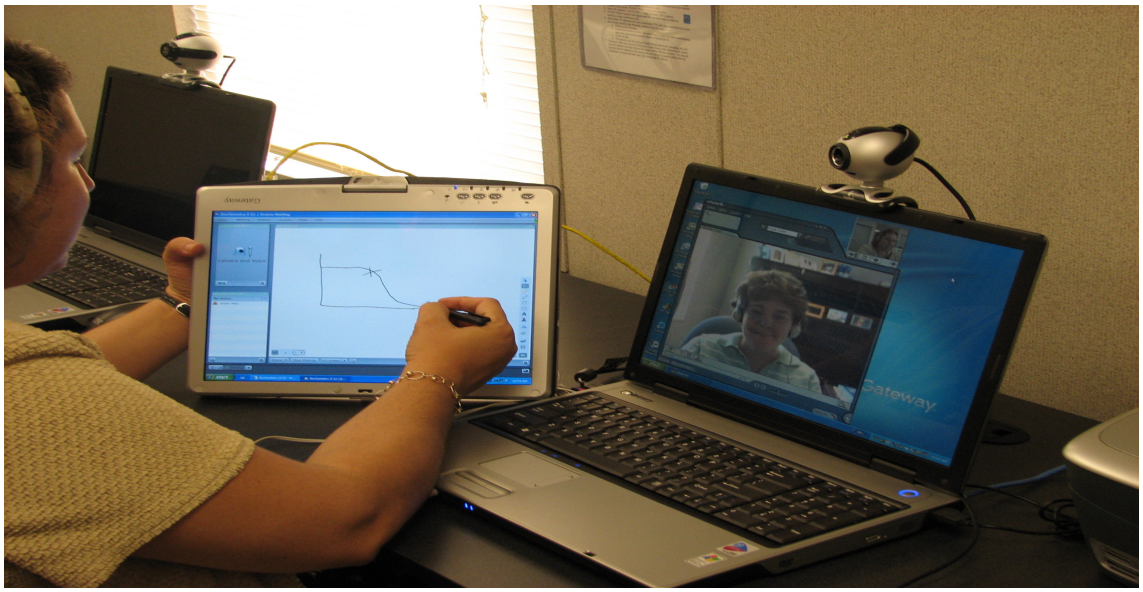


Figure 11. Example of desktop video-conferencing.

succeed. There was no option. Had it not started in August 2005, we would not have gotten another chance to go out of the box.

This statement illustrates along with others made by the ISL Program Manager what pressures and time constraints that the implementers were under. The VTC Program Plan was signed in mid March and technologies had to be procured and installed by mid August; a time-frame of five months.

The UNC-Chapel Hill/ECSU PharmD Partnership Program's collaboration was tested early on in the technology implementation. The time constraints that resulted from getting agreements (final 2005 MOU and VTC Program Plan) in place late for the partnership and design and installation of the technology had rippling effects. Technology was not fully installed until the last minutes prior to classes beginning August 22, 2005. Therefore, the instructional technology staff members at both campuses, along with the information technology support staff was unsure how the VTC classrooms would work making development of training for faculty almost impossible. Basically, as the lead Instructional Technology Specialist at UNC-Chapel explained "there was uncertainty about how things would be different… we couldn't really see how it was going to work until it got started." Subsequently everyone learned as they went with minimal training provided prior to fall 2005 start.

A lack of interaction with the technology and the faculty who were to utilize this technology was certainly not preferred. The short time frame available to train faculty and staff does not fully comply with the SACS Distance Education

Policy Statement that states “faculty who teach in distance education programs and courses received appropriate training (CS 3.7.3)” (SACS Commission on Colleges, 2006, p. 1) either. Additionally, even with a planned user-friendly interface, this is not an ideal way to start a new program and not recommended process for adoption and diffusion of new technology (Rogers, 2003). Student surveys executed in fall 2005 (see Appendix C), and spring 2006 (see Appendix D) reflected this to be a significant interactive factor as well. Students surveyed were from the pioneer class of 2009. Student survey participation was voluntary which resulted in 43% response rate fall 2005, and a 20% response rate in spring 2006. In the fall 2005 survey results a common theme surfaced among the student comments indicating that the technical difficulties were distracting and not appreciated. One student captured it best by saying:

> There are so many delays and technical difficulties. It seems to me that we should already have worked out many of the kinks so that we would not be missing so much class time making sure that the technology is working correctly. It’s very frustrating.

The student’s sentiments were examples of the overall frustration perceived by the researcher as an observant at the time. Long technical support hours were necessary to reduce these interruptions and are documented in the emails among the two campuses, ILS, and the installation vendor.

By the spring 2006 semester many of those “technical difficulties” such as dropped calls and no audio had been worked out. Some camera adjustments

were made too (close-up image shot of individual to regional images shot of group of individuals) that helped with self-awareness issues, and faculty eventually gained instructional technology experience and acceptance of the hybrid VTC learning environment. These modifications and adjustments had the overall student's viewpoint changed to one more positive. A representative comment made by a student from the spring 2006 student surveys captured this new ambiance by saying, "I think that the changes that have been made over the year have been really good. It was a load before and I feel like it is a better blended classroom now."

Noteworthy as well from the student survey results from both semesters surveyed, was a secondary student assertion that focused on lack of faculty training or rather faculty not being comfortable and confident with the technologies being used. Speaking with the two faculty members interviewed, one from each campus, they remembered minimal training offered, but attended what existed. The lead Instructional Technology Specialist at UNC-Chapel Hill said she felt that faculty "were very nervous and weren't sure what was going to happen" and wished she could have made them more comfortable. However, as observed at both sites, installation was ongoing right up until the start of classes.

Another test of collaboration, planning and technology observed and documented in email and IM occurred early the first semester when Hurricane Ophelia was responsible for the closures of the ECSU campus on September 15 and 16, 2005. Prior to the arrival of Hurricane Ophelia on the east coast,

arrangements were made and students were encouraged to travel to Chapel Hill so that they could continue to attend classes. Students who were from the Elizabeth City area, however, stayed and plans were made to have these students log into the Breeze (now Adobe® Acrobat® Connect™ Pro) connection from their computers at home as long as they had power. Class recordings were made of the classes missed due to this forced closure and resulting travel that would be released later to all students. This situation and others (i.e. network switch down in Greenville, NC) over the first two semesters (2005-2006) highlighted the need for several levels of technology enabled backups and brought the disclosure of how labor intensive it was from both campuses to support the technology and delivery of curriculum at a distance through hybrid VTC.

Daily classes, organization meetings, special events, many in the evenings, and redundancy of technology for delivery of instruction needed to be supported by information technology and instructional technology staff. A lot more support than initially thought to maintain this partnership program. As the lead Instructional Technology Specialist commented that:

> The students at ECSU being involved in the groups and clubs that were located at UNC, and then having to facilitate those and have technical support available to make sure that connection between two campuses were working, even if it was into the evening – was kind of an eye-opener.

This statement underscores that only some of hours of support required by technical support were realized prior to program start up. Emails among the two campuses, ILS, and the installation vendor were time stamped and indicated work being done throughout a 24 hour day and confirmed this observation. The round the clock work performed by the vendor indicated in some of those emails testifies to their dedication in support of this new joint venture collaboration as well.

As reported above there was a collective embracing of the plan to use the best technology with sound pedagogy; however, the rate of adoption which is the speed the innovation is adopted by members of a social system (Rogers, 2003) was inhibited by the late installation of classroom technologies. The delay caused the inability to provide complete training for faculty, staff, and students and interfered with the implementation stage which "occurs when an individuals puts an innovation to use" (Rogers, p. 179). Providing extensive just-in-time technical support prevented interference with the diffusion and adoption process. These technology and training challenges added to the shared experience of this joint enterprise strengthening the newly established community of practice (Coburn & Stein, 2006).

Summary of Policy Design

The UNC-Chapel Hill/ECSU PharmD Partnership Program was a new type of joint venture collaboration with students affiliated at two different campuses as one programs. Looking at the four dimensions of the third main

element, policy, people, places, and infusion of technology, revealed numerous complex, interactive aspects of education policy implementation in practice (Honig, 2006). Policy design and reform was influenced by both policy makers and implementers (Honig). The people involved with policy design and implementation possessed a drive for excellence that both universities demanded and resulted in a developing community of practice (Coburn & Stein, 2006). Resulting time constraints for technology installation interfered with rate of adoption due to reduced training opportunities (Rogers, 2003). However, after the first school year, the overall feeling perceived from those interviewed, surveyed, and the researcher as an observant was that technology did work well in linking the smallest school in the system with the flagship school. Examining policy design emphasized the interconnectivity of these four key dimensions and will now be related to economic, political, social capital, and cultural leadership approaches (Honig) that have an affect on the external and internal barriers to implementation of new innovations or technology.

Building New Model for Pharmacy Education Using Distance Learning

Decisions regarding educational policy are influenced and based on numerous items including resource constraints/availability, pervasive forces, personal preferences, social interactions, cultural climates and philosophy (Honig, 2006). If education policy implementation conflicts with economical, political, social capital, and cultural needs (see Figure 12) procuring necessary assistance to implement will prove difficult (Honig). When looking through an

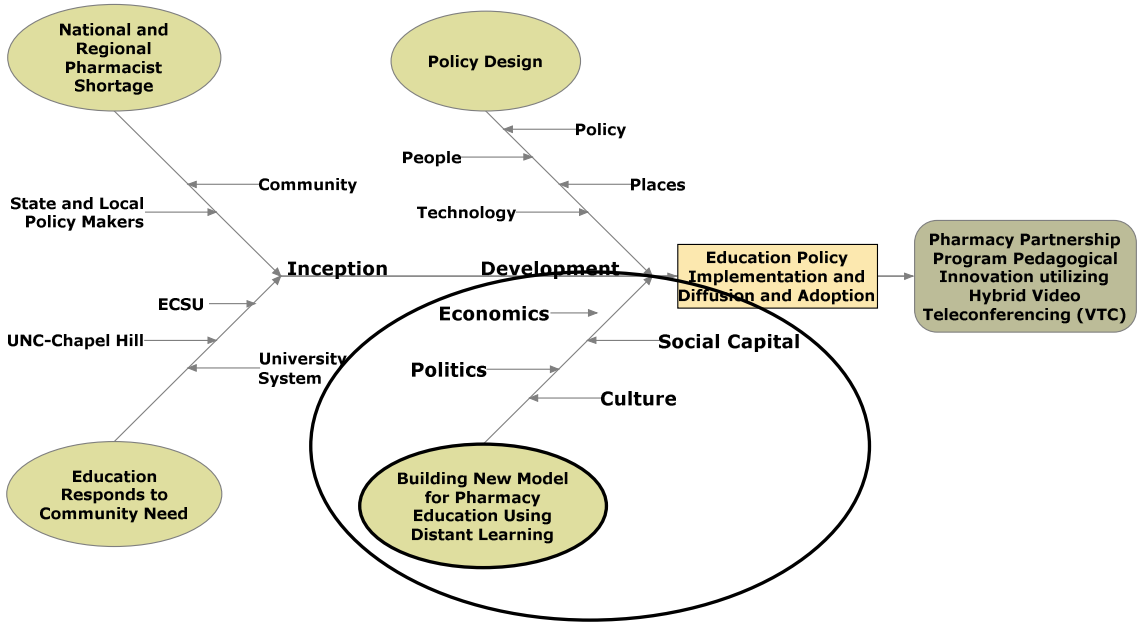


Figure 12. Conceptual framework highlighting the forth main element.

economic lens, the focus is on identifying important policy participants, predicting their preferences, determining what altered incentives or constraints the participants are facing, and using data from the past to predict response and influence of policy change (Loeb & McEwan, 2006). The political lens concentrates on the political "game" and the participant's interests, resources, and influence strategies (Malen, 2006). Components of social capital include social trust, channels of communication, and expectations and sanctions (Smylie & Evans, 2006). Finally, the cultural lens spotlights language and symbolic differences. Looking through the lens of these four approaches provides insight and contributes to a more accurate understanding of the education policy implementation, the driving forces behind the pharmacy partnership program, and change that took place during inception, development and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program.

Economics

As already documented, legislators who approved state funding for formation and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program were lead by a powerful state senator. The state senator acted as a champion (Rogers, 2003) throughout the entire process. A champion is an individual who "throws his or her weight behind an innovation" (Rogers, p. 414) in this case establishing a professional program at ECSU. The state senator from northeastern North Carolina support resulted in monetary resources being made available. Even though the senator's perspective was more socioeconomic, his

influence made it possible for resources to flow which eventually supported the pharmacy partnership program.

Additionally, early during inception the original UNC-Chapel Hill Dean of the SOP recognized the importance of not competing for state funds. This economic approach was shared by the new Dean and indicates a focus on resource constraints by both men. Both men were important change agents (Rogers, 2003) and policy participants (Honig, 2006). Their economic views to keep funding for the UNC-Chapel Hill SOP influenced the innovation process at various times throughout inception, development and implementation. The ECSU Chancellor was presented with the same economic framework; however, his situation was different as state funds would be appropriated to ECSU for the purpose of establishing a stand-alone ECSU School of Pharmacy. In the end due to the Feasibility Study (Riffee et al., 2002), conflict was avoided. ECSU would share state funds with UNC-Chapel Hill through a unique joint venture collaborative with the trade off being knowledge as a preferred consequence for ECSU.

Politics

The state senator had the political power as well as the drive and determination to follow through on his idea of having a professional program established at ECSU. Politics of policy appropriation (Malen, 2006) was one of the strategies used. He began his quest with seeing that appropriations were made available to perform the Sheps Study (Fraher et al., 2002) and Feasibility

Study (Riffee et al., 2002) that would prove useful tools in mandating change to secure his goal. The studies also allowed the senator to use the pharmacist shortage and community and educational demands to politics through policy amplification (Malen, 2006). As stated in the interviews by him and others, the senator was also willing to lobby and negotiate his position to secure this idea when the unexpected leadership change of the SOP took place in 2003.

At this point, the new Dean used the framework of politics (Bolman & Deal, 2003) to negotiate for change. The new Dean freely admits that he had some trepidation about proceeding with the previously designed implementation plan. His newness gave him the unique opportunity to reinvestigate, initiate philosophical discussions, and campaign for policy design reform. However, this did not negate the fact that this unique joint collaborative program was more or less mandated by legislators, the Board of Governors, the President, and the Board of Trustees and Chancellors at both universities.

The new Dean described the atmosphere as intense when various stakeholders “were looking at this program very carefully, almost under a microscope.” The Biology Chair/SMST Dean/Provost admitted he was told by the Chair of ECSU’s Board of Trustees that “failure was not an option.” These statements indicate an intense environment on both campuses and how important this program remained to legislators, educational leaders, and the community.

Some did not support the goals of this new joint venture collaboration. In interviews participants referred to the dissenters vaguely as “some.” As in “some” opposed the partnership or “some” came out hard against the partnership. This in itself is a political exchange as no one person interviewed wanted to specifically point fingers. The protest by “some” in the beginning was eventually minimized by the data collected from the studies performed and the new Dean’s initiation and lobby of policy reform. Policy reform concentrated on sound pedagogy/andragogy approaches to instruction supported by state-of-the-art technologies which were used in the campaign to acquire full support of stakeholders.

Social Capital

As the new Dean along with other education leaders at both campuses articulated that high standards would be maintained the protest of “some” were reduced and the pharmacy partnership program’s social capital increased. This partnership appears to demonstrate what you can do when the need is effectively communicated. Much evidence is available to support this statement. For example, the Biology Department Chair/SMST Dean/Provost said he spent a great deal of time preparing people for the pharmacy partnership program by talking and explaining to them what this would mean. He said this helped and “while there were issues, we didn’t have any major blowups.” Sharing information is indicated as a diffuser.

The UNC-Chapel Hill Program Coordinator stated that this was an "inclusive process; everybody had an opportunity to weigh in and not just within the faculty." Alumni Association and Board of Visitors were two groups mentioned that had been consulted about whether they thought the pharmacy partnership program would be a good and responsible move for the UNC-Chapel Hill SOP. UNC-Chapel Hill Program Coordinator said discussions included what impact a joint venture collaboration would have on the practice community and how practitioners and Alums could be assured. UNC-Chapel Hill SOP did not want to do anything to injure the reputation of the UNC-Chapel Hill SOP or to diminish the resources or quality of education.

The UNC Senior Vice president of Academic Affairs said that the majority of people felt the pharmacy partnership program was an "opportunity for each school to really fulfill one of its missions and that is to help engage the State of North Carolina to try to address problems in a region of the state that are not easily addressable." The Chair of Biology/SMST Dean/Provost explained that "we were blessed to have people who were tied to this region, who were tied to our mission, who understood that we want to – that we could do something good here." Both statements characterize the promotion of productive activity associated with a social capital approach which helped to sustain the implementation process during times of change.

Some of the educational leaders changed during the process of implementing this new education model. Some left, while others like the Biology

Chair/SMST Dean/Provost were promoted and stayed involve in the implementation process. At these times of transition, that communication played an even bigger role for reasons of momentum and continuation. In 2003, the incoming UNC-Chapel SOP Dean questioned philosophically whether or not the original program model was constructed to address the true intent of the mandate. His questions led to many debates about the partnership, the technology, and the many facets of planning a program to be delivered at a distance. A salient point made by the new Dean was that he "believed that there was a sincere effort on both campuses to engage in a trusting relationship and consistent with any truly trusting relationship is the need for direct honesty between the parties." The direct honesty included talking about the universities' differences.

The fact cannot be hidden that these are two very distinctly different university campuses. They have different missions and different constituencies, and everyone wanted something different out of the partnership. However, as the new Dean pointed out, honesty and directness about those differences created trust, and "once you have that trust then you can plan and commit, you can commit your intellect, you can commit your energy and then you can commit your resources." It was not only this statement, but the passion and convection in which it was stated that imparted the importance of communication and feedback throughout this entire process and the social capital that resulted. From the

planning and then into the classroom instruction, communication and feedback in this program are described as constantly looping.

Constant “care and feeding” of the program was mentioned in a couple of the interviews. Care and feeding refers to the continuation of interactions and conversations necessary for a program to stay healthy (Hope & Pigford, 2001). The Chair of Biology/SMST Dean/Provost was observed by the researcher on more than one occasion talking about “care and feeding.” He said “periodically you have to get together and work those things out.” Again, this type of tenacity fed the collaboration of the UNC-Chapel Hill/ECSU PharmD Partnership Program and demonstrates what honest, constant communication and feedback can achieve.

Good communications led to the shared expectation that both schools would maintain their posture as advocates for the students. Universal concern for the students was mentioned throughout the interviews and observed. Both schools stayed extremely vigilant making sure that the technology was not having a negative impact on students’ learning opportunities. The lead Instructional Technology Specialist said, “We’re there for the students and it just helps so much to have people dedicated to the program and caring about the students and what’s happening and how they’re learning.” She went on to explain that being vocal about those concerns helped inform and led to improvements which might otherwise not have happened.

During the first year of implementation, conversation was observed to flow freely, although not always welcome, between educational leaders, faculty, staff, and students. As personally observed in the first semester, there were daily face-to-face, email, IM, and telephone conversations regarding each day's events. This is also documented in the numerous emails and IMs saved and retained by the current Director of the Pharmacy Partnership Program and Coordinator of Instructional Technology on the ECSU campus. This confirms the vigilance, and is a good example of the regular constructive conversations that took place.

An ad hoc VTC Planning Group arose from those conversations made up of faculty and staff members (2) at ECSU, the Program Coordinator whose title had changed to Director of Expansion and Collaboration, and 2-3 UNC-Chapel Hill technical support personnel. This group met as often as necessary and more often when it was felt that not everyone was on the same page. Differences were due to a lack of communication or miscommunication and were cleared up quickly through meetings and frank communication. This group used the communication and feedback process to address observed problems, such as lack of faculty, staff and student technology training, share lessons learned, and create policy, protocols, or guidelines as needed

The ISL Program Manager interviewed pointed out that information was solicited from many rather than updated to many. This assertion follows Rogers' (2003) second main element in the diffusion of innovations which is communication through certain channels. This approach helped motivate, aided

in the process of change, and cultivated social trust. Clear inclusive communication conveying true conviction was powerful. The evidence supports that social capital was cultivated in this case study and a valuable resource that facilitated the UNC-Chapel Hill/ECSU PharmD Partnership Program's inception, development and implementation.

Culture

So how could members on one campus understand the perceptions of or have empathy for the other? This challenge was especially difficult given the differences between these two universities: one big, cap-stone, research level and one small, targeted for enrollment growth, baccalaureate. They also have different missions, goals, constituencies and socio-economical settings. During the interviews, race was only mentioned indirectly. It was imparted that "some" were saying that by partnering with ECSU the UNC system was diluting the UNC-Chapel Hill program. This was put aside by characterizing this type of comment as coming from "naysayers" or narrow minded individuals.

However, through the interview process, document collection, and observations, a greater challenge and goal seemed to be present and woven into the fabric of this partnership program that outweighed cultural differences. The UNC Senior Vice President of Academic Affairs stated that she "believe that we need to build all of our universities, because we've got a major job for the future to educate young people, that we need to help every institution become as good

as it can be." Because educators are students of theory and practice, and life long learners themselves they have that shared culture.

In the UNC system this shared culture has been formally cultivated since 2000 with the formation of the UNC Teaching and Learning Collaborative (TLT) The TLT was set up to as a "statewide forum to network and exchange information about the effect use of technology for teaching and learning" (UNC-GA, 2009). Of the thirteen interview participants, five of them along with the researcher, had attended TLT Collaborative conferences. The TLT Collaborative's mission and vision include the elements to "explore collaborative opportunities," and "seek to foster collaboration that building communities of effective practice" (UNC-GA, 2009, p. 1). The extent of the TLT Collaborative in the UNC System was unclear; however, the perception of the researchers was that the university systems were primed and receptive for such a partnership. This shared culture along with a strong mandate supported inception, development and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program.

Lack of empathy for the faculty, staff, and students on the ECSU campus, however, did surface as a significant interaction. Through emails among the VTC ad hoc group, the topic of consideration for the distant campus was discussed with some regularity at start up. Southern Association of Colleges and Schools (SACS) and Accreditation Council for Pharmacy Education (ACPE) accreditations standards required this program to be a single professional degree

program having two sites. Student equity is considered essential. For example, making sure tests and papers get graded and handed out at the same time on both campuses, and student received the same treatment and access to student services. Unfortunately, the occasional lack of empathy, professional courtesy, and/or responsiveness on the part of UNC-Chapel Hill based faculty and staff in many cases is a side effect of distance and was addressed by establishing policies and procedures that will be discussed in the next section.

Summary of Building New Model for Pharmacy Education

The multi-frame approach presented above emphasizes how self-focused goals lent themselves to support the goals of policy design and reform in this case study. Collectively they make viewable the education policy implementation that took place from multiple perspectives and highlight what worked. There was an economic and socio-economical drive, powerful political support, great communication and trust feeding social capital, and focus on a mutually shared culture rather than indifference. These considerations revealed the foundation and characteristics of this learning community associated with the UNC-Chapel Hill/ECSU PharmD Partnership Program. Consideration of each approach provided a holistic view and revealed willingness to compromise, trust, communicate, collaborate, and adapt to change.

The Program Implemented

Education policy implementation creates changes academically as well as administratively. After design and development and during implementation

certain accreditation process needed to be followed to address the substantive changes made to the UNC-Chapel Hill SOP as a result of crafting the UNC-Chapel Hill/ECSU PharmD Partnership Program (see Figure 13). Additionally, during implementation administrative policies and procedures were adapted, created, and adopted to accommodate the new distance education learning environment in place. These policies and procedures focused on access and student equality that were prescribed by SOP's accrediting body, ACPE.

Accreditation

The UNC-Chapel Hill SOP receives a comprehensive evaluation every six years from the ACPE (ACPE, 2005, 2006a). The last accreditation process was completed June 2000 when accreditation was continued through academic year 2005-2006. Implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program was a substantive change to SOP's program and required ACPE review. The process of getting ACPE approval for substantive change was necessary to not jeopardize the accreditation status of the UNC-Chapel Hill SOP and prepare for the ECSU expansion. This process began with UNC-Chapel Hill's Interim Report (UNC-Chapel Hill SOP, 2004) to the ACPE Board of Directors in which UNC-Chapel Hill's SOP included their plans to admit students at a remote site through a partnership with ECSU (Wadelin, 2004). ACPE approval was affirmed in 2004 with the request to submit "an update fully describing the impact of the planned expansion on each area within the

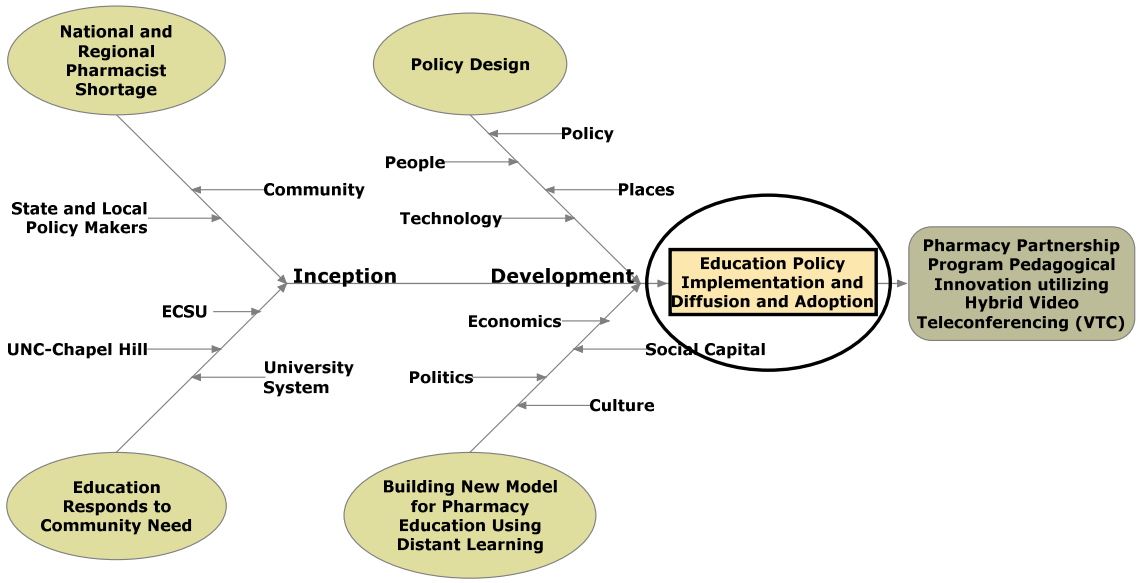


Figure 13. Conceptual framework highlighting program implemented.

accreditation standards" (Wadelin, p. 1) by April 15, 2005 so that the ACPE Board could review the update at their June 2005 meeting.

