ABSTRACT

A Qualitative Study of the Development of a Health Sciences Center
at a Two-Year Community College

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One purpose of this research was to investigate the dynamics of collaboration in the formation of a health sciences center at a two-year college. Another purpose was to propose guidelines that other community colleges could use in establishing similar healthcare training facilities, ones that place a heavy emphasis on human simulation. The overarching research in this investigation was, "What factors played an important part in the collaborative effort to create an innovative healthcare educational complex at a community college?"

This 2006 study relied on a case study methodology to examine the collaborative process. There were six research questions related to: 1) establishing collaborations, 2) sustaining collaborations, 3) evolving processes, 4) critical events, 5) threats to success, and 6) the importance of human simulation. Interviews were carried out with 25 individuals who came from the college, local hospitals, the city, donors, manufacturing, and design staff. Data were collected from the participants using the qualitative responsive interviewing technique of Rubin and Rubin (2005). A total of 236 concepts were identified in the analysis of the interview transcripts. These concepts were then

reduced to the most important 28 concepts related to the Health Sciences Center's (HSC) success.

From the 28 derived concepts, 5 major factors were identified and presented as recommendations for the development of HSCs. These factors were: 1) strong leadership, 2) collaborative efforts, 3) adequate fundraising sources and strategies, 4) good communication, and 5) need for simulation technology. An eleven step process was further developed, presented, and discussed in an attempt to help two-year colleges in the establishment of such centers. This process included consideration of the following areas: 1) scope, 2) Collaboration, 3) leadership, 4) trust, 5) community 6) communication, 8) funding, 9) design, and 10) construction/use.

It is hoped that the findings of this study might be useful for other community colleges contemplating the challenging task of building their own health sciences training facility.

A Qualitative Study of the Development of a Health Sciences Center
at a Two-Year Community College

by

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A Dissertation

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DEDICATION

To Vivian M. Cornelius, my mother, who for so many years

was a quiet supporter of most of my endeavors and looked

forward to the day when this work would be completed.

I sure miss you.

CHAPTER ONE

Introduction

Healthcare training has become a challenge for institutions at all levels. In an era of government funding cut-backs and increasing demands on the entire healthcare system, novel approaches to financing and training are called for to ensure a continuous and competent workforce. Chief among these strategies are efforts at collaboration between stakeholders to stretch dollars and provide meaningful educational opportunities for their students. Another strategy that couples with efforts at collaboration is the growing use of simulation for healthcare learners at all levels. Both simulation and collaboration are approaches to increasing efficiencies in healthcare training that are closely tied to funding issues.

Institutions of higher learning are confronted with many challenges in the 21st century. Economic problems related to state funding are especially relevant to community colleges (Roueche & Jones, 2005). In a policy paper projecting fiscal year 2004 deficits, the American Association of State Colleges and Universities (2003) found that of 50 states, 37 were expected to have between 5 and 10% shortfalls in state appropriations. A study, commissioned by the Education Commission of the States (2000), noted that the most important issues facing community colleges were state funding shortfalls and inadequate local financial support. At the same time legislatures, public interests, and accreditation agencies demand greater efficiencies and accountability (Eckel, Hill & Green, 1998). Community colleges must adapt to these changing environments or lose enrollments, funding, and possibly, accreditations.

Educating healthcare students is often thought of as especially demanding due to the continual advances in treatment procedures, drugs, and new technologies. Complications in the healthcare workplace have placed further burdens on the healthcare education system. There are often fewer clinical resources available for students because of staff shortages and fewer hospital beds from closures due to worker shortages. Many of the staff who do continue to work also act as preceptors for educational programs, but are so burdened by increased institutional workloads they find it difficult to spend time with students because of increased patient loads and patient acuities (Dunlevy, Hoberty, & Galvin, 1997).

There is increasing complexity in virtually every area of healthcare, and conversely, there are fewer clinical resources with which to expose students to patients, equipment, and procedures. This problem is coupled with credentialing/licensing examinations calling for higher degrees of critical thinking skills. The expectations for students of programs at all levels are increasing (Chapman, Showstack, Morrison, Franks, Woo & O'Neil, 2004).

According to the Bureau of Labor Statistics, the need for increased healthcare employment will continue to grow almost 29% over the period 2002-2012 (Occupational Outlook Quarterly, 2004). Based on these projections colleges and universities are now attempting to meet this predicted demand by increasing the availability of facilities and faculty to handle increased student enrollments. Shortfalls in healthcare personnel are projected to continue and are likely to affect the quality of health services (Howell, 2005; National Center for Health Workforce Analysis, 2002). As a result, educational institutions must find ways to increase teaching effectiveness while at the same time

increasing numbers of graduates for medicine, nursing, and most areas within allied health.