On April 15, 2005 UNC-Chapel Hill's SOP provided the ACPE with an Interim Report (UNC-Chapel Hill SOP, 2005) containing the ACPE requested updates (Wadelin, 2004) that would be utilized in an ACPE focused on-site evaluation scheduled for May 4-6, 2005 and eventually reported at the ACPE June 2005 Board of Directors meeting (see Appendix G). The Interim Report (UNC-Chapel Hill SOP, 2005) captures most of what has already been presented in Chapter 4 and addresses the specific steps initiated to address the planned enrollment expansion at both the UNC-Chapel Hill and ECSU campuses as they relate to each ACPE standard.

Challenges expressed in the ACPE Focused On-Site Evaluation Team Report (2005) included:

1. Complete preparation of the physical facilities at ECSU in time for fall 2005 implementation.
2. Expeditious hiring of key faculty for the ECSU satellite campus in time for fall 2005 implementation.
3. Cultural adaptation of students and faculty at the satellite campus because the doctoral level of this professional program.
4. Adequate faculty development support for pedagogical transformation to a more student-centered, active learning based approach and curriculum is enhanced.

5. Ample students access to the same or comparable student services support at the ECSU campus.

ACPE Focused On-Site Evaluation Team Report (2005) concluded with a statement that recommended the UNC-Chapel Hill SOP to develop a contingency plan in the event that unforeseen delays precluded the partnership program from starting in fall 2005. This as it turns out was not necessary as the program started as planned with a faculty and staff member in place, in temporary facilities at ECSU. The program as planned started on August 12, 2005 with student orientation in Elizabeth City, followed by a week spent at UNC-Chapel Hill for continued orientation and the first hybrid VTC classes began August 22, 2005. Challenges 3, 4, and 5 above are being addressed over time with items 4 and 5 being mentioned as making progress in the ACPE March 7-9, 2006 Evaluation Team Report.

The ACPE noted in the On-Site Evaluation Team Report (2005) that it views the Doctor of Pharmacy program to be a single professional degree program with the acting Dean viewed as the administrative leader of this program in its entirety. The new Dean commented that this requirement can be challenging because in reality knowing 100% of what's going on in one campus is going on in the other and vice versa is difficult. He said that this concept of oneness is really driven home by the accrediting body because "when they come in and visit our program and look at the two campuses their expectations of us as the degree granting institution responsible for this program is that the

experiences of the students on both campuses are identical." Achieving "oneness" 200 miles apart is a credit to the policy, people, places, and technologies in position that made this happen and confirmed during the regular on-site evaluation for accreditation.

The regular on-site evaluation for accreditation review is conducted every six years and took place March 7-9, 2006. The UNC-Chapel Hill SOP was characterized as demonstrating a commitment to excellence (ACPE, 2006a). Comments specific to the UNC-Chapel Hill/ECSU Pharmacy Partnership Program included:

1. Notable enhancement of faculty development activities to address the needs associated with educational technology including distance delivery of the program to ECSU.
2. Commendation of SOP's effort to review and refine curriculum and a commitment to curricular renaissance and reform as part of the UNC-Chapel Hill SOP Strategic Plan (UNC-Chapel Hill, 2006c) with concern for comprehensive faculty buy-in to the vision.
3. The need to focus on adequate and stable school-wide recourses to avoid diversion of attention and resources in the continued and timely development and implementation of the ECSU satellite campus.
4. The need for continued effective and consistent communications between and among administration, faculty, students, and other constituents of the SOP.

5. The need to continue to devote attention to the establishment and recognition of the program, faculty, and student on the ECSU campus.
6. Enrollment management should be top priority as the ECSU program becomes fully implemented (i.e., expansion of class size) and balancing enrollment and resources to ensure quality of UNC-Chapel Hill SOP program.
7. Urging timely readiness of permanent facilities as program grows to full implementation. (ACPE, 2006a)

The comments above show a measure of progress in education policy implementation. They also point out where continued attention should be focused for education policy implementation sustainability. The UNC-Chapel Hill SOP received continued accreditation notice and approval of substantive changes in June 2006 (ACPE, 2006b) providing additional evidence of successful education policy implementation and diffusion and adoption.

Adaptation through Distance Education Policy

During the program implementation process, certain barriers of access and equality arose that challenged the spirit of oneness. This required adaptation of existing administrative policies and creation of new distance education (VTC) program policies and procedures. The policies/procedures adapted and adopted are listed in Table 9. These adjustments in policy confirm diffusion and adoption was taking place as the pharmacy partnership program model was being implemented.

Table 9

School of Pharmacy (SOP) Revised and New Policy/Procedures

Policy Name	Description	Status
Dual Enrollment Procedures	Strategy to achieve dual enrollment to appease both university administration systems	New
Facility Use Policy	Procedures to schedule classrooms and now includes special instruction for VTC classroom reservations which require prior training	Revised
Breeze Policy	Provides guidelines on when students can have access to classroom recordings	New
Educational Program Policy	States adoption of the 2004 Center for the Advancement of Pharmaceutical Education (CAPE) curriculum outcomes which includes empowering student to take greater responsibility of the learning	Revised
Policies for the Delivery of Course Materials and Exams	Contains information on the Breeze Policy and Educational Program Policy (overlaps) and policy related to the preparation and distribution of course materials, exams, and assignments.	New

Table 9

SOP Revised and New Policy/Procedures (continued)

Policy Name	Description	Status
Protocol for Administering Exams	Contains clear procedure when student needed to ask questions during an exam.	New
Classroom Checklist	Instrument used by faculty to provide information regarding special support needs that are course specific to VTC technical support	New
Guidelines for Conducting Online Office Hours	Contains to facilitate this process and insure equal access for students at the remote site.	New
Training Opportunities and Policies	Summary of the types of VTC training provided by the technical support for faculty and TAs and general policies related to that training	New
Standard Operating Procedure for Dropped Calls and Room Problems	Lists the steps to be taken by VTC support technicians in the event of a dropped VTC call or other technical problem associated with VTC in the classroom	New

Dual Enrollment Procedures

No policies or procedures were in place for dealing with dual campus enrollment and so a year in advance of student enrollment the UNC-Chapel Hill Program Coordinator explained:

> … We sort of methodically went through all those processes, identified the ones for which there was not an existing fix that required someone several pay grades higher than me to bless an exception to rules and so we got those policies written and entered in to all the systems here. And once we had all that done, went to Elizabeth City and sort of went through the same steps.

The ACPE Interim Report (UNC-Chapel Hill SOP, 2005) states that students located on the ECSU campus would be dual enrolled but not paying tuition or fees at ECSU. The UNC-Chapel Hill Program Coordinator said that in the end, a mechanism needed to be in place to trigger dual enrollment; therefore, students on the ECSU campus did end up paying tuition to UNC-Chapel Hill and fees to ECSU. This strategy achieved dual enrollment and appeased both university administration systems. Developing processes for enrolling students, getting access to student help/library/housing, and what has to be done for them to be recognized as full time legitimate students on this campus needed to be defined. Without this tedious attention to the administrative policy and processes, student at ECSU would not have been able to receive a seamless enrollment and matriculation process.

Facility Use Policy

An example of an existing policy needing to be revised to fit the new model was the Facility Use Policy. This policy was changed to include the special requirements involved in reserving VTC classrooms and having the event added to the UNC/ECSU VTC calendar. This policy was adjusted to include the requirement that the person using a VTC classroom must attend a one-on-one orientation on how to use the technology located in these classrooms. This change addressed issues of scheduling and training. Faculty, staff, and students are also strongly encouraged to reserve VTC classrooms a least a week in advance so that the technical staff can make sure there is technical support available.

Breeze Policy

One of the first new policies put into place by the partnership since the start of classes was a “Breeze Policy.” Breeze (now Adobe® Acrobat® Connect™ Pro) was the communication software chosen to support the instructional content during class and provide backup support. When both local and distant classes are logged into a Breeze session, both sites can see the instructor’s materials being shared (i.e., Power Point, Web Page, or Whiteboard). The Breeze software has a recording feature that allows each Breeze connection to be recorded. Recordings include the content being shared and the instructor’s voice. A hyperlink to these recordings is only released if an emergency situation has caused the classes at the distant campus to not receive instruction.

The NC AHEC/ECSU Faculty member interviewed explained that the Breeze Policy was put in place “Because there were concerns about attendance in class.” The concerns first started when the instructional technology staff members on both campuses observed an increase in “Guest” logins to the Breeze sessions. Essentially, what was happening was fewer students were showing up for the didactic class lectures. Instead they were logging into Breeze as a “Guest” from their personal computers at another location (home) and listening to the lecture while observing the class content on the screen. This was especially noticeable on Fridays as the list of online Breeze guest grew lengthy.

As reported on page 112, the new Dean expressed that the program was about more than just instruction. Having students listen to lecture from home did not provide the exposure to the professionalism and culture of the program. Ironically, the educational administrators, especially the new Dean, did not want the pharmacy program to turn into a “distance learning” program. There were also concerns regarding faculty’s intellectual property. Therefore, in compliance with the Breeze Policy, the Breeze server was set to restrict access to the Breeze class sessions on a daily basis while also addressing the concerns of faculty.

Breeze access was limited to emergency situations like, a hurricane or other type of natural disaster and technology interruptions. Additionally, when Breeze links are released; there are released to both campuses for equality. “Even though the other campus may still have gotten to sit through the original lecture, the other group of students will not have an unfair advantage of watching

a session more than once" said the NC AHEC/ECSU Faculty member. This goes along with the programs oneness required by SACS and ACPE.

The policy was recently adjusted in January 2008 (Blouin, 2008) by the UNC-Chapel Hill executive committee to accommodate "excused" absences such as attending a state or national pharmacy meeting or if a student expects to be absent for an extended period of time due to family illness or emergency. Requests go through the Director of Student Services and then only with the Director of Student Services approval does an information technology staff member release a Breeze link. The hyperlink is then released rapidly and with much communication between the two campuses.

The lead Instructional Technology Specialist, who had been observing classes at both campuses, made the case that if the instruction was more interactive and required in-class student involvement for further learning those students would be engaged and want to be in class. At which point the Breeze links could be used to reinforce the information learned in class rather than present it for the first time. This lack of in-class interaction did not go unnoticed by the UNC-Chapel Hill SOP Dean who shared that he would visit and sit-in on classes held in the VTC classrooms. He reported sitting in the back of class at the distant sight during that first year:

> I saw one of our faculty – a good faculty, an award winning faculty member begin his lecture with his slides and while I was thinking about this lecture I had Bloom's Taxonomy in my mind and I asked

> the question, 'What percentage of this class is being taught below the median of Bloom's Taxonomy?'.... I came up with a number somewhere between 90 and 95%.
>
> On my way back to Chapel Hill I was very depressed and I said to myself that we wasted $2 million that we could have just had a camera and a screen in both places and accomplished that. There was no interactivity; students rarely had a chance to ask a question, most students weren't comfortable asking a question. So all the technology that we had, the buttons on the desks, the cameras in the room that are going to come to the students so that students on both campuses could have interactive learning, it wasn't happening. So that's how we started thinking about the Educational Renaissance and if we are going to flip the equation and go from 90/10 to 10/90 what would we have to do?

The technology provided the venue that magnified delivery of classroom instruction. The researcher in her position as Coordinator of Instructional Technology at ECSU was fond of saying, "that the only difference between the local site and distant site was that the student at the distant site fall asleep sooner." As Kennedy et al. (2003) found in their study of VTC classroom environment in an entry-level doctor of pharmacy program, students find it more difficult to concentrate for long periods of time because it is like watching TV.

Education Program Policy

Education program policy was changed due to the lack of interface which did not go unnoticed by the faculty either. During the first semester one instructor's frustration was observed when he tried to engage students in discussion by asking questions and actually paid students $1 if they would respond. VTC is not passive and can produce social presence issues because microphones need to be pressed and student experience anxiety issues (Hsu & Sammons, 1998; Kennedy et al., 2003; Rienhart & Schneider, 1998). Formal and informal discussions with faculty are ongoing and they were asked to start redesign of their courses with activities that engage students in higher level thinking during class. The faculty that have responded are now part of the "educational renaissance" which is a term coined by the new Dean. The educational renaissance initiative is part of the UNC-Chapel Hill's SOP Strategic Plan (UNC-Chapel Hill, 2006c) and refers to efforts to "transform the educational process to prepare professional and graduate students to enter into their profession and continue to develop throughout their careers" (UNC-Chapel Hill, 2006c, p. 6). Faculty involved in redesign work closely with the SOP's Center for Educational Excellence in Pharmacy to improve the practice, scholarship, and research in evidence-based education. The educational program policy now is to empower the student to take greater responsibility of the learning, especially the foundational knowledge prior to coming to class. This leaves class time for

interactive teaching, discussions of case studies, and other problem solving activities to facilitate student learning.

After the first semester, the ad hoc “VTC Planning Group” that had emerged (see page 139) continued to focus on student learning and making sure learning opportunities were not missed for either group of students (local & remote). Members of the planning group spent considerable time in the VTC classroom monitoring the technology and interactions. This feedback loop provided additional policy and protocols identified to help keep things equal for students at both campuses, help facilitate VTC technical support, are posted on the Blackboard Faculty and TA training site, and included the following:

1. Policies for the Delivery of Course Materials and Exams
2. Protocol for Administering Exams
3. Classroom Checklist for UNC-Chapel Hill VTC classes, review sessions, and special events
4. Guidelines for Conducting Online Office Hours
5. Training Opportunities and Policies
6. Standard Operating Procedure for Dropped Calls and Room Problems

Policies for Delivery of Course Materials and Exams

The Policies for the Delivery of Course Materials and Exams contains policy related to the preparation and distribution of course materials, exams, and assignments. The policy was approved in 2003 and then revised in August 2006 to reflect the needs of the pharmacy partnership program with ECSU.

These policies include the School's policy for the use of Breeze (overlap) and DVD class archives, and the School's adoption of the 2004 Center for the Advancement of Pharmaceutical Education (CAPE) curriculum outcomes (overlap). In addition, these policies addressed the need for advance preparation of course materials, exams, and assignments so they are delivered ahead of time to the distant campus to be distributed simultaneously at both campuses. The new procedures enabled and supported the “spirit of oneness” required by the ACPE standards.

Protocol for Administering Exams

A Protocol for Administering Exams was put in place so that there was a clear procedure when student needed to ask questions during an exam. This included using Instant Messaging (IM) as a quiet mode of communication and the requirement to take questions in the order they are received, not necessarily the person physically in front of the instructor at the local site. Again, the issues of equality are addressed and provide a clear protocol for administering exams in the hybrid VTC classroom environment.

Classroom Checklist

Classroom Checklist for UNC-Chapel Hill VTC classes, review sessions, and special events is more of a form, but is universally accepted as being required. This form is filled out at the beginning of the semester for each lecture in a course. The completed form is turned in to the videoconference technician for the SOP so they are aware of any special course needs such as where the

class will originate from, instructional materials to be used (DVD, VHS), or if faculty or teaching assistants (TAs) require any special camera shots (close-ups or use of the flex camera) while instructing.

Guidelines for Conducting Online Office Hours

When faculty or TAs are teaching in VTC classes on either campus, office hours must be provided at a designated time. Online (VTC) office hours insure equal access for students at the remote site and the Guidelines for Conducting Online Office Hours were created to facilitate this process. There are two ways to schedule office hours with students. Offer a single office hour session in which both ECSU and Chapel Hill students have the opportunity to attend or designate VTC office hours with ECSU students separate from office hours for local students. In either case, office hour information should be published in the syllabus and communicated to the technical staff at the start of the semester so that it may be added to the UNC/ECSU VTC calendar and supported.

Training Opportunities and Policies and Standard Operating Procedures for Dropped Calls and Room Problems

The last two policies listed, Training Opportunities and Policies and Standard Operating Procedure for Dropped Calls and Room Problems were created to help the technical support staff assist the teaching staff. The Training Opportunities and Policies contains a summary of the types of VTC training provided by the technical support for faculty and TAs and general policies related to that training. The Standard Operating Procedures for Dropped Calls and Room

Problems lists the steps to be taken by VTC support technicians in the event of a dropped VTC call or other technical problem associated with VTC in the classroom. Both of these policies/procedures address the new challenges faced by the implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program.

Summary of The Program Implemented

The temporary facilities at ECSU were ready and a faculty and staff member were in place in time for fall 2005 classes. Implementation led to the development of distance education policies (i.e. Breeze Policy) and ignited discussions regarding the scholarly art of teaching. These discussions resulted in a change to educational program policy that now empowers students to take greater responsibility of the learning and enhanced instruction. This curriculum renaissance is part of the SOP's Strategic Plan (UNC-Chapel Hill, 2006c) and was noted in the ACPE reporting. The VTC ad hoc group that formed helped to create new policies and procedures that focused on providing adequate faculty development, student equality, and program stability. The UNC-Chapel Hill SOP received continued accreditation notice and approval in June 2006 which included approval of the substantial change resulting from establishment of the UNC-Chapel Hill ECSU PharmD Partnership Program. ACPE comments focused on concerns directly related to progress towards the pharmacy partnership program's sustainability.

The evidence presented above shows that the individuals and decision-making units involved in the implementation of the UNC-Chapel Hill ECSU PharmD Partnership Program adapted to the unique hybrid VTC learning environment through policy and procedure development. The innovation process in an organization includes two activities. The first activity is initiation which consists of agenda-setting (identifying an organizations problem and need for an innovation) and matching the agenda-setting with an innovation. Then second is implementation that involves redefining/restructuring, clarifying, and routinizing (Rogers, 2003). This case study has already presented information and covered initiation under the overview/background of the four main elements (see page 73). In this last section the practicalities of program implementation were presented and highlighted the innovation-decisions, actions, and events in the process leading to routinizing of the innovation (Rogers). A discussion of the overall program extent and efficacy will now follow that provides insight as to the degree of routinizing which the UNC-Chapel Hill/ECSU PharmD Partnership Program has experienced toward sustainability.

Program Extent and Efficacy

The third and final level of analysis takes into consideration all the interactions and frameworks described in Chapter 4 and answers the three specific research questions:

1. What were the intended consequences from implementation of this new program model?

2. What were the unintended consequences from implementation of this new program model?
3. How did interaction among policy, place, people, and technology shape the implementation process?

Surfacing themes are identified and related to the theoretical framework presented in Chapter 1 (see page 46); education policy implementation (Honig, 2006); and diffusion and adoption (Rogers, 2003) theories. A chronology approach (Yin, 2003) was used to compare the chronology with the theoretical framework. Then a causal inference to the overriding research question: How did UNC-Chapel Hill and ECSU work together to create and implement the UNC-Chapel Hill/ECSU PharmD Partnership Program? is provided along with the observed efficacy of the UNC-Chapel Hill/ECSU PharmD Partnership Program (see Figure 14).

Intended Consequences

The first research question to be addressed is "What were the intended consequences from implementation of this new program model? The intent of this question was to identify recognized and desired changes anticipated by policy makers and implementers of the UNC-Chapel Hill/ECSU PharmD Partnership Program (Rogers, 2003). This question was asked of all interview participants to uncover and ascertain those intended consequences.

The first intended consequence uncovered in the interviews and acknowledged in public documentation (North Carolina General Assembly, 2009;

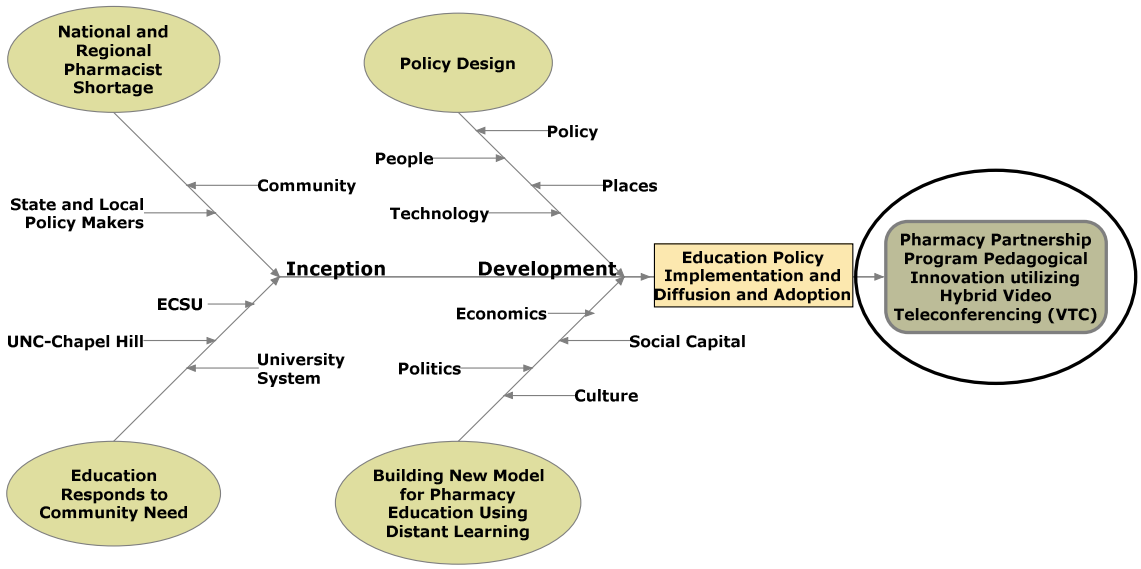


Figure 14. Conceptual framework highlighting program extent and efficacy.

UNC-Chapel Hill SOP Alumni Association, 2006), was to establish a fully accredited, free-standing school of pharmacy at Elizabeth City State University. The original line item that appeared in legislation and the North Carolina's 2000-2001 Higher Education Budget directs the UNC BOGs to study the feasibility of establishing a school of pharmacy at Elizabeth City State University (SB 1005, Chapter 424, Section 31.10(c)) (NCGA, 2009). So paradoxically, the entire partnership program could be considered unintended. In the end the Feasibility Study (Riffee et al., 2002) indicated a joint venture collaboration between UNC-Chapel Hill and ECSU was the best choice.

There appears to be a direct link between the goals for the joint pharmacy program, the goals stated in the 2005 MOU, and the Interim Report (UNC-Chapel Hill SOP, 2005) to the accreditation agency. The objectives listed in UNC-Chapel Hill's Interim Report (UNC-Chapel Hill SOP, 2005) to the ACPE Board of Directors under Standard 1: Mission and Goals (see Appendix G) are the same objectives listed in the 2005 MOU. These objectives were defined for the UNC-Chapel Hill/ECSU PharmD Partnership Program, were reported as the intended consequences, and are as follows:

1. Respond to the North Carolina pharmacy manpower shortage by increasing the number of doctor of pharmacy graduates from the UNC system.
2. Promote an increase in the number of pharmacists in North Carolina representing minority and underserved populations.

3. Stimulate economic development and increase pharmacy manpower in northeastern North Carolina.
4. Optimally utilize existing North Carolina resources (e.g. UNC-Chapel Hill, ECSU, and NC AHEC faculty, staff, facilities, clerkship sites and preceptors) for the most timely and cost-efficient approach to meeting current and future pharmacy manpower needs.
5. Stimulate campus development and increase degree-granting opportunities for ECSU (e.g. expand science complex facilities; implement Bachelor of Science degree in pharmaceutical sciences at ECSU).
6. Provide ECSU faculty and administration experience with development and assessment of a professional degree program to facilitate future development of similar programs.
7. Provide UNC-Chapel Hill SOP with opportunities to develop and implement collaborative educational processes, distance education technologies and pedagogical practices to facilitate future educational program development.
8. Develop an effective model for operating a cooperative professional degree programs in The University of North Carolina system.

The first four consequences address the pharmacist shortage and economic development in the northeastern North Carolina region and the last two consequences address the partnership program being developed for use as an

educational model. The first six consequences were clearly recalled by all thirteen individuals interviewed for this study and known to the researcher prior to this study. However the last two consequences regarding stimulation of campus development and increase degree-granting opportunities for ECSU and providing ECSU faculty and administration with the experience to develop and assess a professional degree program to facilitate future development of similar programs were lesser known and reiterated by only the state senator and the main administrators involved in setting up the partnership.