Healthcare costs exceeded 2.1 trillion dollars or 16.3% of Gross Domestic Product (GDP) in 2006 (Keehan, Sisko, Truffer, Smith, Cowan, Poisal, et al., 2008). By 2017 expenses for medical care are projected to reach 4.3 trillion dollars and will account for 19.5% of GDP. This represents an almost 2% faster growth rate in healthcare costs than GDP growth. These costs must be borne by consumers and providers. Hospitals and educational institutions are hard-pressed to handle the increases since their financial margins are becoming increasingly narrow (Comarow, 2000; Van Der Werf, 1999). Another complicating factor leading to increasing healthcare costs is the nature of third-party payers. Insurance companies have all increased premiums to consumers for healthcare coverage and to providers for liability insurance (National Coalition on Health Care, 2004). A potential and partial answer to many of these challenges may be the development of training facilities that encourage higher degrees of competence in students. The creation of community college health science centers plays an important role in the development and expanding role of two-year institutions and their constituents. This should develop into an important component for better and safer healthcare.

For purposes of this research, an explanation is needed to clear any possible misunderstanding of what is meant by a community college-based health science center. It is generally understood that academic health centers (AHC), also known as academic medical centers (AMC), are part of the same parent organization or consortia between medical schools and healthcare institutions. It is appropriate to use the title Health

Sciences Center (HSC) for the facility in this research, given the building is dedicated to healthcare education for multiple programs as its primary mission, and it does function beyond the training of certificate and associate degree students for its native community college students. It is also used as a local and regional center for training healthcare providers at virtually all levels (from nurse aids to resident physicians). Further, it is a facility that actually does see patients routinely due to the presence of the dental hygiene clinic which acts as the clinical training site for the Associate in Applied Science (AAS) degree program in dental hygiene.

Collaboration

Within the last decade, many community colleges have had difficulty meeting their educational mandates while trying to deal with decreased state funding (Education Commission of the States, 2002). Several authors have recounted successes in gaining both stature and meeting funding challenges by engaging in collaborative efforts with their communities of interest (O'Banion, 1997; Roueche, Taber, & Roueche, 1995; Savukinas, 2004). O'Banion (1997) challenged the entire higher educational system to reform and be more responsive to students' needs and transform themselves into learning organizations (p. 225).

Higher education consortia are not new and have been around in one form or another since about 1925 (Patterson, 1974). The first was begun by the president of Pomona College, Claremont, California, who established a small group of colleges in the immediate area with a shared library and other facilities for joint use. The Claremont graduate school was the first of this cluster followed several years later by Scripps College, Claremont Men's College, Harvey Mudd College, and Pitzer College (Patterson,

1974). By the 1960s, higher education was growing substantially, and the consortium movement gained many followers (Baus & Ramsbottom, 1999; Patterson, 1974; Smith, Opp, Armstrong, Stewart, & Isaacson, 1999).

The formation of strategic alliances has been encouraged for decades, but creating a new community college health science center from the ground up was an important community and regional project. A broad array of stakeholders was engaged in planning and marketing for the new facility. All of this activity occurred during a time of great public concern over increased taxes. The $7.23 million bond election passed by a three to one margin in November, 2001 and funds were appropriated for the construction of the new facility.

Simulation

One of the main selling points in gaining support from the medical/healthcare community for the Health Sciences Center in this research appeared to be the college's interest in designing and outfitting simulated elements of an actual hospital. Support came from hospitals, private donors, and medical equipment and education suppliers. The proposal to incorporate high-fidelity human patient simulators into many of the educational spaces being planned created much interest. Simulation-based healthcare education appeared to intrigue many, especially since the college was not located in a major population center with ready access to large universities or other like resources. The college also did not have a large tax base from which to draw, nor was there the potential to promote funding from many large corporate entities due to its rural setting.

Part of the interest and support for the project seemed to come from one of the stated intents for the new facility and that was the use of high-fidelity human simulation.

Recent increases in the use of healthcare simulations, as a means of teaching/learning and certifying in recent years, has evolved as technology has improved (Kim, Neilipovitz Cardinal, Chiu, & Clinch, 2006; Southgate, Hays, Norcini, Mulholland, Ayers, Wolliscroft, et al., 2001). Validation of simulation methodology is well represented in the literature (Murray, Boulet, Ziv, Woodhouse, Kras, & McAllister, 2002). The use of simulations as appropriate teaching and learning tools has also been well delineated (Ziv, Small, & Wolpe, 2000; Helmreich, 1997)).

Human simulators are now routinely available, and although many are quite costly, the benefit to student healthcare practitioners has led to growing use and reliance on these types of learning tools, even to the extent that outside agencies use them for certifying entry-level practitioners in several fields such as emergency medical services (EMS), emergency room personnel, pediatric nurse clinicians, and others. Even though there has been tremendous growth in the development of simulation training, performance analysis of the process of developing facilities equipped to carry out such teaching/learning methodologies is scarce, but seems to be entering a logarithmic growth phase.