The first three objectives listed above concentrate on addressing the cultural imbalance of pharmacists originating from northeastern North Carolina as reported in the Sheps Study (Fraher et al., 2002) and stimulation of economic development. The initial ECSU cohort of fourteen students was somewhat geographically diverse with relationship to size. Three of the students came from the states of Washington, New York, and Massachusetts and the remaining eleven from North Carolina. Of the eleven from North Carolina three were from the northeastern North Carolina region. There were four categorized as minority: two African American, two as “other.” Five of the students were male and six were female. Thirteen of the fourteen students admitted to the UNC-Chapel Hill SOP and located on the ECSU campus graduated May 10, 2009. Keeping in mind that the Sheps Study (Fraher et al.) indicated that local graduates would be more likely to stay and serve the minority and underserved northeastern North Carolina population; the student statistics indicate that the first three goals may

not be fully realized with this initial graduating class. However, the number of doctor of pharmacy graduates from the UNC system will be increased by 13, with four representing minority and underserved populations, and four most likely remaining in the northeastern North Carolina region. Regarding economic development, even the senator admitted in his interview that:

> "As a big economic booster, I don't believe it will be that, but as a part of our community and what it gives in that regard as a person that comes from the community – I believe you get a higher level of passion for your work…"

Meaning, that pharmacists from the area would not rotate in and out of the area while working for the larger retail chains and be more attached and concerned for the community and their needs. Political positioning of both partner universities through social capital (value of social networking) and combined use of resources are addressed in goals 4-8. Goals 4-8 have been achieved with the inception, development and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program and the enrollment of the class of 2009.

While the partnership's intended consequences were agreed upon by the partnership universities, the unintended consequences gathered from participants interviews seemed to grow out of and in some case resulted because of those initial intended consequence. A discussion of those results now follows.

Unintended Consequences

The second research question to be address is “What were the unintended consequences from implementation of this new program model? Unintended consequences of the joint venture collaboration program were not as clear as the intended consequences and were not necessarily shared by all stakeholders. However, there was evidence of the following unintended consequences:

1. Initial confrontation with community and education stakeholders.
2. Creation of new options (policy reform) for the delivery of educational programs requiring more funding/resources.
3. Changed the way the educational community thinks about delivering education (new program model).
3. Administrative logistics caused delays.
4. Partnership with ISL for user-friendly VTC classroom design that helped define ISL expertise.
5. Improved cost-effectiveness with respect to technology for both universities when introduced to North Carolina Research and Education Network (NCREN).
6. Delays in technology installation for VTC classrooms.
7. Intensive technology support required to sustain daily operations of VTC classrooms and training needs.

Inception and planning for the UNC-Chapel Hill/ECSU PharmD Partnership Program was described by some of the interviewees as having a unexpected confrontational posture among and between North Carolina legislators, community members (regionally and local), UNC-Chapel Hill SOP, UNC-Chapel Hill SOP Alums, ECSU, and the NC AHECs since economical, political, social capital, and cultural values were at stake. Due to strong positions held, unintended compromises were made. The ECSU Chancellor said “a model that was more palatable to a lot of people around the state” was funded that still accomplished much of what the state senator and other supporters wanted to see. He explained that included pharmacy production increasing in the state, a professional program in northeastern North Carolina, and “the door is still open about it developing into a full-blown school down the road.” The 2005 MOU states that following completion of the 2012-13 academic year, an independent ad hoc committee will be appointed by the UNC Office of the President to evaluate the program’s effectiveness. The ad hoc committee will look at educational, campus development, pharmacy manpower and economic development goals to assess whether or not the partnership should continue and make recommendation to the UNC Office of the President.

As documented in the Status Update (UNC-Chapel Hill SOP, 2004) and referenced in the interviews, continued communication between the two schools helped secure agreement and enable partnership program initiation. Still the resistance to the initial idea and development of the UNC-Chapel Hill/ECSU

PharmD Partnership Program seemed to linger. One individual interviewed stated that the challenge of culture was expected, but that the degree of those differences was unexpected. The UNC-Chapel Hill Program Coordinator expressed these challenges of culture and differences as follows:

> "There was always concern from both sides about trying to partner the two campuses at the polar extremes of the spectrum of the system. I mean that's a big challenge. They're completely different cultures; the pace of life is completely different. I think most of us sort of knew that intellectually coming in; I grew up in eastern North Carolina so I understood part of that culturally but even I was surprised once I started working on the campus there [ECSU] of how different the cultures, the paces, and the mechanisms for getting things done, how different they were."

What is interesting was that this unexpected degree of differences was actually addressed and bridged with the policy reform that took place upon the new Dean's arrival. Once academic leadership pitched the idea of state-of-the-art technology, which was the future, mixed with the best pedagogy this became a common symbol/culture that united everyone. Academic leaders are nurturers of culture and leadership efficacy is linked to symbols and culture (Bolman & Deal, 2003).

Hybrid VTC has changed the way educational leaders in North Carolina are doing business. The new Dean said, "Learning how to do business from afar,

taking advantage of the technology and the more we became comfortable with that the more we realized that this can open up so many new doors for us." The new/reformed educational model as developed, designed, and implemented also had additional rippling effects regarding the way the educational community thinks about delivering education. The Biology Chair/SMST Dean/Provost shared that the partnership "changed the way people think about what's doable now, and so they're talking about nursing [programs] and thinking about a bunch of other things." The technologies developed as a result of the UNC-Chapel Hill/ECSU PharmD Partnership program formation change the way instruction is delivered and allows for interactions not previously available.

Addressing the pharmacist shortage through the UNC-Chapel Hill/ECSU PharmD Partnership Program was supposed to have begun in the fall of 2003. The ECSU Biology Chair/SMST Dean/Provost stated that his "real charge from the Board of Trustees was to get a program and have student's butts in those seats by 2003." There were many issues that delayed that start date and so August 2005 was eventually achievable. Many of those issues mentioned in the interviews and already discussed throughout this case study included getting the ECSU building in place and both campuses' business and registrar offices' computer systems to work together. Additionally, some of the delay was due to the fact that the Dean at UNC-Chapel Hill had changed in the summer of 2003 and the fundamentals of how instruction was to be delivered began to be discussed philosophically among the administrative leaders. Through these

discussions the original plan to have the ECSU students spend the first two years on the UNC-Chapel Hill campus was changed to having the ECSU based students spend their entire first three years of didactic instruction on the ECSU campus receiving instruction via hybrid VTC as first mentioned in the 2004 MOU.

The original budget had an upfront infusion of monies which covered the initial start-up and required technology to make the original policy plan happen. However, with the policy reform additional annual operational monies were going to be required due to the educational model change which in turn caused unexpected economic challenges. The size of the innovation grew and required additional funds, specifically annual operational funds. Something that helped to address these unexpected annual operational budget challenges was the unplanned collaboration with the Institute for Science Learning (ISL).

Partnering with ISL on design and development of the technologies to be used in the UNC-Chapel Hill/ECSU PharmD Partnership Program classrooms was somewhat unintentional and in the end saved the UNC-Chapel Hill/ECSU Partnership Program a great deal of money. In the process of investigating video telecommunications delivery options, the UNC-Chapel Hill Program Coordinator almost signed a contract with another planning group. Several interview participants said that just prior to signing the third party contract and during an informal conversation that took place after attending an unrelated meeting, the director of ISL mentioned using North Carolina Research and Education Network (NCREN). ISL had been using NCREN in another program utilizing VTC with

much success and cost savings. Using NCREN to deliver the partnership's instruction via VTC was projected to bring costs down considerably, and the relationship between UNC-Chapel Hill/ECSU PharmD Partnership Program and ISL was cemented.

The ISL representative interviewed indicated yet other unintended consequences to this relationship, "actually multiple, some good, some bad." The Institute was a third party to the relationship between Elizabeth City and UNC PharmD School. The unintended consequences for ISL resulted from the size of the project, which they had not expected to become as big as it turned out to be when first discussed in December 2004. Conversations that took place in January 2005 unveiled both the true scope and the short timeline of the joint project. Prior to this project the ISL Project Manager interviewed said they had considered themselves to be a "quasi-technology, quasi-education group," but what they discovered was "they were really good at helping others sketch out the larger vision" quickly. The timeline for getting all the technology was incredibly short, five to six months. More time would have been welcomed; however, this project, with the pressures and constraints of time, helped ISL define how their team excelled.

As discussed in the technology challenge section, the tight timeline for getting technology installed resulted in the unintended consequence of not having enough time to train faculty and staff on how to use the equipment in the VTC classrooms thoroughly prior to start-up. VTC classrooms were designed to

be user-friendly and this easy to use design made a significant difference when time became insufficient for training. However, even with user-friendly VTC classroom technology in place, a great amount of technical support was required the first semester to provide a comfort level for faculty, staff, and students in this new environment. Additionally, troubleshooting the VTC classrooms; providing just-in-time training and comfort to faculty, staff, and students; monitoring the technology and program needs; supporting weekend and evening student/program events; assisting in development of VTC/distance education policy; and keeping lines of communication open between the two campus' technology support staffs for continuity of oneness was unexpectedly labor intensive.

Summary of Intended and Unintended Consequences

The intended and unintended consequences demonstrate the interrelated nature of this process of education policy implementation and change. This study had multi-layered dynamics that not only included interactions among policy, people, places, and technology, but also the challenges associated with economics, politics, social capital, and culture described succinctly by the new Dean in the statement below.

> ….We were dealing with two different universities, two different cultures with very different histories and even though we were part of the same university system the logistics and bureaucracy of creating a degree granting program - which demanded intimate

> cooperation and collaboration between these two distinctly independent universities with their own Provost, Chancellor, Board of Trustees - these challenges were not minor. Everywhere from procurement of the equipment, the technical equipment to support this program, to the hiring of faculty and staff to the payment of fees and tuition, all of these required a very thorough and often complex analysis and often the solutions were not always as easily achieved as we would have liked.

The resulting consequences planned and perceived expose further the interrelated elements of education policy implementation (Honig, 2006) and diffusion and adoption (Rogers, 2003). These consequences along with the chronology and background of the elements leading up to the creation of the UNC-Chapel/ECSU PharmD Partnership Program, the economics, politics, social capital, and culture frameworks, the description of the program implemented, and changes that took place with the adoption and diffusion (Rogers) of technology require further consideration to discover what worked for “whom, where, when, and why” (Honig, p. 4).

Factors Affecting Implementation Process

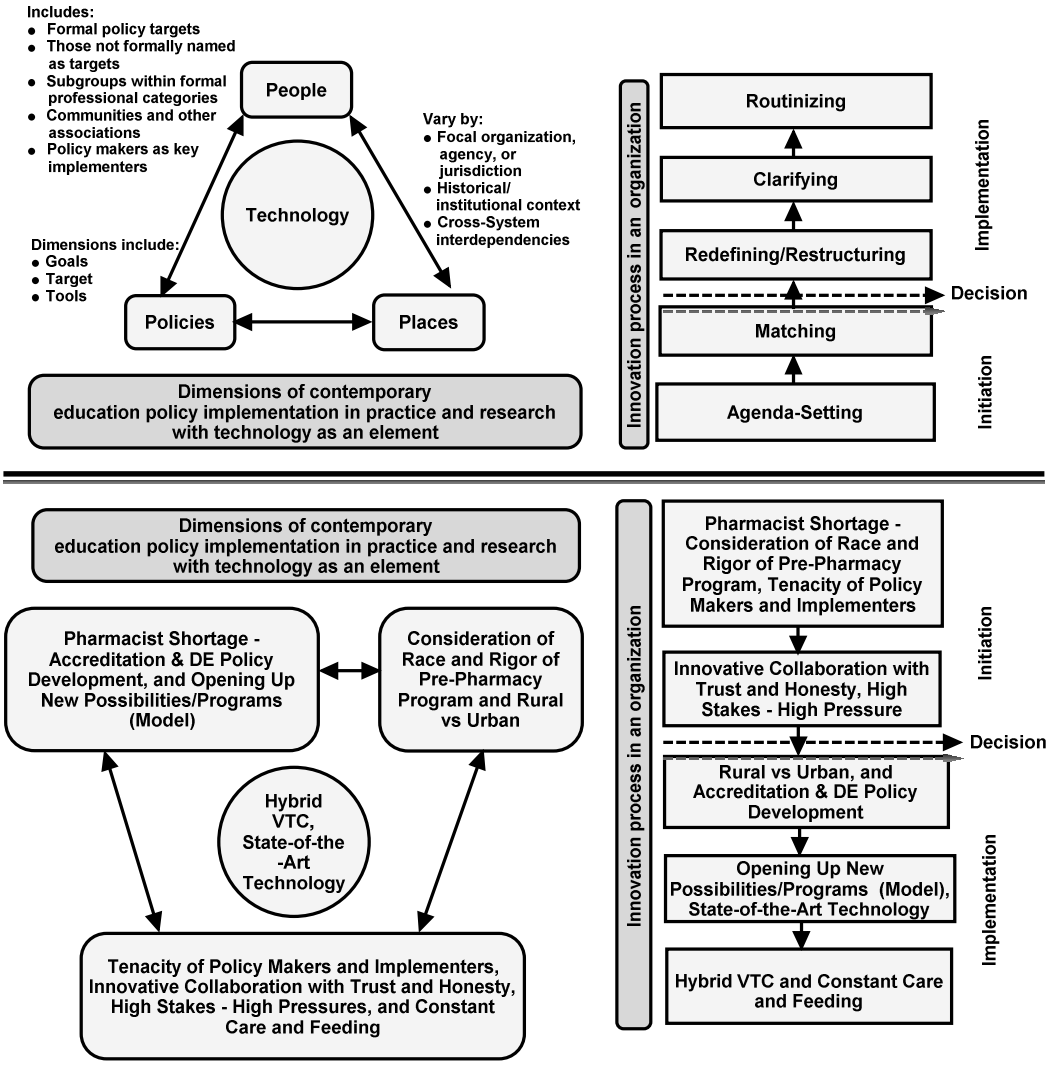
The third research question to be addressed is “How did interaction among policy, place, people and technology shape the implementation process? As previously presented in Chapter 4, numerous components and intricacies were involved in implementing and adopting this innovative education policy

using hybrid VTC. To develop a deeper understanding of the already presented chronology and those components, the theoretical framework of this case study was aligned with nine identified themes (see Figure 15). The nine themes included:

1. Consideration of Race and Rigor of Pre-pharmacy Program
2. Tenacity of Policy Makers and Implementers
3. Innovative Collaboration with Trust and Honesty
4. High Stakes – High Pressure
5. Rural vs. Urban
6. Accreditation and Distance Education (DE) Policy Development
7. Opening Up New Possibilities/Programs (Model)
8. State-of-the-Art Technology – Hybrid VTC
9. Constant Care and Feeding

The analytic goal was to mirror the nine themes to theory, deepen the comprehension of the chronology presented in Chapter 4, and identify the interactions that shaped the implementation process to answer this research question.

Comparing the nine themes that emerged in the chronology of events with explanatory theory from the case study's theoretical framework (education policy implementation and change theory) becomes the basis for causal inferences (Yin, 2003). Contemporary education policy implementation theory (Honig, 2006) focuses on how and why policy, people, and places interact to shape the success



Dimensions of contemporary education policy implementation from Honig, 2006 and innovation process in an organization from Rogers, 2003.

Figure 15. Matching themes to theory.

or failure of implementation (Honig). Technology has been added to Honig's outlined dimensions of contemporary education policy implementation because in this case study technology plays a major role in policy design, implementation, and sustaining the UNC-Chapel Hill/ECSU PharmD Partnership Program. Change theory, specifically the innovation process in an organization (Fullan, 2001; Keller, 2005; Nachmias et al., 2004; Rogers, 2003; Surry, 1997) which leads to diffusion and adoption (Rogers) includes five stages: agenda-setting, matching, redefining/restructuring, clarifying, and routinizing. All nine transpired themes were easily related to a theory's dimensions/stage without contortion indicating diffusion and adoption of this unique curricular joint venture collaboration utilizing hybrid VTC and will now be discussed for further clarification.

Surfacing Themes Related to the Theoretical Framework

The basis of the UNC-Chapel Hill/ECSU PharmD Partnership Program began with the introduction of policy (goal/target) and agenda-setting which was initiated to address the imbalance in supply and demand of pharmacists in retail, rural, and hospital settings in North Carolina by graduating more underrepresented, minority students (Fraher et al., 2002). Policy and agenda-setting made consideration of race and rigor of pre-pharmacy programs a clear theme from the start. Then the tenacity of policy makers and implementers, a second theme, led to the creation of an innovative joint venture collaboration. Even though this was a compromise to having a stand-alone school of pharmacy

at ECSU, the collaboration developed into a mutually satisfactory relationship created with trust and honesty surfacing as a third theme. Throughout the inception, development, and implementation process the administrators, faculty and staff all knew how important it was to legislative and educational state leadership to have this program succeed in addressing the policy and agenda-setting goals/targets which indicated a fourth theme of high stakes and high pressures. Once UNC-Chapel Hill/ECSU PharmD Partnership Program was agreed upon and implementation initiated, two more themes rose to the surface. Transition from rural to urban became a concern, and then accreditation requirements and distance education policy development issues needed to be addressed. In addition, the partnership program opened up new possibilities for the UNC system and was promoted to become an educational model for the state system and another developing theme realized. The infusion of state-of-the-art technology, Hybrid VTC, in the pharmacy educational environment created a new model that could be used in other areas of study and emerged as a theme as well. Finally, having a program with state-of-the-art technology involving two distinctly different sister universities 200 miles apart ascended the theme of the program requiring constant care and feeding. All nine themes will now be discussed individually.

Consideration of race and rigor of pre-pharmacy program. The trigger for the implementation of the joint venture collaboration model was a confirmed pharmacist imbalance (Fraher et al., 2002) in North Carolina. This information

fueled the efforts of a very powerful state senator who was looking for better income opportunities for the people in northeastern North Carolina, a rural and socio-economically challenged region he represented. The Sheps Study (Fraher et al.) indicated an imbalance in supply and demand of pharmacists practicing in retail, rural and hospital settings. Specific data also indicated that African-American and Hispanic/Latino pharmacists were underrepresented in the workforce (Fraher et al.). The analysis of the Sheps Study (Fraher et al.) initiated policy (Honig, 2006) and agenda-setting (Rogers, 2003) to address the pharmacist's shortage with consideration given to issues of ethnic opportunity.

Then the Feasibility Study (Riffee et al., 2002) recommended a joint cooperative program between ECSU and UNC-Chapel Hill to address the need for more minority pharmacists in northeastern North Carolina (Bataille, 2002). ECSU is a Historically Black College and University (HBCU) which would offer African-Americans from this region greater access and opportunity to earn a Doctor of Pharmacy degree (Riffee et al.). Initially there was fear from UNC-Chapel Hill SOP faculty, staff, alumni, and the NC AHEC pharmacy community that an association with ECSU could somehow dilute or hinder UNC-Chapel Hill's SOP's reputation or status. These selective perceptions are defined by existing attitudes and beliefs (Rogers, 2003) and had to be addressed before diffusion and adoption of a new educational model could proceed.

Alleviating these concerns transpired during policy inception and reform. The policy in its reformed state was effectively communicated with stakeholders

by educational leaders (champions and change agents) at both universities and at the system level. Communication stressed the agreement between the two universities to focus on the best instruction and standards and use of state-of-the-art technology to delivery the instruction via cutting edge hybrid VTC. This resulted in matching an innovation to fit the problem being address from the organization's agenda-setting (Rogers, 2003) and calmed concerns of race and rigor. The matched innovation and communication effectively won stakeholder support and revealed willingness to compromise collaborate and trust.

Tenacity of policy makers and implementers. The educational leaders and key staff members who played prominent roles as policy makers and/or implementers in the inception, development, and implementation of the unique curriculum joint venture utilizing hybrid VTC were interviewed and observed. They had one discernable key character trait, tenacity. This characteristic was discussed earlier under the subheading "people". These individuals (educational leaders) made up one of the many independent variables and were part of the social network (Honig, 2006) which linked the interpersonal networks (Rogers, 2003).

Both policy makers and implementers are consequential sets of people "who shape how a policy is designed and implemented" (Honig, 2006, p. 17). In this case study these two roles, policy maker and implementer, overlapped on many occasions where a policy maker acted as an implementer or an implementer acted as a policy maker. For example, the new Dean went from

implementer to being very involved in policy reform (agenda-setting) and technology innovation (matching) and became one of the prominent policy makers. However, whatever their circumstance or position, these key people interviewed formed a group of champion, change agents and opinion leaders (Rogers, 2003) that were involved at many levels in diagnosing, planning, designing, implementing, and evaluating outcomes (Bennis, 1997). Essentially, their diversity of rank and affiliation within the organizations decentralized the efforts which allowed for good communication and credibility to facilitate change (Rogers, 2003) and trust.

These key people each had the persistence and determination, almost stubbornness, to carry-out the directives of the collective innovation-decision (Rogers, 2003) to ensure implementation of this curriculum joint venture program. This is apparent when comparing the events on the timeline (see Figure 2) with the innovation process in an organization (Rogers) and how long it took to move from the first stage, agenda-setting, to the second stage, matching (matching a problem with an innovation). Agenda-setting stage was initiated in 2001 with the introduction of legislation and did not move on to the matching stage until the first MOU was signed in 2004. Yet these policy makers and implementers remained engaged in discussions and retained the willingness to compromise during policy reform. Pivotal was that each individual understood the importance of this program succeeding, got behind the idea/innovation-decision, and acted as champions and/or change agent by throwing their “weight” behind

the innovation to overcome existing resistance to the idea of a partnership between UNC-Chapel SOP and ECSU (Rogers).

Innovative collaboration created with trust and honesty. This dedication went a long way and was the basis for the trust and honesty which resulted in the UNC-Chapel Hill/ECSU PharmD Partnership Program. During policy inception and reform that led to an innovative joint venture collaboration utilizing hybrid VTC, trust and honesty played a significant role. As noted in the social capital section (p. 135), a willingness to discuss and compromise set the stage for collaboration and social trust. Social capital is generally thought to consist of three major components: (a) social trust; (b) channels of communication; and (c) norms, expectations and sanctions (Smylie & Evans, 2006).

Trust and honesty among and between the key people provided a necessary ingredient to navigate the five stages of the innovation process in an organization (Rogers, 2003). As reported in the chronology presented earlier in this chapter, the Feasibility Study (Riffee et al., 2002) and the discussions that ensued after led to curricular joint venture collaboration rather than the stand-alone SOP at ECSU that was initially suggested. Additionally, the philosophical discussions the new Dean mentioned in his interview highlighted that without the sense of trust and honesty, it would be impossible for an organization to commit resources, time and effort. Therefore, social capital “strong enough to support change” (Smylie & Evans) was noted during several of the interviews and

observed by the researcher to be present throughout the inception, development and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program.

High stakes – high pressures. Economic, political, social capital, and cultural needs of stakeholders need to concur with educational policy implementation or implementation will prove difficult (Honig, 2006). The individuals interviewed knew that the eyes of their immediate supervisor/boss, Chancellor, BOT, BOG, elected officials, professional environments, and surrounding community members were on them. Legislators, the UNC System and each university wanted to address a community need, be sure that excellence in education was pursued, make a difference in their respective communities, and ensure that students on both campuses had similar experiences. While this created a social system (Rogers, 2003) with common objectives that bound these two distinctively different universities together in a community of practice (Coburn & Stein, 2006), it also created a high pressure and high stakes work environment.

The Biology Chair/SMST Dean/Provost at ECSU mentioned that he had never been under so much pressure in his life, and the new Dean of the UNC-Chapel SOP noted that there was no graceful way at failing. These sentiments were especially prevalent during the matching stage when policy makers and implementers were trying to plan and anticipate the benefits and/or problems that might occur during implementation (Rogers, 2003). In the end the policy was reformed to better match the goals of the Feasibility Study (Riffee et al., 2002)

which was stimulated by the economic, political, social capital, and cultural needs of stakeholders looking on and anticipating positive results.

Additionally, anxiety ran high from the many unintended consequences such as policy reform and the tight timeline for getting technology installed resulting in a lack of time to train faculty and staff. The stress was evident as documented in this case study; however, honest communication among and between policy makers and implementers was also reported which contributed to creation of a social system/network characterized by trust and a willingness to collaborate and adapt to change.

Transition from rural to urban. As reported in Chapter 4, direct honesty about the differences between the universities existed. This included the discussion and arrangements for having students who had attended ECSU as an undergraduate attend a Science Enrichment Program (SEP) prior to their PY1 year (first professional year of study). With the initial program design (2 years pre-pharmacy at ECSU, 2 years at UNC-Chapel Hill, 1 year at ECSU, and the final year PEP), the thought process was that having ECSU students attend SEP at UNC-Chapel Hill would help them adjust from rural to urban living environments and to the rigorous academics of the UNC-Chapel Hill Pharmacy School program. After policy reform which would keep students at ECSU for their entire pharmacy program until PEP, SEP was still recommended for the differences in the perceived level of rigor in academics between the two universities. This is a good example of stage three, redefining/restructuring, in

the innovation process in an organization. During redefining/restructuring both the innovation or education policy and the organization are expected to change to accommodate the innovation (Rogers, 2003). In this case the educational policy changes and the organization, specifically the undergraduate degree program at ECSU, must change to become more rigorous in support of student success.

Matching and redefining/restructuring was initiated in 2003 when the incoming UNC-Chapel SOP Dean questioned philosophically whether or not the original program model was constructed to address the true intent of the mandate. The Sheps Study (Fraher et al., 2002) and Feasibility Study (Riffee et al., 2002) pointed out that a graduate is more likely to stay and practice in the local community where they went to school; therefore, moving students to UNC-Chapel Hill from their rural environment would most likely not help to address the imbalance of pharmacists in rural areas and the need for minority pharmacists in those areas. The new Dean's questions led to many debates about the partnership, the technology, and the many facets of planning a program to be delivered at a distance. During these discussions, communication played a role and led to a willingness to compromise, trust, collaborate and adopt the original education policy to address the concerns raised in the philosophical conversation.

Accreditation requirements and distance education policy development. These philosophical conversations also led to substantive changes in the SOP

program. Substantive changes had to be communicated to the accreditation bodies. UNC-Chapel Hill and ECSU fall under the jurisdiction of the Southern Association of Colleges and Schools (SACS) and the UNC-Chapel Hill SOP is also accredited by the Accreditation Council for Pharmacy Education (ACPE). Through the accreditation process, redefining/restructuring (Rogers, 2003) took place. For example, the curriculum renaissance which is part of the SOP's Strategic Plan (UNC-Chapel Hill, 2006c), the concern for student equality issues, and establishing the feeling of "oneness" which led to the development of distance education policies (i.e. Breeze Policy) were both noted in the ACPE reporting process.

Creating both administrative policies and policies for distance education purposes was again a clear indication that the organization was moving through an innovation process. The innovation was being adjusted to accommodate the UNC-Chapel Hill/ECSU PharmD Partnership Program and was another indication of redefining/restructuring stage. The creation and revision of policies and procedures moved the implementation process onto the fourth stage of clarifying (Rogers, 2003). The ad hoc VTC group (policy makers as key implementers (Honig, 2006)) responsible for policy and procedure creation and revision was also reported to have members willing to communicate, collaborate, and adapt to prescribed and necessary changes.

Opening up new possibilities/programs (model). The UNC-Chapel Hill/ECSU PharmD Partnership program was developed as an effective model for

operating satellite professional-degree programs within the UNC system. This premise surfaced during the interviews and was documented in the Final Report of the Task Forces. The educational leaders involved as policy makers and key implementers collaborated with this knowledge, communicated it to others, and knew throughout the process that the original program model had the potential to quickly become state education policy. This was the inspiration for this case study. Once this program is expanded with another partnership or adopted in another professional program within the UNC system, routinizing (Rogers, 2003) and sustainability will be fully achieved. Clarifying the fourth stage in the innovation in an organization (Rogers), nonetheless, has occurred and a more widespread use of hybrid VTC is happening within the university system and with NC AHEC partners. Hybrid VTC that is used in the classroom instruction is now the mainstay for school/department meetings and continuing education programs offered to the pharmacy community.

State-of-the-art technology - hybrid VTC. The impressive state-of-the-art technology utilized in the UNC-Chapel Hill/ECSU PharmD Partnership Program for the delivery of instruction has been described and considered along with the collaborative joint venture at the innovations involved in this case study. Technology actually became the selling point to recruit buy-in from stakeholders still not too keen on the collaborative joint venture between UNC-Chapel Hill SOP and ECSU. Implementation of the technology was central to the implementation of educational policy.

With that in mind, faculty and staff diffusion and adoption of the hybrid VTC could have been jeopardized by the unintended consequence of having not enough time to train them due to a tight technology design and installation timeframe. However, what made the difference at both campuses was the huge allowance of “just-in-time” training by the technology staffs. Again, having the right people in the right place was effective. The technical staff was able to become a safety net that created the trust and provided the encouragement for faculty and staff using the hybrid VTC to adapt to change.

Requiring constant care and feeding. Smylie and Evans (2006) stated that while “policy can provide external support, most observers agree that social capital must be cultivated and nurtured from within the organization” (p. 206). This happened during the course of varied interactions between policy, people, place, and technology. Constant care and feeding was the term used by the Chair of Biology/SMST Dean/Provost and refers to the elements that need to be “feed” or nurtured to sustain and rountinize the UNC-Chapel Hill/ECSU PharmD Partnership Program. This means a constant effort to promote continued communication, compromise, trust, collaboration, and a willingness to adapt to change.

Answer to Overriding Research Question

The answer to the overriding research question and why implementation occurred as it did is linked to three prevailing factors: (a) there was a willingness to compromise and create an atmosphere of collaboration, (b) the formation of a

great group (Bennis, 1997), and (c) a willingness to trust and be honest. These three factors were instrumental and influenced how the UNC-Chapel Hill/ECSU PharmD Partnership Program was developed, designed, and implemented. A Causal Network (Miles & Huberman, 1994) representation depicted in Figure 16 shows the variables and relationships linking legislators, educational administrators, action, and education policy development, design, and implementation as they relate to these three factors.

During the chronology of events there was one interaction that had a significant impact early on in this process of education policy implementation. That was when the SOP Dean, who was first involved in the development and original policy design of the pharmacy partnership program, displayed a willingness to communicate with others in the UNC University System by writing letters to East Carolina University and ECSU, both interested in creating a SOP on their campus which began an atmosphere of collaboration (UNC-Chapel Hill SOP Alumni Association, 2006). This set the tone for what followed later.

Additionally, having a “Great Group” (Bennis, 1997) to handle the many problems and challenges listed above demonstrates strategic effective leadership. The individuals interviewed along with other involved faculty and staff members the researcher observed, formed a “group” which was responsible for education policy implementation and possessed the ten principles common to great groups (Bennis, 1997). A comparison to each principle can be easily achieved as shown in Table 10 and behavior observed in this study validates

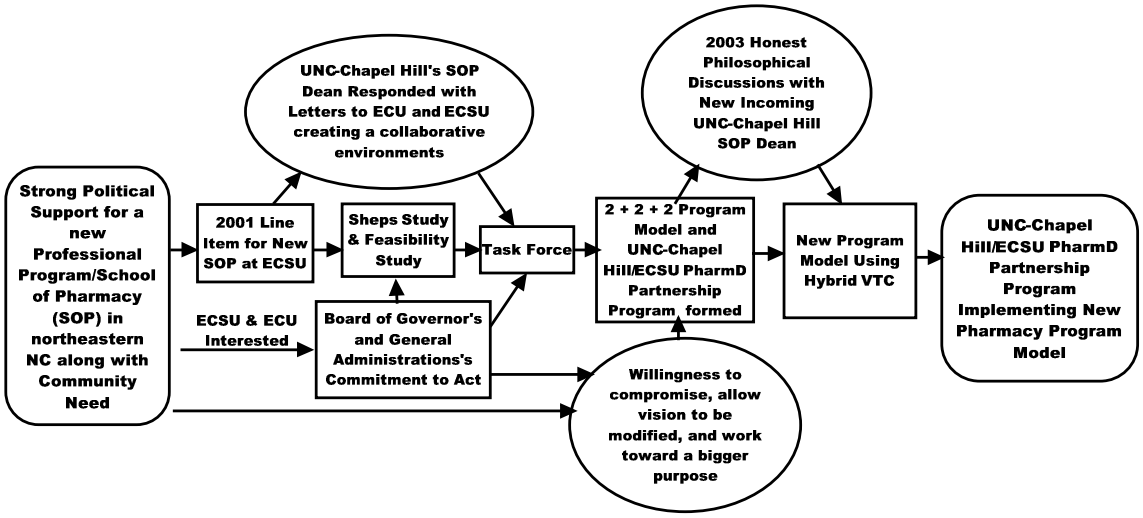


Figure 16. Causal Network: The variables and relationships linking administrator, action, and education policy development, design, and implementation.

Table 10

Principles Common to Great Groups Comparison

Principle Common to Great Groups (Bennis, 1997)	Comparison to UNC-Chapel Hill/ECSU PharmD Partnership Program Implementation "Group"
1. A shared dream	A new educational program model
2. Mange conflict by abandoning individual egos to the pursuit of the dream	Willingness to compromise and revise the original vision of a stand alone pharmacy school
3. Members are protected from the "suits" (overseers) by the leaders	A lot of the politics stayed at the top
4. They have a real or invented enemy	The pharmacist shortage
5. View themselves as winning underdogs	Creating a dual enrollment pharmacy education program with the entire curriculum delivered via hybrid VTC had never been done before
6. Members pay a personal price	Hours were long, timeframe was short, and some conversations very stressful
7. Make strong leaders	Paradox of group leadership as the group itself gained momentum
8. Product of meticulous recruiting	Some of the faculty and staff were hand picked
9. Usual young	Group members were all ages
10. Real artists ship	Must produce a tangible outcome, a successful partnership program

these principles. A challenging common purpose and people focused on attaining a common goal through compromise were key ingredients to this great group's efforts and achievements. The analogy used by Bolman and Deal (2003) that battle plans reflect the group's best ideas (p. 94) is true of the implementation plans developed and implemented for this unique joint venture collaboration.

Finally, a willingness to trust and be honest surfaced as the final significant factor as to what worked. The "honest discussions" about the philosophy behind the mandate of the legislature that took place upon the new Dean's arrival demonstrates that this great group embodied two of the three main components of social capital that are: (1) social trust and (2) channels of communication (Smylie & Evans, 2006) and were significant in acquiring and keeping stakeholder's support for policy implementation (Honig, 2006).

Efficacy

Although, sometimes still described as controlled chaos, the UNC-Chapel Hill/ECSU PharmD Partnership Program has been implemented as planned and shows many signs of efficacy for the universities and the North Carolina community. According to a Public Broadcasting Service (PBS) (2008) Nightly Business Report, 15 new pharmacy schools around the country are expected to begin enrollment by 2010 and existing schools are expanding their size to address the pharmacist shortage which is expected to last for a least another decade or more. The UNC-Chapel Hill/ECSU PharmD Partnership Program produced thirteen additional pharmacy graduates May 10, 2009, a year before

enrollment even begins for other new pharmacy school programs that decided to go with a bricks and mortar plan. Ten to fifteen more students are expected to follow each May from 2010-2012. The UNC-Chapel Hill/ECSU PharmD Partnership Program has the potential to collaboratively be responsible for graduating 40-60 new pharmacists before any of the new pharmacy schools graduate their first class of students.

Summary of Results

The results reported in Chapter 4 included background information on what elicited and then led to the formation of a new model for pharmacy education using distance learning. An in-depth discussion followed on the many interactions and frameworks that shaped education policy implementation and change. These discussions focused on policy, people, places, and technology interactions, and the economic, political, social network, and culture perspectives or frameworks. A description of the implemented program followed and drew out the many challenges of implementation and consequences that resulted to addressed the first two research questions. A chronology approach (Yin, 2003) was used to compare the identified themes to the theoretical framework to answer the third research question. Then finally an accounting of the overall program extent and efficacy was presented to address the overriding research question and explain how UNC-Chapel Hill and ECSU worked together to create and implement the UNC-Chapel Hill/ECSU PharmD Partnership Program. Chapter 5 now follows with discussion, conclusions, and recommendations.

CHAPTER 5: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Higher education administrators are utilizing innovative technology to address demands to increase the student population and help cultivate a student population more representative of the general public (Knipe & Lee, 2002). University of North Carolina (UNC) system administrators were faced recently with a similar demand to address the pharmacist shortage/imbalance in North Carolina; they responded by creating a unique joint venture, the UNC-Chapel Hill/Elizabeth City State University (ECSU) Doctor of Pharmacy (PharmD) Partnership Program. This case study describes the inception, development, and implementation of this original program model and examines how the partnership not only addressed community and educational demands but also created a unique program model. In this case study, education policy implementation was viewed heuristically through the lens of change theory, diffusion and adoption (Rogers, 2003). Analysis led to creation of a causal inference (Yin, 2003) of how and why interactions among multiple policy actors, levels, and elements occurred as they did (Gornitzka et al., 2007). Findings from this study provide useful information to other higher education administrators interested in adopting such an approach.

Introduction

The UNC-Chapel Hill/ECSU PharmD Partnership Program was developed as a video teleconferencing (VTC) distance education model for creating other joint venture collaborative professional degree programs in the UNC system.

Therefore, this case study focused on the inception, development, and implementation of the partnership program and began to fill collectively the gaps in VTC distance education, education policy implementation, and diffusion of innovation research. Little research has been executed that focuses on programs delivered entirely utilizing hybrid VTC technologies, the roles and operations of a collaborative that crosses institutional lines (Honig, 2006), or on the consequences of innovation (Rogers, 2003). The purpose of this case study was to describe and investigate the UNC-Chapel Hill/ECSU PharmD Partnership Program, contribute to the emerging research base, and consider the value of this new program model.

Design

This intrinsic case study was conducted by following an original conceptual model and a pre-structured case outline aligned with the conceptual framework (see Figure 17). The study made connections between elements that drive education policy implementation (Dumas & Anyon, 2006; Honig, 2006) while considering influence of diffusion and adoption factors (Rogers, 2003). This intrinsic case study is bounded by time, location, event, and process (Creswell, 2003, 2007; Yin, 2003). The study extended from the realization of state and community needs in 2002 through creation and implementation of the new program and ended with conclusion of the first year of instruction in the spring of 2006. Data were collected and analyzed from multiple sources to provide a

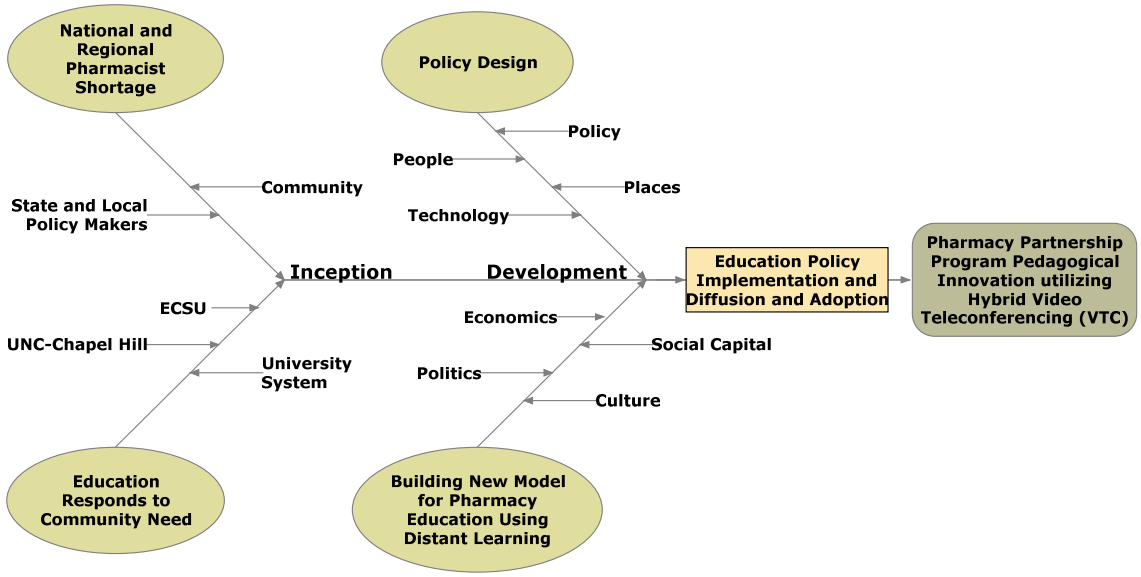


Figure 17. Conceptual framework – diffusion of innovation.

holistic analysis of the entire case (Creswell, 2003, 2007; Merriam, 1998; Yin, 2003) and answer the overriding research question: How did UNC-Chapel Hill and ECSU work together to create and implement the UNC-Chapel Hill/ECSU PharmD Partnership Program? Three additional and more specific research questions were addressed that focused on: (a) consequences of change (Rogers), (b) the three dimensions of education policy implementation: policy, people, and places which are contingent upon one another (Honig, 2006), and (c) the technology infused to facilitate instruction.

1. What were the intended consequences from implementation of this new program model?
2. What were the unintended consequences from implementation of this new program model?
3. How did interaction among policy, place, people, and technology shape the implementation process?

This study concentrated on the relationships among these components and focused on the complexities of factors involved with inception, development, and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program. Using a triangulation of multiple data sources for validity (Creswell, 2003, 2007; Merriam, 1998; Patton, 2002; Yin, 2003), data were collected from interviews, existing documents, archival records and materials, observations, and participant-observations.

Analysis of Factors Involved in the Implementation

Three levels of analysis were applied to the data. The first level provided a chronological organization that documented events uncovered by the case. The processes of interactions from the second level of analysis are reported in the chronology. The second level of analysis focused on the interactions of participants, state and local policy makers, educational leaders in the university system, faculty, staff, students, and the partner universities examining the complexities involved in inception, development, and implementation of education policy implementation. Finally, the third level of analysis identified themes and evaluated the extent and efficacy of this unique joint venture collaboration concentrating on how the program model was realized. The findings were related through rich description and a chronology approach (Yin, 2003) was applied to compare the chronology with education policy implementation (Honig, 2006) and diffusion and adoption (Rogers, 2003) theory.

First Level of Analysis – Chronology of Events

During the first level of analysis, data were examined regarding the four main elements of the conceptual framework: (1) national and regional pharmacist shortage, (2) educational response to community needs, (3) policy design, and (4) building a new model for pharmacy education using distance learning. The examination provided an overview of events associated with education policy origination and included descriptions of participants' roles and interactions.

Shortage of pharmacists. The first of the four main elements, the national and regional pharmacist shortage, included the legislative response to this community need as well. The examination revealed an imbalance of pharmacists in rural, retail, and hospital settings and a lack of ethnic diversity, specifically African-American and Hispanic/Latino pharmacists (Fraher et al., 2002, p. 91). ECSU was chosen to be involved in addressing the imbalance mainly because ECSU is located in rural northeastern North Carolina, is a Historically Black College and University (HBCU) and had the support of a powerful state senator and state legislator with a shared vision for funding this collaboration.

Educational response to the shortage. The second of the four main elements, educational response to this community need, was fueled by the recommendations of two studies, a study of the supply of and demand for pharmacists (Fraher et al., 2002) and a study of the feasibility of a new pharmacy program in the state (Riffee et al., 2002). Both studies were mandated by the UNC Board of Governors (BOG) and the Office of the President, and the studies influenced the educational response to address the North Carolina's pharmacy manpower shortage.

The first study, the Sheps Study (Fraher et al., 2002), focused on the availability of pharmacists in North Carolina and verified that there was indeed an imbalance in supply and demand for pharmacists practicing in retail, rural and hospital settings in North Carolina. An underrepresentation of African-American and Hispanic/Latino pharmacists was also acknowledged (Fraher et al., p. 91).

The proposed strategy to address the identified imbalance included establishing a new pharmacy program and recruiting adequately trained students from under-represented minority groups. The study also noted that graduates are more likely to stay and practice in the local communities where they went to school.

The Feasibility Study (Riffee et al., 2002) examined the possibilities of establishing a school of pharmacy at ECSU. The study was conducted as a result of North Carolina legislation introduced on behalf of and supported by a powerful state senator from northeastern North Carolina. The Feasibility Study (Riffee et al.) took into consideration physical facilities and resources and proposed three options to best address the imbalance identified in the Sheps Study (Fraher et al., 2002). Those options included establishing: (a) a stand-alone school of pharmacy at ECSU, (b) a joint pharmacy school program involving ECSU and East Carolina University (ECU), or (c) a cooperative program with UNC-Chapel Hill.

Both studies were reviewed concurrently by the North Carolina General Assembly (Fraher et al., 2002), the UNC BOGs, and the UNC system administrators. An Educational Planning, Policies, and Programs Committee was formed at the request of the UNC General Administration to investigate the Feasibility Study's suggested options while taking into account the Sheps Study results. The committee recommended the third option, a cooperative program between ECSU and UNC-Chapel Hill to the UNC BOG. UNC-Chapel Hill and ECSU, both constituent universities in the UNC system, then worked together to

create a unique curricular joint venture and collaboration that would increase the number of pharmacy graduates each year, respond to the recognized pharmacist imbalance/shortage, and result in a student population more representative of the general population. Their long-term goal was also to create an educational program model that could be utilized to address similar needs in other areas of study.

Policy design. The third main element, policy design, focused on how policy, people, places, and technology factored into and influenced policy design/reform and implementation. The numerous, complex, and interactive aspects of education policy implementation in practice confirmed that decision makers were implementers, and implementers were decision makers (Honig, 2006). Findings from this case study illustrate that the people involved with policy design, reform, and implementation operated with tenacity and a drive for excellence that both universities mandated. Honest and regular, if not daily, communication was reported and observed to greatly assist the implementation process. Diffusion and adoption of the technology infused to facilitate instruction between the two universities was initially affected by time constraints that delayed technology installation. However, due to a strong support staff at both locations delivering just-in-time training and the user-friendly design of the technology, the technology eventually worked well and became substantially invisible. The state-of-art technology proved to be a decisive factor in obtaining

full stakeholder support for the UNC-Chapel Hill/ECSU PharmD Partnership Program implementation as well.

Building a new model for pharmacy education. The fourth main element, building a new model for pharmacy education using distance learning, considered resource constraints/availability, pervasive political forces, personal preferences, social interactions, and cultural climates and philosophy (Honig, 2006). Using a multi-frame approach, this case study uncovered powerful political support, high volume of communication and trust between the stakeholders, and a focus on mutually shared culture rather than differences; all were driven strongly by economics and socio-economics. The culture was made to fit the practice and the practice was reformed to fit the culture and original intent of the mandated collaborative effort; these findings confirm that participants adopted program/policy and technologies (Rogers, 2003).

Second Level of Analysis - Interactions

Adaptation was also apparent in the second level of analysis which focused on the process of interactions, program implementation and the academic and administrative changes that occurred as a result of implementation. The investigated interactions are part of the second level of analysis and supplied additional content for the chronology of reported events and interpersonal information necessary for a deeper understanding of the UNC-Chapel/ECUS PharmD Partnership Program. The second level also focused on

accreditation and administrative program constraints that had to be worked out prior to any student enrolling and being placed on the ECSU campus.

The UNC-Chapel Hill/ECSU PharmD Partnership Program was a substantive change to the UNC-Chapel Hill School of Pharmacy (SOP) (now known as the UNC Eshelman School of Pharmacy) program; such change required review from the school's accrediting bodies. Acquiring approval for substantive changes of the joint venture with ECSU began early with Accreditation Council for Pharmacy Education (ACPE) affirmation in 2004 with the request to submit full reporting of the impact of the planned expansion addressing each accreditation standard (Wadelin, 2004) by April 15, 2005. ACPE conducted on-site visits and eventually made recommendations, including the requirement to achieve "oneness." Oneness refers to the student's experience which should be identical for both locations. This includes the same access to student services, providing similar levels of empathy, and ensuring equality for all students.

The pharmacy partnership was established as a joint venture collaborative program, not a satellite program. Therefore, processes were developed for dual enrollment of students, and access to student support services, libraries, and housing was assured. The students had to be recognized as full time legitimate students on both campuses. This had not been done before in the UNC System, so there was no model to follow. The end result, as explained by UNC-Chapel Hill's Program Coordinator, was that ECSU students "do not pay tuition and fees

at Elizabeth City, just fees." Payment of fees is required so there is a process and fiscal structure that activated a student's status as a legitimate student on the ECSU campus in addition to being enrolled at UNC-Chapel Hill. The entire registration system is driven by economic constraints and in and of itself had an influence on the implementation process and needed to adapt to the new pharmacy partnership program.

After the program started on time in the fall 2005 semester, many distance education issues arose that were addressed by the creation of distance education policy. Additionally, after observing the lack of interaction taking place in the VTC distance learning classroom environment, a curriculum "renaissance" was incorporated into the SOP's Strategic Plan (UNC-Chapel Hill, 2006c). This new educational program policy, that shifts the educational process from teacher-centered to student-centered, is currently underway. The creation of new policies and procedures indicates that the UNC-Chapel Hill/ECSU PharmD Partnership program was adapting to the unique hybrid VTC learning environment through policy and procedure development. The development of policies and procedures indicates that the partnership program was moving from the initiation stage of the innovation process to the implementation stage, resulting in routinizing of the innovation (Rogers, 2003).

Third Level of Analysis – Identified Themes and Efficacy

Taking into consideration all the interactions and frameworks described and examined in the first two levels of analysis, the third level focused on

answering the research questions. First, the consequences both planned and unplanned were identified to answer the first two research questions. Further examination of the data exposed what worked for "whom, where, when, and why" (Honig, 2006, p. 4). Nine themes surfaced that were directly aligned with contemporary education policy implementation theory (Honig) and Rogers' (2003) five stages in the innovation process in organizations from diffusion and adoption theory. These nine themes addressed the third research question. Then finally, the overriding research question of why implementation occurred as it did was linked to three prevailing factors resulting in a causal theory. The answers to the research questions demonstrated the relationship between education policy implementation (Honig) and diffusion and adoption (Rogers).

Intended consequences. The relationship was demonstrated in the changes that occurred to the original main intended consequence which was to establish a fully accredited, free-standing school of pharmacy at ECSU. This intended consequence was revised when the Feasibility Study (Riffee et al., 2002) recommended a cooperative program between ECSU and UNC-Chapel Hill. Then, revised further when the Pharmacy Task Force (Campbell et al., n.d.) prescribed students complete their pre-pharmacy at ECSU, first two years of their professional program at UNC-Chapel, third year at ECSU receiving instruction via VTC from Chapel Hill, and their final year out in the field completing their professional experience program (PEP). The revised intended consequence was then later reformed and finally agreed upon as a joint venture collaborative with

students assigned to the ECSU campus receiving all three years of the professional program at ECSU via VTC and then out in the field completing their PEP. The final program design resulted when decision makers returned to the original premise that graduating students are more likely to stay and practice in the local community where they went to school.

The goals from the final 2005 Memorandum of Understanding (MOU) (UNC-Chapel Hill SOP & ECSU 2005) provided the evidence of the remaining intended consequences: (a) responding to the North Carolina pharmacy manpower shortage; (b) promoting and increasing the number of pharmacists representing minority and underserved populations; (c) stimulating economic development in northeastern North Carolina; (d) optimally utilizing existing North Carolina resources; (e) stimulating campus development and degree-granting opportunities at ECSU; (f) providing ECSU with the experience of developing and assessing a professional degree program to facilitate future programs; (g) providing UNC-Chapel Hill SOP with opportunities to develop collaborative educational processes and exposure to distance education technologies and pedagogical practices to facilitate future educational program development, and (h) developing an effective model for operating other professional degree programs in the UNC system.