Design

Designers of educational spaces have instinctive feelings that the actual design of spaces for students is important to the learning process. In the design and construction of this college's health science center, it seemed clear that the closer the final product was to an actual healthcare facility, the better the practical learning environment would be. Additionally, it was thought important to have classrooms that were well connected to electronic media for the technologically sophisticated native programs and outside groups

that would use the facility. In consultation with the affected four programs of dental hygiene (DH), emergency medical services professions (EMSP), respiratory care (RC), and surgical technology (ST), elements of realism and advanced technology, along with appropriately designed hospital-like spaces, were incorporated into the design and construction.

Another consideration in the conceptualization and construction of the new facility was the mutually agreed upon need to work collaboratively with the college nursing program, the medical school, and other hospitals with an interest in high-fidelity simulation. There was a stated desire to work together in simulated clinical conditions with all the participants present as would naturally occur in the healthcare workplace. In numerous meetings when these topics were discussed, it was affirmed repeatedly that all the programs needed to address teamwork in actual hospital settings. The stakeholders agreed that the simulation center would present an ideal venue for such activities.

Problem Statement

The overarching research problem in this study was: "What factors played an important part in the collaborative effort to create an innovative healthcare educational complex at a community college?" Since the nation is now facing critical healthcare worker shortages at all levels (O'Neil, 2004; The Center for Health Workforce Studies, 2002), colleges, universities, and medical schools are now attempting to increase the availability of facilities, faculty, and programs to better handle increased student loads (Nance, 2005; Steinhauer, 2000). Shortfalls in healthcare personnel are projected to continue into the next decade (King, 2002). These factors give impetus to educational institutions to find ways to increase teaching efficiencies and increase numbers of

graduates for medicine, nursing, and allied health (Howell, 2005; O'Neil, 2004). Part of the effort to improve the quantity and quality of healthcare graduates would be to increase effectiveness by using teaching innovations based on available and developing technologies and learning theory.

The importance of this circumstance cannot be underestimated. Because healthcare costs are spiraling upward, it is important that more efficient facilities and methods for training providers caring for those in the weakest physical conditions be developed. A potential and partial answer to this challenge may be to develop simulation facilities at community colleges as important components of education leading to better and safer healthcare. The creation of community college health science centers is an important development for colleges and their constituents. This investigator sought to chronicle the collaborative development of such a center and provide more understanding of this important approach to educating healthcare providers.

Purposes

The purposes of this research was to investigate the dynamics of collaboration in the formation of an innovative healthcare training facility at a community college. The incentive for such innovations arose from a variety of individual, institutional, and corporate sources which were investigated in this study. Another purpose was to propose guidelines that other community colleges may want to consider in establishing similar innovative healthcare training facilities, ones that place a heavy emphasis on high-fidelity human patient simulation.

Research Question

The overarching question in this study was to determine what factors played an important part in the collaborative effort to create an innovative healthcare educational complex at a community college?

To answer the overarching research question and to carry out the purpose of this study, the following research questions were examined:

1. How were the collaborations first made?

2. How were the collaborations sustained?

3. What were the evolutionary processes in the development of the HSC?

4. What were the critical ideas, circumstances, and behaviors that influenced the development of successful partnerships for the project?

5. What were the critical ideas, circumstances, and behaviors that threatened the success of the partnerships?

6. How important was the use of human simulation to the formation of partnerships and to the successful completion of the project?

There is research to support the development of consortia throughout education, and in particular higher education (Maurrasse, 2002; Roueche, 1995). Some consortia have been developed among medical schools and, to some degree, among schools of medicine, nursing, and allied health. Community colleges likewise have long histories of collaboration among themselves and other entities, especially their own communities. Not much has been done with partnerships between community colleges, hospitals, and medical schools.

Significance of the Study

This study illustrated the importance of an entrepreneurial approach to collaboration for the initiation and continued success of this type of educational enterprise; perhaps, to a greater degree, it showed how this type of partnering can increase the availability of technical and clinically realistic facilities to engage community college students and others in better healthcare training. Entrepreneurship is noted by Roueche and Jones (2005) to be essential for community college survival in the years ahead. They contend, "Entrepreneurial organizations must choose risk taking, trust, and passion. They must cultivate an insatiable appetite for change, thrive on creative problem solving and rely on courageous leadership"(Roueche, p. 2). The community college in this study seemed to adopt those same suggested tenets and was able to leverage resources and generate new funding sources that were critical to achieving its goals.