The goal of increasing the number of doctor of pharmacy graduates more representative of the general population has not yet been fully realized. The increase in the number of doctor of pharmacy graduates began with thirteen

ECSU- based students graduating in the class of 2009. Currently, the MOU restricts class size to 10-15, but that number should increase to as many as 60 students as the recruitment efforts increase and the new ECSU pharmacy building is completed in the spring of 2010. The graduating class of 2009 included two African-American students and two students classified as “other” minorities, all four from North Carolina, resulting in a small increase in the number of pharmacists practicing in North Carolina representing minority and underserved populations. Four of the 13 graduating students are expected to stay in and serve the rural northeastern North Carolina area.

Unintended consequences. The unintended consequences were more diverse, although just as interrelated. Some of these unintended effects were results of the intended consequences and not shared by all stakeholders. First, there was the unexpected opposition to a stand-alone school of pharmacy at ECSU. This resulted in an unintended compromise that was more acceptable to those around the state, yet still accomplished much of what the originating senator had hoped to achieve, which was a professional program located on the campus of ECSU in northeastern North Carolina. Then there was the opposition to the compromise and creation of the unique joint venture collaboration between UNC-Chapel Hill and ECSU. “Some” believed that an association with ECSU might hinder UNC-Chapel Hill’s SOP’s reputation. The two schools are different with UNC-Chapel Hill being the urban flagship school of the UNC system and ECSU being a much smaller rural HBCU within the system. In spite of size and

cultural differences, however, both schools chose to capitalize on their strengths and work together for a larger community need. Opposition to the joint venture was later countered by the policy reform incited by the new UNC-Chapel Hill SOP Dean's arrival at and included utilizing a hybrid VTC classroom environment to deliver instruction. The promise by both institutions to use state-of-the-art technologies along with sound pedagogical instruction finally resulted in full support for the partnership program. The hybrid VTC classroom technology itself was also reported to have changed the way educators and the community think about what is possible utilizing VTC. Additional new programs are now being discussed with plans to deliver instruction using a hybrid VTC classroom environment.

Planning for this education policy implementation began in 2002. Many unexpected and unintended issues delayed the start date until fall 2005. The metamorphosis in the policy design has been discussed. There was also the unanticipated and beneficial partnering with Institute for Science Learning (ISL) on the design and development of the technologies. ISL had previous experience with video teleconferencing among the UNC system universities. Their use of North Carolina Research and Education Network (NCREN) led to major cost savings in network fees for the universities. ISL was surprised by the size of the project and the short timeline they were given to complete the project design and installation. This eventually led to yet another unintended consequence of not having enough time prior to the start of school to fully train faculty and staff on

how to use the new VTC technologies. That lack of training was not ideal for the diffusion and adoption process to take place (Rogers, 2003). However, just-in-time support provided by the support staff overcame potential negative effects of this last unintended consequence.

Nine surfacing themes. The factors that affected the consequences and implementation process surfaced as nine themes. Using a chronology approach (Yin, 2003), analysis revealed surprisingly that the themes directly aligned with contemporary education policy implementation (Honig, 2006) and the innovation process that an organization follows due to the introduction of the new technologies (Rogers, 2003). These themes became the basis for causal inference (Yin, 2003) in this case study: (a) consideration of race and rigor of pre-pharmacy programs; (b) tenacity of policy makers and implementers; (c) innovative collaboration created with trust and honesty; (d) high stakes project with high political, economic, social network and culture pressures; (e) rural to urban issues; (f) accreditation requirements and distance education policy development; (g) a model for opening up new possibilities/programs; (h) utilization of state-of-the-art technology – hybrid VTC; and (i) the program requires constant care and feeding.

Prevailing factors. Careful review of these nine themes and the substantial accompanying data suggest that three prevailing factors provide the answer to the overriding research question of why the UNC-Chapel Hill/ECSU PharmD Partnership Program implementation occurred as it did. The factors were: (a) a

willingness to compromise and create an atmosphere of collaboration, (b) the formation of a great group (Bennis, 1997), and (c) a willingness to trust and be honest. First, a willingness to compromise and create an atmosphere of collaboration was shared among policy makers, policy implementers, and stakeholders. Second, a great group (Bennis, 1997) existed; composed of a coalition of change agents and opinion leaders who had a state senator as their champion (Rogers, 2003), and that had the ability to effectively communicate their ideas. Finally, there was a willingness to trust and honestly confront emerging problems with each other and stakeholders. Significantly, these prevailing factors stayed constant even when some change agents or stakeholders left or took on new roles/position in their organization. These three factors provided the foundation to face the many challenges of implementation and assist when addressing the controlled and uncontrolled consequences that result from implementation.

Discussion

The UNC-Chapel Hill/ECSU PharmD Partnership Program was expected to address workforce demands by increasing the number of pharmacists representing minority and underserved populations in North Carolina, stimulate economic growth in the northeastern part of the state, and develop an effective model for operating satellite professional-degree programs within the UNC system. This ambitious expectation continues to be a challenging directive. Although participants did not follow a prescribed model, their collaboration from

all accounts has been amazingly successful. Evidence shows that the tenacity of the champions and change agents (Rogers, 2003), their willingness to compromise, and the trust and honest communication among and between the implementation group members were key to the successful inception, development, and implementation,

In the beginning, a lack of coordination between the installation of the technology and faculty/staff training could have jeopardized early implementation efforts. However, the technology was user-friendly, worked well, and had adequate support. Overall, participants perceived that technology successfully linked the smallest school in the system with the biggest school. The hybrid VTC provided students with the next best thing to being physically present in the host classroom and provided them with instant feedback and interactions with instructors and students whether in Chapel Hill or Elizabeth City. Much more technical and instructional support has been provided than was initially thought to be needed to maintain this partnership program. Challenges like these and their solutions yielded the lessons learned from this case study.

Contemporary education policy implementation research necessitates a focus on lessons learned and concentrates on “what gets implemented and what works” (Honig, 2006, p. 1). The problems faced in the development, design, and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program included many of the intended and untended consequences as well as problems associated with logistics. Many of these problems, presented previously in this

case study, can be categorized as problems involving vision, resources and support, and logistics. Problems of vision encompassed addressing the pharmacist shortage/imbalance, coming to consensus on an education model that would continue to deliver a high level of pharmacy education, and learning about/finding the right technologies that would support instruction in this educational model. Obtaining the necessary resources and support involved creating a climate of cooperation both political as well social to avoid competition for state funding and support university growth. This meant securing annual operational monies, acquiring temporary and permanent space for the new program at the remote campus, outfitting both sites with technology in a short amount of time, providing labor intensive monitoring of technology and program needs to produce the necessary policies for training, control, continuity of oneness, and improved instruction (educational renaissance). Additionally, creating and keeping lines of communication open for feedback, “care and feeding” of the partnership program, and to encourage empathy on both campuses for the other was indispensable. Problems of logistics entailed sorting out all the mechanics of getting students dual enrolled, executing initiatives to enhance and grow the student population at the remote site and getting the significant program changes approved by the accreditation agency. It is important to know that each of these problems is complex, and they have continued to be addressed by the UNC-Chapel Hill/ECSU PharmD Partnership Program.

Problems continued to arise and some remained unsolved at the completion of this study. These auxiliary problems are related to the needs of professional graduate students. As the UNC-Chapel Hill Program Coordinator explained:

> … things like housing, access to health care, access to jobs for spouses. Those are, I think, going to turn out to be much more significant limitations than we've ever imagined and I'm not sure how we're going to deal with those because they're not within our control.

Professional students are older students, some married, and some married with families. They are not the "typical" undergraduate students who are comfortable living in a dorm room. ECSU does have suite-styled apartments that some of the younger students have chosen. However, other students have searched for local housing to accommodate families, pets, and/or life style. ECSU is located in an economically challenged region, and while providing for the professional student's additional needs may be out of the control of the universities. One lesson learned is that the broad needs of the professional student could be an issue in the recruitment and retention of these pharmacy students.

Most of the lessons learned throughout the program implementation process led to the policies, protocols, and guidelines already discussed. However, one additional lesson learned surfaced during the interview process and was related to theories of change, diffusion and adoption. The ISL Project

manager indicated that if he ever had the opportunity to work on a program implementation project again, he would take a more formalized approach to change management. He realized that having repeated conversation with many of the representatives and entrusted partners was instrumental to the success of the implementation process. Now that he knows more about theories of change, he understands the need to provide intentional leadership.

Rogers (2003) stated that an organization or institution that decides to adopt an innovation goes through an innovation process which includes: agenda-setting, matching, redefining/restructuring, clarifying, and routinizing. Interview question number 4 from Appendix A asked specifically, “Was the process of change discussed?” In all thirteen interviews this question was never answered affirmatively. This lack of response suggests that individuals interviewed were not specifically familiar with the theories/concepts of change management or diffusion and adoption (Rogers, year). While the participants where not trained in change management, they did have the knowledge that communication and multi-level support was important. Therefore, it appears that the astute policy makers and implementers applied change management techniques unknowingly relying upon their tacit knowledge and prior experiences.

Conclusions

Findings from this case indicated full implementation and efficacy of the UNC-Chapel Hill/ECSU PharmD Partnership Program. Each university’s willingness to compromise, be honest, trust, and create an atmosphere of

collaboration was and continues to be valuable to the overall effectiveness of the partnership program. Sustaining these factors is vital for continued effectiveness. Under the current MOU, the partnership program will continue to enroll 10-15 new pharmacy students each year. The MOU also states that in fiscal year 2012-2013, a data-driven decision to “continue, restructure, or discontinue the collaboration” will be made by an independent ad hoc committee appointed by the UNC Office of the President. This decision will reflect whether the program is meeting its stated goals and objectives. The following markers were also agreed upon in this MOU:

1. Development of a functional partnership between UNC-Chapel Hill and ECSU (student, faculty, and administration satisfaction measures).
2. Recruitment of an appropriate number of qualified students.
3. Progression of ECSU students to graduation with rates comparable to those of UNC-Chapel Hill students.
4. Successful national and NC Board of Pharmacy licensure of ECSU graduate with passing rates comparable to those of UNC-Chapel Hill graduates.
5. Construction of facilities and creation of Elizabeth City State University infrastructure.
6. Increased number of pharmacy graduate pursuing careers and creating jobs in northeastern North Carolina.

7. Demonstration that the partnership program produced efficiencies in state resource allocation through the optimization of faculty, staff, and infrastructure.

To date there remains the challenge of recruiting an appropriate number of qualified students. Construction of the ECSU Pharmacy building is underway; the new building will have classroom capacity of 60-65 seats. Students based at ECSU are progressing to graduation at rates comparable to students based at UNC-Chapel Hill. However, the partnership program graduated its first class in May 2009. Therefore, information is not available to address the remaining markers of success which will have a major impact on the prospects for the future of the UNC-Chapel Hill/ECSU PharmD Partnership Program.

Working with the community on student housing, access to health care, access to jobs for spouses are also issues that will have an impact on the future growth of this program. Discussions are underway with the surrounding business community to explore collaborative strategies to address housing and other needs of students in the UNC-Chapel Hill/ECSU PharmD partnership program. Currently those needs are being addressed on a case-by-case basis by faculty and staff while a more formal process is being developed as the program grows its student body to meet pharmacist workforce demands.

The primary goal of the UNC-Chapel Hill/ECSU PharmD Partnership Program was to address the demand for a larger and more diverse pharmacy workforce. There have been some improvements in the south Atlantic region as depicted in

Table 11. The Pharmacy Manpower Project (2007, 2009) reported that the shortage of pharmacists in the south Atlantic region (DE, DC, FL, GA, MD, NC, SC, VA, and WV) had improved from 2007 to 2008. However, the demand for pharmacists in North Carolina increased. Virginia and South Carolina also experienced an increased demand for pharmacists during this time period. Pharmacy Manpower Project data (2007, 2009) indicates that in 2008, North Carolina had the largest unmet need for pharmacists in the country, due partly to the high number of retirees in the state (Fraher et al., 2002).

For that reason, there continues to be a need for the partnership program. From the beginning of the partnership, there have been plans to build a permanent building on the ECSU campus in rural northeastern North Carolina to accommodate and "grow" the student population from 10-15 students in each class to a total of 60-65 students. This building is now under construction, and it is expected to provide a more supportive environment for students, faculty and staff. The increased size of the program will likely create new challenges. As the new Dean observed, "It's not easy to manage a program this far apart." So the larger student body, 200 miles away from the main campus, will likely create new contests for the partnership in the continuing effort to address the shortage of pharmacists.

One challenge will be the continuing efforts to strengthen ECSU's preparation programs. ECSU has an open enrollment policy which admirably serves students by offering them an opportunity to obtain an education with a

Table 11

Aggregate Demand Index for Pharmacist

Year	South Atlantic Region	North Carolina
2007	4.04	4.29
2008	3.87	4.50

period of remediation when needed. Preparatory course work prepares students on the expected topics, but as the UNC-Chapel Hill Program Coordinator mentioned, “the courses do not go as fast or as far as the courses at UNC-Chapel Hill.” Therefore, the strategy of creating a “home grown” student body at ECSU has proven more difficult than first thought as ECSU works to increase the pace for one group of students while not moving too quickly for other groups of students.

Recommendations

The lessons learned from this study will inform and support successful implementation outcomes for other similar joint venture collaborations. However, each new education policy implementation will have its own complexity. A different group of policy makers, policy implementers, educational leaders, faculty, staff and technology support personnel will have different interactions. However, the study findings suggest several items that can be recommended for practice and further research.

Recommendation of Practice for Educational Leaders

Education policy implementation is very dynamic and not a static process even when mandated. That knowledge along with lessons learned form this study have implications for transfer to other program models. Those lessons include:

1. A collective vision will strengthen the likelihood of coming to consensus on an education model and choosing the right user-friendly technology to support that model.
2. Be willing to share resources and support to create a climate of cooperation that will avoid competition for state funding, and support growth and improved instruction.
3. Be prepared to deal with numerous administrative logistics in order to address the mechanics of getting students' dual enrolled and addressing the needs of professional students (older students).
4. Follow a formal change management plan to improve the probability of complete adaption and diffusion of the education policy implementation and technologies being infused during role out and do not rely solely on instincts.
5. Develop best practices that include the (a) willingness to compromise and create an atmosphere of collaboration, (b) formation of a great group (Bennis, 1997), and (c) willingness to trust and be honest will be key to efficacy.
6. Concentrate on and keep in mind the practical issues of social presence, pedagogy, interactive instruction, and curriculum so that VTC technology melts into the background.

Educational leaders who try to implement similar education policy as described in this case study can consider these lessons learned as a foundation.

However, this study suggests, effective implementation is not prescriptive. Instead, desired results occur because of participants' authentic engagement in an abstract and emerging process. Instrumental to establishing and maintaining a collective vision and spirit of collaboration is the tenacity of the people involved. Policy designers and implementers will have dual function as champions and change agents. During the course of education policy implementation these individuals will change positions and some will take new positions elsewhere. Therefore, keep Principles Common to Great Groups (Bennis 1997) in mind when "hand" picking your great group. This will help keep the policy implementation momentum moving even when the players change. Group behavior was reported as active throughout this case study; they participated and supported the efforts diligently. The core persons that remain continue to work together with others as they move between their roles as policy designer, policy implementer, champion, and change agent and continue to drive and sustain this unique joint venture collaboration.

The UNC-Chapel Hill/ECSU Doctor of Pharmacy Partnership Program has responded to the demand for more pharmacists without compromising the quality of pharmaceutical education. In some respects the quality of pharmaceutical education has actually been improved. The user-friendly hybrid VTC classroom environment highlighted the fact that the didactic lecture failed to encourage or engage students in critical thinking. VTC is not a passive environment so special attention needs to be paid to the instructional delivery of the curriculum. Student

engagement is essential to minimize social presence issues. This has led educational leaders in this case study to pursue an “educational renaissance” that aims to update and clarify curricular goals and improve student learning and thinking abilities. Students need to come to class ready to deepen their understanding of the material through class discussions, case-based learning activities, or in class small group work.

The educational renaissance was an unintended consequence. Therefore, developing a collaborative strategy to address all the logistics and unintended, unwanted consequences would advantageous. This study looked at the inception, development and implementation of education policy which included the consequences of diffusion and adoption of the education policy and also the VTC technology. In the past, diffusion research stopped with analysis of the decision to adopt a new idea and made the assumption that all consequences will be positive (Rogers, 2003). In this study diffusion research was taken one step further by looking at a dimension of the consequence, intended and unintended consequences of implementing education policy utilizing hybrid VTC technology to understand more about the interdependency of the elements.

Using the lens of change theories (diffusion and adoption) (Rogers, 2003) has contributed to a better understanding of how education policy implementation took place in this case study. To maximize the potential of creating and implementing additional successful partnership programs or distance education

programs, leadership should consider implementation theories of innovation diffusion. Resistance to change can be a significant obstacle (Chung, 2003; Rogers, 2003), and resistance can occur when there is no real plan for change. The education policy which was the focus of this study was faced with such resistance (community and education resistance) that it could easily been precluded from moving forward. For example, the UNC-Chapel Hill/ECSU PharmD Partnership Program had no reported formal change management plan in place. However, despite the odds of failure, the participants in this project engaged in actions and continued robust and candid conversations that unknowingly led them through the five stages in the innovation process of an organization that resulted in effective education policy implementation. These results validate Roger's (2003) theory and suggest that intentional application of this model as applied change management techniques is highly advised.

However, even with a change management plan and driving force or directive, future innovators must be willing to think out of the box by going beyond the suggested model because further adaptation may yield an improved product, plan, or savings. In the end a stronger program or possibly use of technology more conducive to the program may result. This study reveals the importance of facing emerging problems directly and customizing plans to fit the setting and its unique issues. This study also emphasizes the importance of taking time to learn about all partners, visiting all locations, and considering potential logistical issues. Accreditation standards may also be helpful as a

guiding influence and may serve as a mechanism for checks and balances during education policy implementation. Most of all, this study demonstrates the critical need to remain flexible. Future innovators should expect to adapt, adopt, and create new administrative and distance education policy to accommodate a new program of this type.

Effectively introducing and aligning a new partnership program utilizing hybrid VTC with organizational needs is essential to compatibility and sustainability. During implementation, the partnership and/or the technology may be modified to fit the organization. In this case study, administrative and distance education policy was developed as needed to support the implementation process. An organization is successful when it reaches the stage of clarifying and routinizing the program/innovation. This means achieving widespread acceptance of the innovation, incorporating the innovation into the regular activities of the organization (Rogers, 2003), and realizing lessons learned.

The list of lessons learned presented in this chapter can assist educational leaders with a deeper understanding of the complexity involved in educational policy implementation process. Use this list as a guideline to stay focused on the vision, and maintain a willingness to share resource and support, deal with numerous logistics, develop and execute a change management, use best practices, and concentrate on practical instructional issues that require attention and are specific to a curricular joint venture collaborative like the UNC-Chapel/ECSU PharmD Partnership Program. The resulting comparison of

themes to theory presented in this intrinsic case study contributes to the literature to provide a comprehensive view that holds promise for other educational leaders. This study matters because policy designers and implementers described in this study made diffusion and adoption of a unique curriculum joint venture using hybrid VTC an effective option for educational leaders to consider when expanding programs. With regards to the UNC-Chapel Hill/ECSU PharmD Partnership Program, creating additional partnership programs, or extending this program model to include additional universities utilizing hybrid VTC would be recommended along with continued curriculum alterations.

Recommendations for Further Research

More research is needed regarding collaborations that cross institutional lines such as the partnership discussed in this case study and how they grow as "partners in policy implementation" (McLaughlin, 2006, p. 221). It is likely that developing and maintaining a good working relationship with honesty, willingness to compromise, trust, and creating an atmosphere of collaboration will provide positive results. However, how is the partnership sustained over the years when leadership strategies change? An investigation of cost versus benefits would be fiscally responsible. Information regarding how cross-campus work gets handled, assigned, and agreed upon would add insight on the internal workings of the partnership. More information is needed regarding how continued management occurs across institutional lines, from where (i.e., above, middle, or below) and how it affects faculty, staff, students and technology. Follow-up information on

whether or not the ECSU pre-pharmacy curriculum is being strengthened to produce those “home-grown” students should be pursued and a closer look at whether or not the curriculum renaissance is working would be informative. An investigation of best practices for teaching in a hybrid VTC environment would also benefit other educators and provide guidance for student learning.

Data regarding student achievement was not available for this study. However, during interviews and through participant observation questions arose regarding what impact the mean Student Achievement Test (SAT) score for a university that a student attended for pre-pharmacy courses has on the student’s ability to handle the rigorous coursework of the PharmD professional program. Therefore, even with admission standards being the same for all students in the SOP, where the students completed their pre-pharmacy courses may have an association with students managing their coursework and should be investigated through a more empirical study.

Studies taking a closer look at what role hybrid VTC technology have on student learning and satisfaction should continue to be undertaken to gain more information about this learning environment. Studies have shown that VTC technology is not passive (Hsu & Sammons, 1998; Kennedy et al., 2003; Reinhart & Schneider, 1998) and much more needs to be learned about the complexities of this learning environment and social presence issues (Gunawardena & Zittle, 1997; Tu, 2002). Specifically, how faculty, staff, and students navigate in this learning environment. This includes a closer look at the

responsibility of the instructor to promote interaction and learning in the VTC environment (Gunawardena, 1995).

Finally, there have also been concerns regarding student interactions at the remote site. Small group dynamics have been realized and require further analysis for their possible affects on student satisfaction and achievement. Having only 10-15 students per class on the ECSU campus versus 140 students per class on the UNC-Chapel Hill campus, faculty noticed a “herd” like mentality present in later cohorts. For example, students in the smaller group at the remote site would sometimes reach and share incorrect conclusions about course content, and they received poor test grades as a result. Students have since been encouraged to work individually as well as in groups and talk with faculty during office hours when they need clarification. However, this is another area requiring further research.

Dissertation Summary

This intrinsic case study was presented in five chapters. Chapter 1 introduced the study and briefly described the factors contributing to the pharmacist shortage/imbalance. The problem addressed by this study was a lack of research regarding implementation of this type of unique joint venture collaborative utilizing hybrid VTC that was put into place to address this shortage. The purpose of this study was to examine the inception, development, and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program and offer insight to educational leadership. Chapter 1 also introduced the research

questions and the original conceptual framework that was utilized to examine the interrelated elements of education policy implementation through the lens of diffusion of innovation research. The methods and limitations of the study were presented along with definitions helpful to the reader. Chapter 2 followed with a literature review on distance education, pharmacy education in the United State and the theoretical framework. Chapter 3 contained the methodology used to implement and execute this intrinsic case study. An intrinsic case study was chosen because this study explored one bounded system's implementation of a new program model that focused on the case itself, examined multiple data sources of a real occurrence, and utilized triangulation for reliability (Creswell, 2003). This chapter included a description of the multiple sources of evidence that guided data collection and analysis (Creswell, 2003, 2007; Yin, 2003). A pre-structured case data analysis outline, which was aligned with the conceptual framework, was provided in chapter 3 as well. Chapter 4 presented the results. Three levels of analysis were employed to answer the research questions and present a chronological overview/background of the four main elements, insights from interactions that shaped education policy implementation, and a rich description of overall program extent and efficacy. The analysis integrated a synthesis of reasons why implementation occurred as it did and identified emerging themes such as the tenacity of the decision makers and implementers who sometimes shared roles. Using a chronology approach (Yin, 2003) the themes were compared to the conceptual framework of the case study:

education policy implementation and diffusion of an innovation theory. This comparison showed how the themes mirrored the conceptual framework. Finally, Chapter 5 presented an overview of the intrinsic case study, discussion, conclusions, and recommendations for practice and future research helpful to educational leaders.

REFERENCES

Accreditation Council for Pharmacy Education. (ACPE). (2005, May 4-6). Focused on-site evaluation team report of the professional program leading to the doctor of pharmacy degree.

Accreditation Council for Pharmacy Education. (ACPE). (2006a, March 7-9). The evaluation team report of the professional program leading to the doctor of pharmacy degree.

Accreditation Council for Pharmacy Education. (ACPE). (2006b, June 21-25). Accreditation action and recommendations; professional program leading to the doctor of pharmacy degree.

Allen, I., & Seaman, J. (2004, November). *Entering the mainstream: The quality and extent of online education in the United States*. Sloan Center for Online Education. Sloan-C, Needham, MA.

Allen, I., & Seaman, J. (2005). *Growing by degrees: Online education in the United States*. The Sloan Consortium. Sloan-C, Needham, MA.

Allen I., & Seaman, J. (2006). *Making the grade: Online education in the United States, southern edition.* Sloan Consortium. Sloan-C, Needham, MA.

American Foundation for Pharmaceutical Education. (2003). Acute shortage of faculty at U.S. pharmacy schools threatens efforts to solve nation's pharmacist shortage. Retrieved February, 23, 2008, from AFPE Web site http://www.afpenet.org/news_acute_shortage.htm

Anderson, L. P., Banks, S. R., & Leary, P. A. (2002, January/February). The effect of interactive television courses on student satisfaction. *Journal of Education for Business, 77*(3), 164-168

Anderson, T. D., & Garrison, D. R. (1995, March). Critical thinking in distance education: Developing critical communities in an audio teleconference context. *Higher Education*, *29*(2), 183-99.

Bangert-Drowns, R., Kulik, C., Kulik, J., & Morgan, M. (1991). The instructional effects of feedback in test-like events. *Review of Educational Research*, *61*(2), 213-238.

Bader, M. & Roy, S. (1999). Using technology to enhance relationships in interactive television classrooms. *Journal of Education for Business*, *74*, 357-362.

Barkhi, R., & Brozovsky, J. (1999/2000). An analysis of the dynamics of a distance course. *Journal of Educational Technology Systems*, *28*(4), 311-25.

Bataille, G. M. (2002, March 11). (The University of North Carolina, Office of the President) Letter to The Honorable Walter H. Dalton and The Honorable R. Eugene Rogers (Co-Chairs of the Joint legislative Education Oversight Committee) p. 2.

Bates, A. W. (2000). *Managing technological change*. San Francisco, CA: Jossey-Bass Publishers.

Bennis, W. (1997, Winter). The secrets of great groups. *Leader to Leader, 3*, 29-33. Retrieved June 10, 2004, from Leader to Leader Institutes web site http://www.pfdf.org/leaderbooks/L2L/winter97/bennis.html

Berry, F. & Berry, W. (2007). Innovation and diffusion models in policy research. In P. Sabatier's (Ed) *Theories of the policy process* (2nd ed.) (pp. 223-260). Boulder, CO: Westview Press.

Blouin, R. (2008). BlouInsight; Students. Retrieved March 14, 2009, from UNC-Chapel Hill web site http://www.pharmacy.unc.edu/about-us/school-organization/office-of-the-dean/blouinsight/blouinsight-january-2008/?searchterm=Breeze%20policy

Bogue, E. G. (2003). *Quality and accountability in higher education: Improving policy, enhancing performance*. Westport, CT: Praeger.

Bolman, L., & Deal, T. (2003). *Reframing organizations: Artistry, choice, and leadership* (3rd ed.). San Francisco, CA: Jossey-Bass.

Boulard, G. (2004). Report: Colleges tapping into a wired culture. *Community College Week*, *17*(6), 13.

Campbell, W. H., Mahoney, C. R., Joyner, P., Blackmon, R. H., Shrewsbury, R., Khan, A. A., Sollecito, W., Raasch, R., & Stevenson, K. (n.d.). Final report: The university of North Carolina pharmacy task force.

Chen, M. (2003). Conveying conversational cues through video. *Dissertation Abstracts International, 64*(05), (UMI No. 3090568)

Chesbro, S. B. (2000). Becoming adult learners: Student learning in a dual-campus physical therapy program using distance education. *Dissertation Abstracts International, 61*(09), (UMI No. 9987327).

Chisholm, M. A., Miller, A. W., Spruill, W. J., Cobb, H. H., Reinhardt, B. O., Terry, A. V., Reese, T. R., & Wade, W. E. (2000). Influence of interactive videoconferencing on the performance of pharmacy students and instructors. *American Journal of Pharmaceutical Education, 64*, 152-58.

Chung, U. K. (2003). Maintaining quality pharmaceutical education in the digital age. *American Journal of Health-Systems Pharmacists, 60*, 943-46.

Coburn, C. E., & Stein, M. K. (2006). Communities of practice theory and the role of teacher professional community in policy implementation. In M. I. Honig, (Ed.), *New directions in education policy implementation; Confronting complexity* (pp. 25-46). Albany, NY: State University of New York Press.

Cotton, C. (1995). Time-and-place independent learning: The higher education market for distance learning emerges. *Media Newsletter*, *8*(5), 37-39.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Creswell, J. W. (2007). *Qualitative inquire and research design: Choosing among five approaches*. Thousand Oaks, CA: Sage Publications, Inc.

Davison, M., & Medina, M. (2003). In meeting abstracts: 104th annual meeting, July 20-23, 2003, Minneapolis, Minnesota. Addressing industry needs through innovative technologies. *American Journal of Pharmaceutical Education*, *67*(3), Article 100, 3-4.

DeBourgh, G. A. (1998). Learner and instructional predictors of student satisfaction in graduate nursing program taught via interactive video teleconferencing and world wide web/internet. *Dissertation Abstracts International, 59*(03), (UMI No. 9828453).

DeZure, D. (Ed.). (2000). *Landmarks in teaching and learning in higher education from change magazine, 1969-1999*. Sterling, VA: Stylus Publishing, LLC.

Driscoll, M. P. (2005). *Psychology of learning for instruction* (3rd ed.). Boston, MA: Allyn and Bacon.

Dumas, M., & Anyon, J. (2006). Toward a critical approach to education policy implementation. In M. Honig (Ed.), *New directions in education policy implementation; confronting complexity* (pp. 149-168). Albany, New York: State University of New York Press.

Dunning, B., Van Kekerix, M., & Zaborowski, L. (1993). *Reaching learners through telecommunications*. San Francisco, CA: Jossey-Bass, Inc.

Duphorne, P. L., & Gunawardena, C. H. (2005). The effect of three computer conferencing designs on critical thinking skills of nursing students. *The American Journal of Distance Education, 19*(1), 37-50.

Eckel, P., Hartley, M., & Affolter-Caine, B. (2004). *Cooperating to compete: A campus leaders' guide to developing curricular partnerships and joint program*. Washington, DC: American Council on Education.

EdRef.com. (2009). Elizabeth City State University. Retrieved May 14, 2006, from EdRef.com Web site: http://www.edref.com/school_list/elizabeth-city-state-university

El-Khawas, E. (2007). Policy influences and actors in american higher education. In A. Gornitzka, M. Kogan, and A. Amaral (Eds.), *Reform and change in higher education: Analyzing policy implementation* (pp. 287-303). Dordrecht, The Netherlands: Springer.

Elizabeth City State University. (2006, Spring). ECSU named 3rd among its peers. *Elizabeth City State University Magazine*, p. 9. Retrieved April 6, 2006, from University Relation's Web site: http://www.ecsu.edu/publications/facultystaff/magazinespring2006.pdf

Elizabeth City State University. (2009). About ECSU. Retrieved May 12, 2009, from ECSU's prospective students' Web site: http://www.ecsu.edu/prospective/aboutecsu.cfm

Ensminger, D., & Surry, D. (2002). Faculty perceptions of factors that facilitate the implementation of online programs. Retrieved October 3, 2004, from The Connected Classroom Web site: http://www.mtsu.edu/~itconf/proceed02/4.html

Epper, R. M., & Bates, T. (2001). *Teaching faculty how to use technology: Best practices from learning institutions*. Westport CT: Oryx Press.

Fraher, E. P., Smith, L. M., Dyson, S., & Ricketts, T. C. (2002). *The pharmacist workforce in North Carolina*. Chapel Hill, NC: Cecil G. Sheps Center for Health Services Research.

Freeman, V. S. (1995). Delivery methods, learning styles and outcomes for distance medical technology students. *Dissertation Abstracts International 56(07)*, (UMI No. 9536616).

Freeman, M. (1998). Video conferencing: a solution to the multi-campus large classes' problem? *British Journal of Educational Technology*, *29*(3), 197-210.

Friedman, T. (2005). *The world is flat: A brief history of the twenty-first century* (1st ed.). New York, NY: Garrar, Strass & Giroux.

Fullan, M. (2001). *Leading in a culture of change*. San Francisco, CA: Jossey-Bass.

Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *American Journal of Distance Education*, *15*(1), 7-23.

Glod, M. (2008, June 13). Mandated tutoring not helping Md., Va. Scores; Several states find 'no child' provision does little to improve test results. *Washington Post*, p. B1.

Goodman, P. S. (Ed.). (2001). *Technology enhanced learning: Opportunities for change*. Mahwah NJ: Lawrence Erlbaum Associates.

Gornitzka, A., Kogan, M., & Amaral, A. (Eds.). (2007). *Reform and change in higher education: Analyzing policy implementation*. Dordrecht, The Netherlands: Springer.

Green, K. C. (2000). Media and technology: Plus ça change. In D. DeZure (Ed.), *Landmarks in teaching and learning in higher education from change magazine*, 1969-1999 (pp. 395-397). Sterling, Virginia: Stylus Publishing, LLC.

Gunawardena, C. (1995). Social presence theory and implications for interaction collaborative learning in computer conferences. *International Journal of Educational Telecommunications*, *1*(2/3), 147-166.

Gunawardena, C., & Duphorne, P. (2000). Predictors of learner satisfaction in an academic computer conference. *Distance Education*, *21*(1), 101-117.

Gunawardena, C., & Duphorne, P. (2001, April). Which learner readiness factors, online features, and CMC related learning approaches are associated with learner satisfaction in computer conferences? Paper presented at the Annual Meeting of the American Educational Research Association, Seattle, Washington.

Gunawardena, C., & Zittle, F. (1997). Social presence as a predictor of satisfaction within a computer-mediate conferencing environment. *The American Journal of Distance Education, 11*(3), 8-26.

Harman, C., & Dorman, M. (1998). Enriching distance teaching and learning of undergraduate mathematics using videoconferencing and audiographics. *Distance Education*, *19*(2), 299-318.

Hepler, C., & Strand, L. (1990). Opportunities and responsibilities in pharmaceutical care. *American Journal of Hospital Pharmacy*, *47*(3), 533-543

Holmberg, B. (1989). Theory and practice of distance education. London and New York: Routledge.

Honig, M. I. (Ed.). (2006). *New directions in education policy implementation; confronting complexity*. 1-23 & 125-147. Albany, NY: State University of New York Press.

Hope, W., & Pigford, A. (2001). The principal's role in education policy implementation. *Contemporary Education*, *72*(1), 44-47.

Hsu, S., & Sammons, M. (1998). The invisible barriers in teaching at a distance. Paper presented at the Annual Conference on Distance Teaching & Learning, Madison Wisconsin, August 5-7, 1998.

Institute for Science Learning. (2005). VTC Program Plan dated March 16, 2005. Chapel Hill, NC: University of North Carolina.

Jonassen, D. H. (Ed.). (1996). *Handbook of research for educational communications and technology* (2nd ed.). Simon and Schuster. Retrieved online on April 28, 2008 from Association for Education Communication and Technology (AECT) members site at http://www.aect.org/edtech/default.asp

Katz-Stone, A. (2000, January). University of maryland expects to make money from UMUC online.com. Retrieved on September 30, 2006, from *Washington Business Journal* Web site: http://www.bizjournals.com/washington/stories/2000/01/24/focus1.html

Keegan, D. (1980). On defining distance education. *Distance Education, 1*(1), 13-35.

Keller, C. (2005). Virtual learning environments: Three implementation perspectives. *Learning, Media and Technology*, *30*(3), 299-311.

Kelley, K. (2003). Outcomes assessment of a doctor of pharmacy (pharm.d.) program: Comparison of faculty and student perceptions of competency delivery and achievement. *Dissertation Abstracts International*, A 63/07, p. 2425). (UMI No. 3059277).

Kennedy, D. H., Ward, C. T., & Metzner, M. C. (2003). Distance education: Using compressed interactive video technology for an entry-level doctor of pharmacy program. *American Journal of Pharmaceutical Education*, *67*(4), Article 118, 1-10.

Kenreigh, C. A., & Wagner, L. T. (2006). *The pharmacist shortage: Where do we stand?* Retrieved on August 29, 2008, from Medscape Pharmacists Web site: http://www.edscape.com/viewarticle/521115_print.

Kies, J. K. (1997). *Empirical methods for evaluation video-mediate collaborative work*. Virginia Polytechnic Institute and State University.

Knapp, D. A. (2002). Professionally determined need for pharmacy services in 2020. *American Journal of Pharmaceutical Education, 66*(4), 421-458.

Knipe, D., & Lee, M. (2002). The quality of teaching and learning via videoconferencing. *British Journal of Educational Technology*, *33*(3), 301-311.

Knowles, M. (1978). *The adult learner*. Houston, TX: Gulf Publishing.

Knowles, M. (1980). *The modern practice of adult education. From pedagogy to andragogy*. Chicago, IL: Association Press (originally published in 1970).

Knowles, M. (1984). *The adult learner: A neglected species* (3rd ed.). Houston, TX: Gulf Publishing.

Kozma, R., & Johnston, J. (1991). The technological revolution comes to the classroom. In D. DeZure (Ed.), *Landmarks in teaching and learning in higher education from change magazine*, 1969-1999 (pp. 408-411). Sterling, Virginia: Stylus Publishing, LLC.

Kulik, J., & Kulik, C. (1988). Timing of feedback and verbal learning. *Review of Educational Research*, *58*(1), 79-97.

Lane, D. (1994). *Computer-mediated communication in the classroom: Asset or liability*. Retrieved February 22, 2008, from University of Kentucky, Communication and Technology's Web site: http://www.uky.edu/~drlane/techno/cmcasset.htm

LaPointe, D. K., & Gunawardena, C. H. (2004). Developing, testing and refining of a model to understand the relationship between peer interaction and learning outcomes in computer-mediated conferencing. *Distance Education*, *25*(1), 83-106.

Larsen, I., & Langfeldt, L. (2007). Profiling comprehensiveness? Strategy formulation and effects of strategic programmes at traditional universities. In A. Gornitzka, M. Kogan, and A. Amaral (Eds.), *Reform and change in higher education: Analyzing policy implementation* (pp. 343-362). Dordrecht, The Netherlands: Springer.

Lawerence, B. H. (1995/1996). Teaching and learning via videoconference: The benefits of cooperative learning. *Journal of Educational Technology Systems*, *24*(2), 145-149.

Lenz, T., Monaghan, M., Wilson, A., Tilleman, J., Jones, R., & Hayes, M. (2006). Using performance-based assessment to evaluate parity between a campus and distance education pathway. *American Journal of Pharmaceutical Education, 70*(4), Article 90, 1-6.

Lockard, J., & Abrams, D. (2001). *Computers for twenty-first century educators* (5th ed.). New York, NY: Addison Wesley Longman.

Loeb, S., & McEwan, P. J. (2006). An economic approach to education policy implementation. In M. I. Honig, (Ed.), *New directions in education policy implementation; Confronting complexity* (pp. 169-186). Albany, NY: State University of New York Press.

MacLaughlin, E. J., Supernaw, R. B., & Howard, K. A. (2004). Impact of distance learning using videoconferencing technology on student performance. *American Journal of Pharmaceutical Education*, *68*(3), Article 58, 1-6.

Maclure, S. (2000). England's open university: Revolution at Milton Keynes. In D. DeZure (Ed.), *Landmarks in teaching and learning in higher education from change magazine*, 1969-1999 (pp. 399-400). Sterling, VA: Stylus Publishing, LLC.

Malen, B. (2006). Revisiting policy implementation as a political phenomenon. In M. I. Honig (Ed.), *New directions in education policy implementation; Confronting complexity* (pp. 83-104). Albany, NY: State University of New York Press.

Martin, J. K. (2005). Hospital adopts technology to address pharmacy shortage, reduce errors. *U.S. Pharmacist*, *30*(10), 116-117.

McLaughlin, M. W. (2006). Implementation research in education. In M. I. Honig (Ed.), *New directions in education policy implementation; Confronting complexity* (p. 209-228). Albany, NY: State University of New York Press.

Mehrotra, C., Hollister, C., & McGahey, L. (2001). *Distance learning; Principles of effective design, delivery, and evaluation*. Thousand Oaks, CA: Sage Publications.

Merriam, S. (1998). *Qualitative research and case study application in education*. San Francisco, CA: Jossey-Bass.

Mezirow, J. (1991). *Transformative dimensions of adult learning*. San Francisco, CA: Jossey-Bass.

Miles, M., & Huberman, A. M. (1994). *Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Minkel, W. (2004). It's a bird. It’s a plane. It’s internet2. *School Library Journal*, *50*(5), 39.

Monolescu-Kliger, D. (2002). Dissertation: Computer mediated videoconferencing: A technology in evolution in distance education. *Dissertation Abstracts International* (UMI 3057100)

Monolescu, D., Schifter, C., & Greenwood, L. (2004). *The distance education evolution: Issues and case studies*. Hershey, PA: Information Science Publishing.

Moore, M., & Kearsley, G. (1996). *Distance education; A systems view*. Belmont, CA: Wadsworth Publishing Company.

Mott, D. A., Doucette, W. R., Gaither, C. A., Kreling, D. H., & Schommer, J. C. (2005). Final report of the national sample survey of the pharmacist workforce to determine contemporary demographics and practice characteristics. Midwest Pharmacy Workforce Research Consortium.

Muirhead, B. (1999). Attitudes toward interactivity in a graduate distance education program: A qualitative analysis. Dissertation.com.

Nachmias, R., Mioduser, D., Cohen, A., Tubin, D., & Forkosh-Baruch, A. (2004). Factors involved in the implementation of pedagogical innovations using technology. *Education and Information Technologies*, *9*, 291–308.

National Association of Chain Drug Stores. (2003). Pharmacist shortage continues unabated, according to latest NACDS foundation chain pharmacy employment survey. Retrieved April 23, 2006, from 2003 News Releases Web site: http://www.nacds.org/wmspage.cfm?parm1=3208

National Center for Education Statistics. (2003). *Distance education at degree-granting postsecondary institutions: 2000-2001*. Washington, DC: U.S. Department of Education.

North Carolina General Assembly. (2009). Higher education budget history search results. Retrieved May 14, 2009 from North Carolina General Assembly (NCGA) Fiscal Research Division Web site: http://www.ncleg.net/gascripts/FiscalResearch/BudgetHistory/BudgetHistory.pl?action=search&campus=&sessionYear1Operator=%3D&sessionYear1=&sessionYear2Operator=%3D&sessionYear2=&expenditureType=&programNames=Focused+Growth&explanation=

North Carolina Public Radio. (2005). State of things achieves: The pharmacy crisis. Program aired July 25, 2005. Retrieved April 23, 2006, from WUNC Web site: http://www.ibiblio.org/wunc_archives/sot/index.php?p=294

Ornstein, A., & Hunkins, F. (2004). *Curriculum foundations, principles, and issues* (4th ed.). Boston, MA: Pearson.

Owens, G. (2003). Pharmacies face dangerous trend, struggle to keep up with prescription demand. Retrieved February 21, 2009, from WRAL.com Web site: http://www.wral.com/news/local/story/105297/

Palloff, R. M., & Pratt, K. (1999). *Building learning communities in cyberspace*. San Francisco, CA: Jossey-Bass Publishers.

Pasquotank County NCGenWeb. (2009). Pasquotank county African American research; Elizabeth City State University. Retrieved May 14, 2009, from Pasquotank County NCGenWeb site: http://www.ncgenweb.us/pasquotank/ecsu.htm

Patton, M. (2002). *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Pharmacy Manpower Project, Inc. (2002). *Dramatic rise in need for pharmacists projected*. Retrieved February 22, 2008, from American Association of Colleges of Pharmacy (AACP) New Release Web site: http://www.aacp.org/site/tertiary.asp?TRACKID=&VID=2&CID=577&DID=4638

Pharmacy Manpower Project, Inc. (2007). *National pharmacist demand by state*. Retrieved January 10, 2007, from Pharmacy Manpower Aggregate Demand Index Web site: http://www.pharmacymanpower.com/state.html

Pharmacy Manpower Project, Inc. (2009). *National pharmacist demand by state – July 2008*. Retrieved February, 21, 2009, from Pharmacy Manpower Aggregate Demand Index Web site: http://www.pharmacymanpower.com/state.html

Picciano, A. G. (2006). *Educational leadership and planning for technology* (4th ed.). Upper Saddle River, NJ: Pearson Education, Inc., p 168.

Pitcher, N., Davidson, K., & Goldfinch, J. (2000, August). Videoconferencing in higher education. *Innovations in Education and Training International*, *37*(3), 199-209.

Public Broadcasting Services. (2008). Transcripts of the Thursday, March 27, 2008 Nightly Business Report with correspondent Jeff Yastine. “Bill of health – pharmacist shortage.” Retrieved September 10, 2008, from Public Broadcasting Services On Air Web site: http://www.pbs.org/nbr/site/onair/transcripts/080327c/

Reinhart, J., & Schneider, P. (1998). Foundations for creating effective two-way audio/video distance education environments. Presentation at the National Convention of the Association for Education Communications and Technology (AECT), St. Louis, Missouri, February 18-22, 1988.

Richardson, J., & Swan, P. (2003). Examining social presence in online courses in relation to students’ perceived learning and satisfaction. *Journal of Asynchronous Learning Networks, 7*(1), 68-88.

Ried, D., & McKenzie, M. (2004). A preliminary report on the academic performance of pharmacy students in a distance education program. *American Journal of Pharmaceutical Education*, Retrieved March 9, 2006, from Web site: http://www.ajpe.org/view.asp?art=aj680365

Ried, D., Motycka, D., Mobley, C., & Meldrum, M. (2006). Comparing self-reported burnout of pharmacy students on the founding campus with those at distance campuses. *American Journal of Pharmaceutical Education*, *70*(5), Article 114, 1-12.

Riffee W. H., Early, J., & McKay, A. (2002). *Consultant report: Feasibility of establishing a new school of pharmacy at Elizabeth City State University*. Chapel Hill, NC: University of North Carolina.

Rogers, E. (2003). *Diffusion in innovation* (5th ed.). New York, NY, Free Press.

Russell, T. (2001). The no significant difference phenomenon: a comparative research annotated bibliography on technology for distance education: As reported in 355 research reports, summaries and papers. IDECC.

Saba, F. (2000). Research in distance education: A status report. *International Review of Research in Open and Distance Learning, 1*(1).

Schenone-Stevens, M. C. (2002). Perception of learners regarding the influence of technology on interaction in a two-way video/audio distance education television class. *Dissertation Abstracts International* (UMI No. 3088033).

Senge, P. M. (1996). The ecology of leadership. *Leader to Leader*, 2, 18-23.

Siler, W., & Randolph, D. (2006). A clinical look at clinical doctorates. *The Chronicle of Higher Education*, *The Chronicle Review, 52*(46), B12.

Smylie, M. A., & Evans, A. E. (2006). Social capital and the problems of implementation. In M. Honig (Ed.), *New directions in education policy implementation; Confronting complexity* (pp. 187-208). Albany, New York: State University of New York Press.

Southern Association of Colleges and Schools Commission on Colleges. (2006). Distance education; Policy statement. Retrieved May 20, 2009, from SACS web site: http://www.sacscoc.org/pdf/081705/distance%20education.pdf

Southern Association of Colleges and Schools Commission on Colleges. (2001). Principles of accreditation. Retrieved May 20, 2009, from SACS web site: http://www.sacscoc.org/pdf/PrinciplesOfAccreditation.PDF

Surry, D. W. (1997, December 2). *Diffusion theory and instructional technology. Instructional Technology Research Online*. Retrieved March 13, 2008, from Georgia State University Web site: http://www2.gsu.edu/~wwwitr/docs/diffusion/

The Associated Press. (2005). *Pharmacist shortage worsens nationwide*. Retrieved February 22, 2008, from MSNBC Web site: http://www.msnbc.msn.com/id/9956386/

Tu, C. (2002, April-June). The measurement of social presence in an online learning environment. *International Journal on E-Learning*, 34-45.

University of Florida. (2009). *The distance education experience; characteristics of distance education*. Retrieved January 24, 2009, from the Division of Continuing Education, University of Florida Web site: http://www.distancelearning.ufl.edu/students/characteristics.aspx

University of Maryland University College. (n.d.). About Us. Retrieved September 30, 2006, from University of Maryland University College Web site: http://www.umuc.edu/gen/about.shtml

University of North Carolina at Chapel Hill (UNC- Chapel Hill) School of Pharmacy (SOP) and Elizabeth City State University. (2004). Memorandum of Understanding (MOU) dated May 17, 2004. Chapel Hill, NC: University of North Carolina.

University of North Carolina at Chapel Hill (UNC-Chapel Hill) School of Pharmacy (SOP). (2004). UNC-ECSU doctor of pharmacy collaboration status update – updated June 2, 2004. Chapel Hill, NC: University of North Carolina.

University of North Carolina at Chapel Hill (UNC- Chapel Hill) School of Pharmacy (SOP) and Elizabeth City State University. (2005). Memorandum of Understanding (MOU) dated January-February 2005. Chapel Hill, NC: University of North Carolina.

University North Carolina at Chapel Hill (UNC- Chapel Hill) School of Pharmacy (SOP). (2005). Interim Report to The American Council on Pharmaceutical Education (ACPE) dated April 15, 2005, p. 13.

University North Carolina at Chapel Hill (UNC- Chapel Hill) School of Pharmacy (SOP). (2006a). UNC School of Pharmacy: The PharmD. Retrieved April 6, 2006, from UNC-Chapel Hill School of Pharmacy Web site: http://www.pharmacy.unc.edu/programs/the-pharmd

University of North Carolina at Chapel Hill (UNC- Chapel Hill) School of Pharmacy (SOP). (2006b). UNC School of Pharmacy Professional Experience Program. Retrieved September 23, 2006, from UNC-Chapel Hill School of Pharmacy Web site: http://www.pharmacy.unc.edu/programs/the-pharmd/professional-experience-program/professional-experience-program

University of North Carolina at Chapel Hill (UNC- Chapel Hill) School of Pharmacy (SOP). (2006c). UNC School of Pharmacy 2006 Strategic Plan. Retrieved May 22, 2009, from UNC-Chapel Hill School of Pharmacy Web site: http://pharmacy.unc.edu/about-us/school-organization/office-of-the-dean/strategic-plan/strategic-plan-revised-feb-2008.pdf/view

University of North Carolina at Chapel Hill (UNC-Chapel Hill) School of Pharmacy (SOP). (2009). Vision and mission. Retrieved May 12, 2009, from UNC Web site: http://pharmacy.unc.edu/about-us/vision-and-mission

University of North Carolina at Chapel Hill. (2008). PharmD program rises to second in U.S. news rankings. Retrieved April 20, 2008, from UNC-Chapel Hill School of Pharmacy Web site: http://www.pharmacy.unc.edu/news/schoolnews/pharmd-program-rises-to-second-in-u-s-news-rankings

University of North Carolina at Chapel Hill (UNC-Chapel Hill). (2009). UNC new - facts about Carolina. Retrieved May 12, 2009, from UNC Web site: http://uncnews.unc.edu/content/view/30/97/

University of North Carolina at Chapel Hill (UNC-Chapel Hill) School of Pharmacy (SOP) Alumni Association. (2006). Pharmacy education on the big screen; innovative technology makes a partnership possible. *Carolina Pharmacy Spring/Summer, 24*(2), 3-7.

University of North Carolina General Administration (UNC-GA). (2009). About the TLT. Retrieved May 22, 2009, from the UNC Teaching and Learning with Technology (TLT) Web site: http://www.unctlt.org/about/index.htm

U.S. Census Bureau. (2002a). Profile of general demographic characteristics: 2000. Retrieved May 14, 2009, from U.S. Census Bureau Web site: http://censtats.census.gov/data/NC/1603720580.pdf

U.S. Census Bureau. (2002b). State & county quick facts; Raleigh (city, North Carolina. Retrieved May 14, 2009, from U.S. Census Bureau Web site: http://quickfacts.census.gov/qfd/states/37/3755000.html

USA Today. (2005). The Associated Press - USA today examines pharmacist shortage in USA. Retrieved January 26, 2008, from The MSNBC site: http://www.msnbc.msn.com/id/9956386/

Wadelin, J. W. (2004, July 2). (Associate Executive Director and Director, Professional Degree Program Accreditation, ACPE, Chicago, IL) to Dean Robert A. Blouin (The University of North Carolina-Chapel Hill, School of Pharmacy) p. 2.

Ward, C. T., Rey, J. A., Mobley, W. C., & Evans, C. D. (2003). Establishing a distance learning site for a traditional doctor of pharmacy program. *American Journal of Pharmaceutical Education*, *67*(1), Article 20, 153-159.

West, R. E., Waddoups, G., & Graham, C. R. (2007). Understanding the experiences of instructors as they adopt a course management system. *Educational Technology Research & Development*, *55*(1), 1-26.

Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed.). Sage Publications, Inc, Thousand Oaks, CA.

APPENDIX A: INTERVIEW QUESTIONS

1. What was your role in the planning and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program?

2. Can you describe your understanding of the following:
    a. National and regional pharmacist shortage
    b. Educational response to this community need

3. How did the planning and implementation process happen?
    a. Policy origination and formation
    b. Building new model for pharmacy education using distance learning

4. Was the process of change discussed?

5. If so, what processes were then used for implementation and change regarding the following:
    a. Policy
    b. People
    c. Place
    d. Technology

6. What were the intended consequences from implementation of this new program model?
    a. Economics
    b. Politics
    c. Social Capital
    d. Culture

7. What were the unintended consequences from implementation of this new program model?
    a. Economics
    b. Politics
    c. Social Capital
    d. Culture

8. How do you think the interaction among policy, place, people, and technology shaped the implementation process and change that took place?

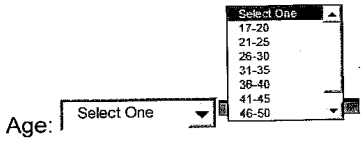
9. Is there anything you would have done differently? Why?

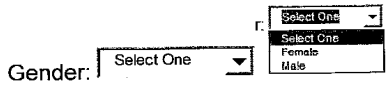
APPENDIX B: INITIAL CODES LIST

Code	Definition
Accreditation	Accreditation
C&F	Communication and Feedback
Challenge	Statements regarding the challenge of implementation
ER	Educational Response
FeasbilityStudy	Information regarding the Feasibility Study
Future	Future prospects
IC-Chg	Intended consequence during change
IC-IM	Intended consequence during implementation
IC-E	Intended economic consequence
IC-SC	Intended social capital consequence
IC-P	Intended political consequence
IC-C	Intended cultural consequence
LL	Lessons Learned
New Model	New Model for Pharmacy Education
People	Interactions among and between people
PharmShortage	Pharmacy Shortage
Places	Interaction among and between places
Policy	Interaction among and between policies
Policy O&F	Policy Origination and Formation (design)
Problems	Problems Encountered
Role	Participants Role
ShepsStudy	Information regarding Sheps Study
TaskForce	Information regarding Task Force
Technology	Interaction among and between technologies
UIC-C	Un-intended consequence during change
UIC-IM	Un-intended consequence during implementation
UIC-E	Un-Intended economic consequence
UIC-SC	Un-Intended social capital consequence
UIC-P	Un-Intended political consequence
UIC-C	Un-Intended cultural consequence

APPENDIX C: STUDENT SURVEY FROM FALL 2005 SEMESTER

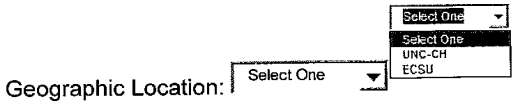
Please help us evaluate the content, quality, and overall effectiveness of the *UNC-CH/ECSU Doctor of Pharmacy Partnership Program* blended learning environment by completing the following evaluation. There is no right or wrong answers. Further understand that your identity will remain anonymous, and this instrument is **completely confidential**. There are no risks or potential benefits accompanied with the completion of this questionnaire, but that not all risks can be anticipated. Your answers will be transferred through electronic form generated by the survey web site into a database containing no identification descriptors. Thank you for taking your time to complete the survey. **Make sure you click on the submit button when you are finished.**





Race:

- ☐ Asian or Pacific Islander
- ☐ African-American, not of Hispanic origin
- ☐ Hispanic
- ☐ American Indian or Alaskan Native
- ☐ Caucasian, not of Hispanic origin
- ☐ Other (please specify) _____



Year: Select One

Select One
PY1
PY2
PY3
PY4

Choose the answer or phrase that you feel is appropriate for each items listed below.

All Likert Scale Except for #4as noted

1. Do you have dial-up or cable/T1 access to the Internet?

Select One

Select One
Dial-up
Cable/T1

Select One
Select One
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

2. I know how to use a web browser (Explorer or Netscape) to search and find information on the World Wide Web. Select One

3. I can use my computer to manage files within folders. Select One

4. Prior to being admitted into the UNC-CH/ECSU Pharmacy Program, I had experienced a video-teleconference course or meeting? Select One

Select One
Select One
Yes
No

5. Check all of the following computer mediated communication (CMC) tools you are familiar with and have used.

☐ Email ☐ Discussion Forum ☐ Chat Room ☐ Blog ☐ Course Management System (Bb, WebCT)

☐ Instant Messaging (IM) ☐ Teleconferencing ☐ Video-Teleconferencing ☐ Electronic Bulletin Board

6. I like a blended learning environment (mixed use of Blackboard Course Management System, Face-to-Face, Computer Mediated Communication, and Video-conferencing) Select One

7. There is ample opportunity for questions and discussion in the UNC-CH/ECSU Doctor of Pharmacy Partnership Program blended learning environment.
Select One

8. I am a self-starter. Select One

9. I believe I am responsible for my own education - my learning is ultimately my responsibility. Select One

10. I am getting the attention I need to be successful in this program.
Select One

11. In my video-conferenced classes, I like having the projected image of the remote class in the front of the classroom. Select One

12. In my video-conferenced classes, when depressing the student microphone button to answer or ask a question in class, I like having the camera focus on me directly. Select One

13. In my video-conferenced classes, when depressing the student microphone button to answer or ask a question in class, I would prefer the camera focus on the general area where I am, not on me directly. Select One

14. I like being on camera all the time while in my video-conferenced class.
Select One

15. I think it is important that the remote image be projected to the video-casting classroom so that the remote students are present and included in instruction.
Select One

16. I feel a part of the whole class (video-casting site and remote site).
Select One

17. List aspects that worked well with video-teleconferencing technology. (Limit 200 Characters)

18. List challenges with video-teleconferncing technology. (Limit 200 Characters)

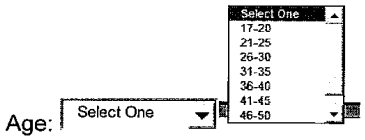
19. Please write any suggestions/comments that might enhance the UNC-CH/ECSU Doctor of Pharmacy Partnership Program: (Limit 200 Characters)

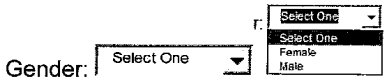
Submit Reset

Thank you for taking the time and your cooperation.

APPENDIX D: STUDENT SURVEY FROM SPRING 2006 SEMESTER

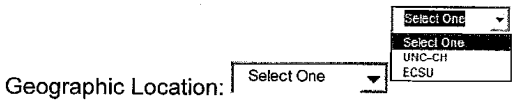
Please help us continue to evaluate the content, quality, and overall effectiveness of the *UNC-CH/ECSU Doctor of Pharmacy Partnership Program* blended learning environment by completing the following evaluation. There is no right or wrong answers. Further understand that your identity will remain anonymous, and this instrument is **completely confidential**. There are no risks or potential benefits accompanied with the completion of this questionnaire, but that not all risks can be anticipated. Your answers will be transferred through electronic form generated by the survey web site into a database containing no identification descriptors. Thank you for taking your time to complete the survey and helping us improve instruction. **Make sure you click on the submit button when you are finished.**





Race:

- ☐ Asian or Pacific Islander
- ☐ African-American, not of Hispanic origin
- ☐ Hispanic
- ☐ American Indian or Alaskan Native
- ☐ Caucasian, not of Hispanic origin
- ☐ Other (please specify)



Year: Select One

Select One
PY1
PY2
PY3
PY4

Choose the answer or phrase that you feel is appropriate for each items listed below.

1. Do you have dial-up or cable/T1 access to the Internet?

Select One

Select One
Dial-up
Cable/T1

All Likert Scale Except

Select One
Select One
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

2. I know how to use a web browser (Explorer or Netscape) to search and find information on the World Wide Web. Select One

3. I can use my computer to manage files within folders. Select One

4. Prior to being admitted into the UNC-CH/ECSU Pharmacy Program, I had experienced a video-teleconference course or meeting?

Select One

Select One
Select One
Yes
No

5. Check all of the following computer mediated communication (CMC) tools you are familiar with and have used.

- ☐ Email
- ☐ Chat Room
- ☐ Course Management System (Bb, WebCT)
- ☐ Teleconferencing
- ☐ Desktop video-conferencing
- ☐ Blog
- ☐ Instant Messaging (IM)
- ☐ Discussion Forum
- ☐ Electronic Bulletin Board
- ☐ Video-Teleconferencing

6. I like a blended learning environment (mixed use of Blackboard Course Management System, Face-to-Face, Computer Mediated Communication, and Video-conferencing) Select One

7. There is ample opportunity for questions and discussion in the UNC-CH/ECSU Doctor of Pharmacy Partnership Program blended learning environment.

Select One

8. I like the video-teleconferencing connection that was added to the compounding laboratory portion of 69L.
Select One

9. I believe I am responsible for my own education - my learning is ultimately my responsibility. Select One

10. I am getting the attention I need to be successful in this program.
Select One

11. In my video-conferenced classes when the instruction is at my site, I like having the projected image of the remote class in the back of the classroom only and find it less distracting. Select One

12. In regards to the Kerr 1001 classroom's middle front screen, when depressing the student microphone button to answer or ask a question in class, I like having the camera focus on me directly momentarily, linger for a few seconds, and then return to the content. Select One

13. In my video-conferenced classes, when depressing the student microphone button to answer or ask a question in class, I am comfortable with the new camera shot that is in my general area, not on me directly. Select One

14. Overall I feel comfortable conversing in my video-teleconferenced classes.
Select One

15. I think it is important that the remote image be projected to the video-casting classroom so that the remote students are present and included in instruction.
Select One

16. I feel a part of the whole class (local site and remote site).
Select One

17. List aspects that worked well with video-teleconferencing technology. (Limit 200

Characters)

18. List challenges with video-teleconferencing technology. (Limit 200 Characters)

19. Please write any suggestions/comments that might enhance the UNC-CH/ECSU Doctor of Pharmacy Partnership Program: (Limit 200 Characters)

20. How satisfied were you with your courses? For example, were your goals and/or expectations met? Please explain (e.g. were the course activities and assignments appropriate, was content well-organized, etc.) (Limit 200 Characters)

21. How much interaction have you had with your instructor (e.g. moderate, sufficient, lacking)? Please describe.

22. In relation to student-to-student interaction, would you say the type and amount of student participation was adequate throughout the semester? Based on these observations, are there any recommendations you would make?

23. Overall my spring 2006 courses met my learning expectations.
Select One

24. The instructors created a feeling of community throughout the semester.
Select One

25. In the future, I would not hesitate to sign up for a class or program that involve similar video-teleconferencing. Select One

Submit Reset

Thank you for taking the time and your cooperation.

APPENDIX E: DOCUMENT SUMMARY FORM

Date: _____
Site: _____
Document: _____
Date received or retrieved: _____

Name or description of document:

Event or contact, if any, with which document is associated:

Significance or importance of document:

Brief summary of contents:

(Miles & Huberman, 1994)

APPENDIX F: CONTACT SUMMARY FORM

Contact type: _____ Visit _____ Phone
With Whom: _____

Site: _____
Contact Date: _____
Today's Date: _____
Written by: _____

1. What were the main issues or themes that struck you in this contact?

2. Summarize the information you got (or failed to get) on each of the target questions you had for this contact.

3. Anything else that struck you as salient, interesting, illuminating or important in this contact?

4. What new (or remaining) target questions do you have in considering the next contact with this person/site?

CONCERNS:

(Miles & Huberman, 1994)

APPENDIX G: UNC-CHAPEL HILL SCHOOL OF PHARMACY'S (SOP)

INTERIM REPORT

Interim Report

University of North Carolina at Chapel Hill
School of Pharmacy

April 15, 2005

This report is submitted in response to the July 2, 2004 letter requesting an update to the American Council on Pharmaceutical Education regarding several elements of the University of North Carolina Doctor of Pharmacy Program.

Table of Contents

I. Enrollment Expansion and Elizabeth City State University (ECSU) Partnership

The School of Pharmacy at the University of North Carolina at Chapel Hill plans to increase on-campus enrollment by 13 students beginning in the fall of 2005, bringing the PY1 class enrollment at UNC-Chapel Hill to a total of 136 students. Anticipated enrollment increases in subsequent years will expand the total UNC-Chapel Hill enrollment to 140 students per class. The School plans to further increase enrollment in the Doctor of Pharmacy Program by admitting 10-15 students to a satellite campus at Elizabeth City State University (ECSU) in the fall of 2005.

The decision to increase enrollment in the Doctor of Pharmacy Program at UNC-Chapel Hill and through the partnership with ECSU was made after considering a variety of sources, including:

- *The Pharmacist Workforce in North Carolina* (data compiled by UNC-Chapel Hill's Cecil G. Sheps Center for Health Services Research)
- The July 2002 report of the UNC Pharmacy Task Force (see Appendix 1)
- Input from pharmacy faculty, alumni and various other constituency groups from around the state of North Carolina, representing community pharmacy, hospital pharmacy and the pharmaceutical industry
- Input from the School of Pharmacy's Board of Visitors
- Input from the University of North Carolina's Office of the President, Board of Trustees, and Board of Governors
- Input from the North Carolina Legislature and Legislative Black Caucus

Continuation of enrollment increases on either campus is predicated on the availability of sufficient resources, as discussed in this report.

The following describes how the ACPE accreditation standards have been or need to be addressed with regard to enrollment increases on both the UNC-Chapel Hill and ECSU campuses.

Standards 1-3: Mission, Planning and Assessment

Standard 1: Mission or Goals

As part of the self-study process, and in light of the new CAPE outcomes, the mission, goals, and outcomes for the professional program are currently under review. This review process is being guided by the Curriculum Committee. The partnership with ECSU will address the same curricular mission, goals and outcomes as the Chapel Hill-based program. The Doctor of Pharmacy program will continue its emphasis on producing generalist practitioners with the knowledge and skills to enter and/or develop pharmaceutical care practices.

The following additional goals and objectives have been defined for the UNC-Chapel Hill/ECSU partnership:

- Respond to the North Carolina pharmacy manpower shortage by increasing the number of doctor of pharmacy graduates from the UNC system
- Promote an increase in the number of pharmacists in North Carolina representing minority and underserved populations

- Stimulate economic development and increase pharmacy manpower in northeastern North Carolina
- Optimally utilize existing North Carolina resources (e.g. UNC-Chapel Hill, ECSU, and AHEC faculty, staff, facilities, clerkship sites and preceptors) for the most timely and cost-efficient approach to meeting current and future pharmacy manpower needs
- Stimulate campus development and increase degree-granting opportunities for ECSU (e.g. expand science complex facilities; implement Bachelor of Science degree in pharmaceutical sciences at ECSU)
- Provide ECSU faculty and administration experience with development and assessment of a professional degree program to facilitate future development of similar programs
- Provide UNC-Chapel Hill School of Pharmacy with opportunities to develop and implement collaborative educational processes, distance education technologies and pedagogical practices to facilitate future educational program development
- Develop an effective model for operating satellite professional degree programs in The University of North Carolina system

Standard 2: Systematic Planning

In February 2004, Dean Robert Blouin appointed a School of Pharmacy Ad Hoc Committee on Professional Expansion. The charge to the committee was to review previous enrollment increase proposals and recommend a revised plan of action for enrollment increases at UNC-Chapel Hill, given existing physical and academic considerations. The committee was composed of representatives from each of the four divisions of the School, as well as representatives from the Area Health Education Centers (AHEC) and community-based faculty. This committee met during a two-month period and identified resources needed for an increase in enrollment.

Planning for enrollment increases on a satellite campus, through the development of the partnership with ECSU, has been guided by the 2002 report of the UNC Pharmacy Task Force and the subsequent Memorandum of Understanding (MOU) between UNC-Chapel Hill and ECSU, signed January 2005 (see Appendix 2). These documents were developed by faculty and administrators from UNC-Chapel Hill and ECSU with input from various constituencies as listed above.

The MOU was developed over the past year to modify the intended mode of delivery of the program and to clarify a number of items that were only broadly defined in the 2002 report. In general, these documents describe development of a satellite campus for the UNC-Chapel Hill Doctor of Pharmacy program in which all students are admitted into a single accredited degree program, through a single admission process, with participation of faculty representing both campuses. Upon completion of the requirements set forth in this partnership agreement, students on the ECSU campus will receive a Bachelor of Science in Pharmaceutical Sciences from ECSU, with acknowledgement of the partnership with UNC-Chapel Hill, and a Doctor of Pharmacy degree from UNC-Chapel Hill, with acknowledgement of the partnership with ECSU. Additional details are found in the appended reports.

Instructional and operational planning for this program began in earnest in March 2004 with the appointment of Kim Deloatch, clinical associate professor, as program director and Sarah Paliulis, instructional designer and technologist, as lead technology consultant. Under their direction, planning has been initiated, and in some cases completed, with regard to operational issues (e.g. admission process, dual campus enrollment and course

registration, payment of tuition and fees, provision of student services, including financial aid and advising), facilities and technology issues (classroom redesign, hardware and software selection), pedagogical issues (e.g. designing and delivering instruction via distance delivery) and faculty training and development for distance education. The status of planning and development in these areas will be discussed under the relevant standards throughout this report.

The School of Pharmacy has initiated a strategic planning process. Resource needs associated with enrollment expansions on the Chapel Hill and ECSU campuses will continue to be considered through this process.

The AHEC program is also currently conducting a strategic planning process. Information related to the enrollment expansions, on both campuses, has been communicated to the strategic planning group. The need for additional clerkships has been identified as a primary concern, for both UNC-Chapel Hill and ECSU enrollment increases. This expansion creates the need for approximately 250 additional clerkship months. The greatest impact of these will begin with the 2008-2009 academic cycle, when these students enter their PY4 experiential training. The School of Pharmacy has been in ongoing communication with the AHEC director (Dr. Tom Bacon) regarding additional AHEC resources needed to support the enrollment expansion on both campuses. A May 31st meeting is scheduled with Dr. Bacon and the directors of the AHEC centers in the northeastern part of the state to discuss the impact of enrollment expansions, particularly through the ECSU initiative. Requests for additional AHEC resources for the next budget cycle will be developed in consultation with the AHEC directors.

Standard 3: Systematic Assessment of Achievement

The School's curriculum evaluation plan was reported to ACPE in the 1999 self-study and has since been implemented (see Appendix 3). This plan continues to evolve as we test and refine various assessment tools and processes.

Of note is the recent appointment of a program assessment team within the School of Pharmacy (see Appendix 4). This committee is composed of faculty representatives from the Office of Professional Education, the Professional Experience Program, and each of the School's divisions. The committee also includes student members. In addition, staff from the UNC-Chapel Hill Center for Teaching and Learning have agreed to serve as a resource. This committee will continue to refine our assessment tools and processes and guide their adaptation for the partnership program.

The evaluative processes currently used by the School of Pharmacy will be applied to the collaboration with ECSU, and relevant measures will be assessed for both positive and negative effects of enrollment increases (e.g. employment rates, student satisfaction with resource access, instructional quality or clerkship quality). Assessment findings for most measures, especially indicators of student achievement, will be compared between UNC-Chapel Hill and ECSU cohorts and results will be used to modify the program as needed.

In addition to our current assessment methods, the MOU for the partnership with ECSU programs identifies a number of markers of program success for which we will develop assessment tools and processes, and a timeline for evaluating data related to each of these criteria. We will also develop student and faculty satisfaction survey items to assess the distance delivery aspects of the program.

Standards 4-6: Organization and Administration

Thus far, the only administrative changes associated with the ECSU partnership include the appointment of a director (Deloatch) and IT staff (Paliulis) for collaborative PharmD initiatives. The planned appointments of an associate dean, clinical faculty and administrative and IT staff at ECSU are outlined in the MOU. Recruitment for the associate dean and program director for the ECSU campus is underway. This position will be funded through ECSU with the primary (associate dean) appointment at ECSU and a secondary (program director) appointment at UNC-Chapel Hill. Recruitment is also underway for the first of four to five clinical faculty positions to be located at ECSU. The search committee for these positions includes faculty from both UNC-Chapel Hill and ECSU as well as the director of pharmacy at Albemarle Hospital in Elizabeth City (see Appendix 5). No additional faculty or administrative resources have been identified to support the UNC-Chapel Hill enrollment increase.

The rights and responsibilities of pharmacy faculty based at UNC-Chapel Hill will be extended to faculty on the ECSU campus. ECSU faculty and students will be appointed to School of Pharmacy committees and will be expected to participate in the development, implementation and assessment of all facets of the professional program. The associate deans on each campus will collaborate to develop annual review processes that address the responsibilities and accountabilities of faculty to each campus.

Both partners are sensitive to the geographic distance that separates the two campuses as well as cultural and operational differences between the two institutions. Every effort will be made to develop a sense of collegiality between faculty at UNC-Chapel Hill, ECSU and the AHECs. Regular faculty visits to ECSU for instructional delivery are planned, and frequent faculty and committee meetings will be conducted by video-conference.

Standard 7: Responsibilities of the Dean of the School of Pharmacy

Dean Blouin has been actively involved with the leadership at UNC-Chapel Hill and ECSU in the development of the MOU for the partnership program and in negotiations for resources to support the initiative. He is also actively involved in defining operational parameters for the partnership and negotiating contracts for technology, facilities, and pedagogical development services.

With completion of the MOU and with the appointments of an associate dean at ECSU and an executive associate dean at the UNC-Chapel Hill campus, it is anticipated that the dean will maintain global oversight and accountability for this initiative while delegating many of the operational details to the associate deans and program directors. These details will be clarified once a full leadership team is in place.

Standards 8-14: Standards for Curriculum

Standards 8-11: Curricular Intent; Organization and Length; Competencies and Outcome Expectations; Area and Content of Curricular Core

As noted earlier, the curricular mission, goals, organization, length of study, professional competencies, outcome expectations, areas for and content of didactic and experiential instruction will be identical for students on both campuses. These were documented in the 1999 self-study and subsequent interim reports and will be updated in the 2006 self-study.

Standard 12: Teaching and Learning Processes

As we initiate this partnership, students at ECSU will receive most of their core instruction through live video-teleconference (VTC) of courses being taught in Chapel Hill. As the program matures, we anticipate that faculty at ECSU will be involved in the teaching of core and elective courses, with UNC-Chapel Hill students participating in those classes via VTC. We also intend to have UNC-Chapel Hill faculty travel to ECSU periodically to teach their classes from that location.

Pharmaceutical Care Laboratory (PCL) courses will be taught through a combination of VTC interactions and on-site instruction. ECSU students will join a group of UNC-Chapel Hill students (4-5 students from each campus) during lab sessions for discussion activities and student presentations. "Hands on" activities, such as compounding, physical/patient assessment, device practice and patient interview or counseling practice will be facilitated in most cases by a faculty member on the ECSU campus. Over time, we hope to develop residencies in the Elizabeth City area and to involve those residents as clinical instructors in the PCL program at ECSU, consistent with the UNC-Chapel Hill campus model. An open VTC channel to the PCL lab director and compounding lab manager will be maintained during each lab session to ensure that students at ECSU are fully supported in their efforts. PCL course directors will provide instructional materials and supply lists to the ECSU faculty (lab facilitator) well in advance of each lab activity, to assist in his/her preparation for lab. The ECSU instructor will also participate, via videoconference, in the weekly training session for PCL group facilitators on the UNC-Chapel Hill campus.

The School has contracted with several partners on the UNC-Chapel Hill campus to provide technical and pedagogical support for this program, and a number of initiatives are underway to help UNC-Chapel Hill faculty prepare for effective instructional delivery to students at a remote location. The UNC-Chapel Hill Institute of Science Learning (ISL) has considerable distance education experience in the sciences as well as considerable experience facilitating collaborations between UNC-Chapel Hill and historically black colleges in the UNC system. The School of Pharmacy has contracted with them to review and assess current teaching methodologies in the PharmD Program and to assist in the development of faculty training to introduce pedagogical approaches and technology applications appropriate to distance education. Additionally, in consultation with the School of Pharmacy's program director and IT group, and the UNC-Chapel Hill Multimedia Classroom Design Services (MCDS), ISL is managing the technology design and implementation process to upgrade our classrooms to facilitate videoconferencing and other distance delivery methods (see Appendix 6). ECSU has entered into a similar contract with ISL and MCDS to coordinate the design and installation of compatible technologies in the modular structures that will temporarily house the PharmD Program at ECSU. We also have several projects underway, with assistance from the instructional development team at the UNC-Chapel Hill School of Public Health (SPH), to develop web-based enhancements for the physiology and pharmacotherapy courses. Similar projects are planned for the next 2-3 years in consultation with ISL and SPH.

To initiate instruction for the first cohort in the partnership program, we are developing a week-long orientation program on the UNC-Chapel Hill campus that will include first class meetings in each course for all PharmD students (UNC-Chapel Hill and ECSU). This will provide opportunities for students and faculty on both campuses to meet face-to-face and enable ECSU students to get UNC-Chapel Hill ID cards, purchase books, and resolve financial aid issues before beginning classes at ECSU. We will also use this time to complete the final field tests of our video-teleconferencing technology by broadcasting to

faculty and administrators at ECSU. Finally, we will use this week to provide all new students with a "distance learning" experience by conducting some activities in which the students are divided between two classrooms, sometimes in the "home" classroom and sometimes in the "remote" classroom.

Standards 13-14: Evaluation of Student Achievement and Curriculum Evaluation

As noted under Standard 3, student achievement and curriculum evaluation processes will be replicated for the ECSU cohort. Of particular interest to us will be the comparison of measures of achievement and of student and faculty satisfaction between campuses.

We will work with ECSU and UNC-Chapel Hill pharmacy faculty this summer to develop policies that clearly define grading policies and procedures as they relate to the ECSU students, including how tests will be delivered to ECSU, how exams and assessments will be administered and proctored at ECSU, where and how ECSU student exams will be graded, how completed exams will be returned to UNC-Chapel Hill, who is responsible for moving exam and performance assessment results between the two campuses, how test and performance assessment data will be analyzed and reported, and what security issues are raised with regard to exams, student test results/grades, and academic records moving between campuses.

It is our intention to collect psychometric data for objective tests and scored performance assessments (e.g. OSCEs) in a way that facilitates analysis of results for the combined cohort as well as for the individual cohorts. We are also exploring ways to adapt student portfolios to an electronic format that can be accessed easily by faculty on either campus and by preceptors and faculty in the experiential program.

Standards 15-22: Standards for Students

Standard 15: Organization of Student Affairs within the School of Pharmacy

Students on the ECSU campus will have access to all of the services provided through the Office of Student Services in the School of Pharmacy on the UNC-Chapel Hill campus, and will have some additional advising and counseling services provided on the ECSU campus. ECSU students will be held accountable to the same student affairs policies and requirements as UNC-Chapel Hill students, including admission, progression, technical and professionalism standards.

Students will pay tuition and fees to, and receive financial aid from, the UNC-Chapel Hill campus. The UNC-Chapel Hill Financial Aid Office is aware of our intentions to enroll students from ECSU and is prepared to meet their needs through a formula that includes consideration of UNC-Chapel Hill tuition and fees; ECSU housing and living expenses; books, supplies, and technology requirements for the PharmD Program; and frequent travel and accommodation costs to the Chapel Hill campus.

ECSU students will receive admission, enrollment and registration information and assistance through the Office of Student Services at the UNC-Chapel Hill School of Pharmacy and will register for classes through the UNC-Chapel Hill registration system. Their academic records will be maintained in the Office of Student Services at the UNC-Chapel Hill School of Pharmacy. We are currently working with the University registrars on both campuses to develop a system for transferring transcript information between campuses, so that a full up-to-date academic transcript is available on both campuses for

PharmD students. Mechanisms for doing so are unresolved pending resolution of administrative obstacles that limit recognition of PharmD students as "enrolled students" at ECSU (because they will not pay tuition and fees at ECSU). Possible solutions are being discussed with leadership in the ECSU comptroller and bursars offices.

Pre-pharmacy advising and recruitment efforts will emanate from both campuses. We note that recruitment efforts for this first cohort of ECSU students were hampered by lingering uncertainties about program status and the absence of a professional (clinical) faculty and staff on the ECSU campus to assist with these efforts. Recruitment efforts from ECSU were also hampered by a key, unfilled position in the N.C. Health Careers Access Program (HCAP), which routinely organizes health-related information sessions and events on the ECSU campus and in the surrounding high schools. We are advocating that recruitment processes be expedited to fill these key positions as soon as possible.

UNC-Chapel Hill faculty will serve as academic advisors and career counselors to students at ECSU as we initiate the partnership, with some supplemental academic and personal counseling services available at ECSU. Faculty (course directors and advisors) will have webcams and videoconferencing software installed on their office computers to facilitate one-on-one, on-demand interactions with remote students. "Office hour" stations will be set up at ECSU to provide students with access to UNC-Chapel Hill faculty and advisors. Advisors will also be encouraged to meet with their advisees on the ECSU campus at least once each semester. As the ECSU faculty grows, the academic advising responsibilities may be shifted to faculty based at ECSU.

Tutoring will also be provided through the tutoring service at the UNC-Chapel Hill School of Pharmacy until an adequate pool of tutors (advanced PharmD students) can be developed at ECSU. Similar to the advising functions, students and tutors will have access to teleconference-capable computer workstations and file-sharing software to facilitate these interactions. Faculty based at ECSU will monitor the academic support needs of the ECSU cohort, and will work with the Office of Student Services to develop mechanisms to assist students as the need arises.

We have agreed with the ECSU administration that health care and psychological counseling services are most logically and conveniently provided to students from the ECSU campus. Mechanisms for providing these services are unresolved, pending resolution of administrative obstacles that limit recognition of PharmD students as "enrolled students" at ECSU (because they will not pay tuition and fees at ECSU). Possible solutions are being discussed with leadership in the ECSU bursars, comptroller and registrar offices.

During the past two years, the School of Pharmacy reached an all-time high in the number of applications to the PharmD Program. The School of Pharmacy processed 817 applications for Fall 2004 (with application deadline of February 1st) and 610 applications for Fall 2005 admissions (with application deadline of November 1st), including 48 for the ECSU campus. Although final data will not be available until later this summer, current statistics show that the pool remains highly competitive.

Standards 16 and 17: Admission Criteria, Policies and Procedures; Transfer of Credits and Waiver of Requisites for Admission with Advanced Standing

The same criteria, policies and procedures for admission, credit transfer, and prerequisite waivers will be applied to students on both campuses. As described in our previous self-study, admissions criteria for the PharmD Program consider academic performance, PCAT

scores, written and verbal communication skills, life experiences, and evidence of motivation, self-directed learning capacity, and career exploration. As we progress through this partnership, we will carefully monitor student success and continue to explore whether a modified formula (of indicators potential for success) is needed to more effectively recruit students from minority and underserved communities.

Representatives from the ECSU campus were appointed to this year's admission committee and have participated in the application review, interview, and selection process this year. These representatives travel to Chapel Hill for interviews and some committee meetings, but we also arrange for them to join meetings via teleconference to minimize their travel burden. This practice will continue throughout the partnership.

Standard 18: Progression

Progression criteria are published and delivered for each entering class in the Doctor of Pharmacy Program. These criteria are refined annually as the program matures and as challenges arise with implementation of rigorous performance and progression standards.

Students on both campuses will be held accountable to the same technical, behavioral and progression standards, and the same policies and procedures will be used to monitor student performance and determine appropriate student services on both campuses. ECSU and/or regional AHEC faculty will be appointed to the Progression Committee to ensure that perspectives from both campuses are represented and information is communicated appropriately between campuses. As noted earlier, we will develop additional advising, counseling, and tutoring services on the ECSU campus as soon as appropriate personnel are available.

Standard 19: Disclosure of Program Information

Programmatic and admissions information for the PharmD Program are available on the School of Pharmacy website. Pre-requisite course requirements and general programmatic descriptions are also available in the University's undergraduate bulletin and are provided to academic advisors at high schools, colleges, and universities across North Carolina.

Because of the uncertainties about the exact nature and status of the partnership until the recent completion of the MOU, neither campus produced recruitment materials or specific website information for this initial admissions cycle, other than to note that the program would be starting in Fall 2005 and to provide contact information. These materials are now being planned and developed and will be available before the next admission cycle begins in June 2005.

Standards 20 and 21: Student Representation and Student Perspectives in Program Evaluation and Development

The UNC-Chapel Hill student body is well represented on relevant standing committees and task forces in the School of Pharmacy. These opportunities will be extended to students at ECSU. Students based at ECSU will also participate in ali course and instructor evaluations, course review and development focus groups, and in all other opportunities to provide input to curriculum development and evaluation, planning for orientation, or planning for school sponsored events. Access to VTC facilities and periodic travel accommodations will be provided to allow ECSU students to participate routinely in these activities.

Standard 22: Student /Faculty Relationships

Positive and nurturing relationships through classroom, professional and social interactions between students and faculty are an honored tradition on the UNC-Chapel Hill campus and are viewed as one of the great strengths of the School of Pharmacy. We are cognizant of the impediments to these relationships imposed by the distance between UNC-Chapel Hill faculty and ECSU students. We are pursuing multiple strategies to ensure that students on the ECSU campus will benefit from the same supportive relationships with faculty that UNC-Chapel Hill students enjoy.

UNC-Chapel Hill faculty will be encouraged to make regular trips to the ECSU campus for teaching, advising and informal interactions and will be provided travel support to do so. Electronic gateways (videoconferencing workstations in faculty offices and student areas at ECSU) are being developed to give ECSU students easy and inexpensive access to communicate with faculty at UNC-Chapel Hill. The School will also sponsor a week-long orientation as well as several events each year that bring ECSU students to the UNC-Chapel Hill campus. Faculty (4-6) will be hired at ECSU and will serve as "first responders" to students in Elizabeth City. We will also work to provide regular opportunities for students to engage with AHEC and community-based faculty in northeastern North Carolina to provide additional mentoring opportunities.

Standards 23-24: Faculty and Staff, Quantitative and Qualitative Factors

A primary factor in developing a partnership program at ECSU, rather than a new stand-alone school of pharmacy, is the presence of a highly qualified pharmacy faculty, at UNC-Chapel Hill and in the AHECs, representing diverse backgrounds and disciplines. This will enable us to provide a high quality instructional program to students at ECSU with minimal investment in additional faculty. We believe we have a sufficient critical mass of faculty to provide for high quality didactic instruction for the additional students from both UNC-Chapel Hill and ECSU enrollment increases. We are exploring opportunities to provide faculty incentives or overload payments for their participation in the additional efforts required to deliver distance education. We will also monitor faculty workload to ensure that faculty ability to effectively engage in scholarly activity is not compromised.

It is clear at this time that we do not have sufficient AHEC and community-based faculty and clerkship sites to provide high quality advanced professional experiences for the additional students that the UNC-Chapel Hill and ECSU enrollment expansions will add to the system. This will be particularly pronounced in the northeastern region of the state. While the closing of the External PharmD Program will somewhat ease this burden, the strain on the AHEC system will be significant as students admitted in Fall 2005 approach their fourth professional year. As previously discussed, we have met with Dr. Tom Bacon, program director, North Carolina AHEC Program, to discuss this additional burden and the need for new financial, personnel and facility resources. He has committed to advocate for these new resources and is working with us to create a funding proposal for the next biennial budget. A meeting is scheduled for May 31st with Dr. Bacon and the AHEC directors in the two regions in closest proximity to ECSU to identify practice sites with growth potential, to clarify the additional resources needed to accommodate the new concentration of students in those regions, and develop the appropriate budget proposals.

Once the School receives information regarding AHEC resources, discussions will proceed to identify partners across the state for split-funded positions. Currently, UNC-Chapel Hill utilizes approximately 250 clerkship sites in North Carolina. Community-based (split-funded)

faculty represent 11 of those sites. Clinical faculty at ECSU will be expected to explore opportunities for new site development in the northeast region of the state and to participate in the development of those sites.

ECSU plans to hire an associate dean and four clinical faculty members for the ECSU campus and is currently recruiting, in consultation with the UNC-Chapel Hill faculty and administration, the associate dean and first clinical faculty. Among other responsibilities, clinical faculty will serve as classroom facilitators during VTC classes and will manage laboratory instruction on the ECSU campus. Position descriptions for ECSU faculty are included in Appendix 4. ECSU will also hire an additional staff, including administrative assistant, IT and recruiter/counselor positions.

With faculty located across the state, the School of Pharmacy recognizes the need for effective communication with faculty. Through a collaborative effort with the statewide AHEC Program, the School of Pharmacy is in the process of significantly enhancing remote faculty's ability to connect and interact with the School. This is a two-pronged effort. First, the School is upgrading its ability to transmit and receive telecommunications, adding hardware and bringing many classrooms and seminar rooms at the School's two campuses "online". Second, the School and the AHEC Program will be providing each AHEC/Community-based faculty member with a laptop and the associated hardware configured to allow interactive communications with the School. Work is now underway on both tracks of this program. Laptops have been ordered, and software is being reviewed. In addition, costs and logistical feasibility of various options are being evaluated. IT staff in the AHECs have been contacted by the interim director of information technology at the UNC-Chapel Hill School of Pharmacy to facilitate the setup of the laptops to make them compatible with AHEC/site networks. The outcome of this effort will be to enable off-campus faculty to utilize a two-way interactive audiovisual environment to lecture/present in Kerr Hall class/seminar rooms, participate in seminars and retreats of the division and the School, and participate in AHEC and division meetings, all without leaving their practice site.

Standards 25-26: Faculty Evaluation and Self-Evaluation

Criteria and processes for ECSU faculty evaluation are being developed to reflect the policies and practices of both campuses. ECSU faculty will be evaluated by students in the same manner as UNC-Chapel Hill faculty. Because of the nature of this collaboration, it is likely that scholarship of teaching and learning, as well as scholarship associated with practice development, will be emphasized for these faculty members. Evaluative processes will be developed so as to support and reward these activities. Faculty self-reflection and self-evaluation will be fostered through the annual review process as well as through the requirement to maintain a teaching portfolio. Peer assessment of teaching will be addressed through the ongoing course review process.

Standard 27: Library and Educational Resources

The UNC-Chapel Hill Health Sciences Library (HSL) is one of the top medical library systems in the nation, and the UNC-Chapel Hill School of Pharmacy is fortunate to have a very positive relationship with the library administration. School of Pharmacy faculty representatives serve on the HSL Board of Visitors and Advisory Committees, and HSL staff are assigned to work specifically with the School for both student training and research support.

The HSL recently completed two years of redesign and renovation. The library is now able to house older print books and journals in high density-shelving, while creating more space for users to work with electronic information at library workstations or using personal laptops or palmtop computers and the wireless network throughout the building. Most of the new information sources that the library acquires are electronic. New additions to the library include 140 public computer workstations, two computer laboratories with 54 stations, two classrooms with 55 workstations and nineteen study rooms with computer display panels, whiteboards, wired and wireless connections.

Students at ECSU will have access to the UNC-Chapel Hill collection and librarians through a vast digital library network and an inter-library loan system. We have also provided ECSU with a list of reference texts and journals to consider adding to their campus or School of Pharmacy libraries.

Standards 28-29: Physical and Practice Facilities

The planned enrollment expansion at the UNC-Chapel Hill campus is now feasible since the Banks D. Kerr Hall has been completed. This 76,600-square-foot addition to the existing School of Pharmacy includes two 142-seat lecture halls.

In addition to the completion of Kerr Hall, Beard Hall is undergoing a 6.5 million dollar renovation. This project addresses repair, replacement, and enhancement to critical outdated infrastructures such as heating ventilation and air conditioning, plumbing, electrical systems, fire sprinklers, and fire alarms. Private funding will support extensive renovation of basement and first floor spaces, including renovation of an intermediate-capacity (60-seat) classroom and construction of a second intermediate-capacity classroom, a 30-seat classroom, six 16-seat seminar rooms, three 8-seat meeting rooms, new computer facilities, and a new student lounge to serve the professional program. Over the next three years, both intermediate-capacity classrooms and five 16-seat seminar rooms will be equipped for videoconferencing to remote sites, e.g. ECSU. This renovation project will also result in expansion of and improvements to the suites for the Office of the Dean and Office of Student Services, and additional faculty and staff offices. First and second floor renovations are scheduled for completion in July 2005. Limited renovation of research laboratories on the second and third floors of Beard Hall will be complete in January 2006.

The School of Pharmacy and the School of Medicine broke ground February 16, 2005 on the University's $110 million Genetic Medicine Building. The seven-story facility, scheduled for completion in 2007, will be located off Mason Farm Road, just east of the Environmental Protection Agency building. School of Pharmacy researchers will occupy approximately 75,000 square feet of laboratory space on the first and second floors of the building, allowing them to work closely with their colleagues in Medicine and giving Pharmacy a strong presence in the heart of Carolina's health sciences campus.

ECSU has leased an 8,000-square-foot modular structure to house the PharmD Program until a permanent building can be constructed. This facility will house two lecture classrooms to accommodate 25 students; a Pharmaceutical Care Lab suite containing a compounding lab, IV room, four VTC capable conference rooms, storage and lab prep space; four faculty offices with adjoining conference space; an office suite for the associate dean, including a conference room and staff offices and work room, a student lounge and reception area, and a technology core (see Appendix 7). ECSU is awaiting notification of release of funds from the state legislature to initiate its building program for the permanent facilities. They hope to be able to begin the design process by summer 2005.

As noted earlier, we are working with AHEC personnel to identify additional practice sites to target for development as introductory and/or advanced experiential training sites, especially in northeastern North Carolina.

Standard 30: Financial Resources

UNC-Chapel Hill Campus Enrollment Expansion: The School of Pharmacy is presently working with the Office of the Provost to finalize details involving tuition dollar flow to the School. It is expected that this enrollment increase will generate an additional $1,600,000 to the School of Pharmacy's budget. This resource will be needed to support program expansion.

ECSU Campus Enrollment Expansion: The School of Pharmacy received $250,000 (FY 2003-2004) from the UNC Office of the President to initiate this program. It is expected that this level of support will continue and is expected to increase toward $1,200,000 in FY 2008-2009 when the program is projected to be fully enrolled (N=40 total; 10 students per year). This resource will be needed to support various aspects of this new initiative.

The North Carolina State Legislature has approved $28 million for the construction of a permanent building for pharmacy program activities on the ECSU campus. The design process for the building will begin during the summer of 2005. A temporary modular structure will house program activities beginning with the class entering in the fall semester of 2005 and will be utilized until completion of the permanent structure.

In addition to resources provided by the Provost's Office, Dr. Bacon, director, North Carolina AHEC program, plans to seek funding to support additional pharmacy faculty in the AHEC regions. The need for additional AHEC housing and funds for preceptor payments has also been addressed with the AHEC program.

II. Recruitment of Division Chairs

Michael D. (Mick) Murray, PharmD, MPH was appointed as chair of the Division of Pharmaceutical Policy and Evaluative Sciences on July 1, 2004.

Kim L. R. Brouwer, PharmD, PhD was appointed as chair of the Division of Pharmacotherapy and Experimental Therapeutics on September 15, 2004.

Leaf Huang, PhD has accepted the appointment as chair of the Division of Drug Delivery and Disposition to be effective July 1, 2005.

APPENDIX H: INSTITUTIONAL REVIEW BOARD APPROVAL LETTERS

University and Medical Center Institutional Review Board
East Carolina University
Ed Warren Life Sciences Building • 600 Moye Boulevard • LSB 104 • Greenville, NC 27834
Office **252-744-2914** • Fax **252-744-2284** • **www.ecu.edu/irb**
Chair and Director of Biomedical IRB: L. Wiley Nifong, MD
Chair and Director of Behavioral and Social Science IRB: Susan L. McCammon, PhD

TO: Susan Peck, 105 Lee Circle, Elizabeth City, NC 27909

FROM: UMCIRB

DATE: September 23, 2008

RE: Expedited Category Research Study

TITLE: "Curricular Joint Venture: A Model for Meeting Community and Educational Demands"

UMCIRB #08-0523

This research study has undergone review and approval using expedited review on 9.19.08. This research study is eligible for review under an expedited category because it is on collection of data from voice, video, digital, or image recordings made for research purposes. It is also a research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.)
Dr. S. McCammon deemed this **unfunded** study **no more than minimal risk** requiring a continuing review in **12 months**. Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The investigator must adhere to all reporting requirements for this study.
The above referenced research study has been given approval for the period of **9.19.08** to **9.18.09**. The approval includes the following items:

- Internal Processing Form
- Appendix A: Interview Questions
- Appendix F: Contact Summary Form
- Appendix G: Document Summary Form
- Appendix H: Informed Consent
- Letter of Support: ECSU (dated 8.20.08)
- Letter of Support: UNC-CH (dated 9.4.08)

Dr. S. McCammon does not have a potential for conflict of interest on this study.

The UMCIRB applies 45 CFR 46, Subparts A-D, to all research reviewed by the UMCIRB regardless of the funding source. 21 CFR 50 and 21 CFR 56 are applied to all research studies under the Food and Drug Administration regulation. The UMCIRB follows applicable International Conference on Harmonisation Good Clinical Practice guidelines.

ELIZABETH CITY STATE UNIVERSITY
1704 WEEKSVILLE ROAD ELIZABETH CITY, NC 27909

PSYCHOLOGY DEPARTMENT
http://tep.ecsu.edu

CAMPUS BOX 856
TEL: (252) 335-3591
FAX: (252) 335-3554

Date: September 19, 2008

To: Ms. Susan J. Peck
Director of Instructional Technology
UNC-Chapel Hill/ECSU Doctor of Pharmacy Partnership Program
Elizabeth City State University
Elizabeth City, NC 27909

From: Kulwinder Kaur-Walker, PhD
Chair, Elizabeth City State University IRB #1
FWA00005759

Sub: IRB #080049 – Curricular Joint Ventures: A Model for Meeting Community and Educational Demands

Risk Level: Minimal Status: Expiration date: 9/18/09

This letter is to officially notify you of the approval of your above referenced protocol by the Institutional Review Board (IRB) for the Protection of Human Subjects via an exempt status review process pursuant to Federal regulations (45CFR46).

You are authorized to implement this study as of the Date of Final Approval: **09/19/08**. This approval is Valid Until: **09/18/09**

This project should be conducted in full accordance with all applicable sections of the IRB guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board ASAP. For projects that continue beyond one year from the starting date, the IRB will request continuing review and update of the research project. Your study will be due for continuing review as indicated above. The investigator must also advise the Board when this study is finished or discontinued.

If you have any questions, please contact me at 252-335-3410 or email at kpkaur@mail.ecsu.edu OR Mr. Frank Kiah, IRB Administrator at 252-335-3798 or email at fkiah@mail.ecsu.edu.

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

OFFICE OF HUMAN RESEARCH ETHICS
Medical School Building 52
Mason Farm Road
CB #7097
Chapel Hill, NC 27599-7097
(919) 966-3113
Web site: ohre.unc.edu
https://my.research.unc.edu for IRB status
Federalwide Assurance (FWA) #4801

To: Susan Peck

1704 Weeksville Rd CB# 973 Elizabeth City NC 27909

From: Behavioral IRB

Authorized signature on behalf of IRB

Approval Date: 9/24/2008
Expiration Date of Approval: 9/23/2009

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)
Submission Type: Initial
Expedited Category: 7.Surveys/interviews/focus groups,6.Voice/image research recordings
Study #: 08-1514

Study Title: Curricular Joint Venture: A Model for Meeting Community and Educational Demands

This submission has been approved by the above IRB for the period indicated. It has been determined that the risk involved in this research is no more than minimal.

Study Description:

Purpose: To provide an analysis of the complexities of implementing a new UNC-Chapel Hill/ECSU PharmD Partnership Program.

Participants: An educational leader at each university, a representative from the state legislator's level, a member of the state legislative black caucus, a faculty member at each university, and two members from the innovative instructional program design team, both of whom were involved in the original planning and implementation of the UNC-Chapel Hill/ECSU PharmD Partnership Program.
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Procedures: Conduct interviews.

Investigator's Responsibilities:

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator's responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.

When applicable, enclosed are stamped copies of approved consent documents and other recruitment materials. You must copy the stamped consent forms for use with subjects unless you have approval to do otherwise.

You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented (use the modification form at ohre.unc.edu/forms). Should any adverse event or unanticipated problem involving risks to subjects or others occur it must be reported immediately to the IRB using the adverse event form at the same web site.

Researchers are reminded that additional approvals may be needed from relevant "gatekeepers" to access subjects (e.g., principals, facility directors, healthcare system).

This study was reviewed in accordance with federal regulations governing human subjects research, including those found at 45 CFR 46 (Common Rule), 45 CFR 164 (HIPAA), 21 CFR 50 & 56 (FDA), and 40 CFR 26 (EPA), where applicable.

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