For expensive healthcare programs such as the ones considered in this research, an entrepreneurial approach would appear to be required. Technically advanced equipment and procedures, such as one found in healthcare programs, can only be used and carried out if adequate resources are available. Students in the various programs and licensed practitioners in healthcare can better ensure patient safety and treatment efficacies if they are properly trained. What could be more significant than well prepared caregivers in our healthcare delivery system? The path to better training and education of all workers in our healthcare system is likely to be based on the efforts of entrepreneurial collaboration, since funding sources for education at all levels have been consistently eroding for more than a decade (Noftsinger, 2002; Roueche & Jones, 2005).

Assumptions

The assumptions which informed this study were:

1. Informants will cooperate and answer truthfully.

2. Participants were representative of all major constituents involved in the project.

3. Qualitative methodology is an appropriate method for determining the scope and depth of opinions expressed by participants.

4. Common themes will emerge which will effectively illuminate the topic.

5. The findings of this research may be meaningful to a larger population of healthcare professions within community colleges.

6. The approach used in the development of the HSC may be a model for other community colleges.

Delimitations

The delimitations of this study were:

1. The study only considered those persons involved in the development and ongoing support of this center.

2. Students were not interviewed

3. Interviews and follow-up interviews were conducted January through April, 2006.

Limitations

The limitations in this study were:

1. The focus of the study was on one community college and its constituents.

2. The results reflected the opinions of the informants which may have been influenced by elements outside the scope of this study.

3. The qualitative process used may have injected researcher bias, the researcher was one of the college department chairs involved in the project.

Definitions of Terms

Key terms used in this study were defined as follows:

1. Dental Hygiene Clinic - A clinic where student dental hygienists practice on patients under direct supervision of licensed dental hygienist instructors.

2. Health Sciences Center (HSC) - In this context it is used at the community college level, instead of the more usual partnership between a medical school and a sponsoring healthcare organization, to indicate a complex with a varied mix of multidisciplinary teaching/learning capabilities to the extent that some patients may be seen and cared for in its different settings. Many "patients" seen are actors or interactive human simulators.

3. High-Fidelity Simulator - a computer-based human simulator that is able to mimic many normal and abnormal human physiologic conditions. It may be evaluated by physical examination or other forms of automatic or semiautomatic monitoring which also mimics normal and abnormal physiologic conditions. They are usually very expensive. Most facilities typically have limited numbers of these units.

4. Low-Fidelity Simulator - a simulator that may provide elements of more advanced trainers, but without the realism inherent in more expensive models. More often used for noncomplex task training.

5. Mid-Fidelity Simulator - Moderately functioned device that lies somewhere between low and high fidelity simulators. May approximate the range of functions with somewhat less realism than high fidelity, and also less expensive. There is some conjecture in the literature about what constitutes mid- versus high-fidelity.

6. Objective Structured Clinical Evaluation (OSCE) - Form of clinical skills assessment, most often for medical students, but now beginning to be used more widely by other healthcare groups. It is based on standardized patients who are trained actors, where a student is asked to evaluate, demonstrate, teach, interpret, communicate, prescribe, or perform a treatment skill.

7. Part-task trainer - a training aid that is designed to require focused task training without the stress of multiple inputs as with more complex training devices. Allows users to gain competence on limited range of procedures/skills. This equipment is usually much less expensive than higher fidelity equipment.

8. Standardized Patient (SP) - Person who has been trained to be a patient actor for the purpose of training and/or evaluating healthcare practitioners in

simulated conditions. Ordinarily the SP carries out the same scenario with a series of students or others being evaluated on their performance.

Methodology

Qualitative methods were used with the main technique being the responsive interview model (Rubin & Rubin, 2005). This process subscribes to three broad characteristics: 1) The interviewer and interviewee form a relationship during the interview that generates an ethical obligation to the interviewer; 2) The main goal of the model is to generate depth rather than breadth in the research process; 3) Responsive interviewing is flexible throughout the research process by design (Rubin & Rubin). In this research study, the interview process utilized main questions that addressed the overall research question(s). These questions were followed up with other, more pointed inquiries, meant to elicit greater depth and understanding of the interviewee's views of the issues relating to the development and operation of the HSC being investigated. In-depth responsive interviews were carried out with 25 key individuals involved in the planning, construction, and implementation of the project for a community college health science center.

Findings

The role of collaboration in the ability of small to moderately sized community colleges to maintain and offer new health programs involving highly technical and expensive learning tools was identified. These findings may be of considerable importance to many community colleges that experience difficulty in raising adequate funds from their local tax bases or state appropriations. Further, they may not have many other significant sources of financing for capital projects. These types of partnerships

may also be of benefit to universities with colleges of medicine and health science centers because the partnerships they create can help sustain their own programs. The processes involved in gaining the momentum necessary to forge and maintain partnerships were described. Collaborations are likely to be sustainable with due diligence and commitment from the communities of interest, if participants find value in the ongoing process.

The collaborators described how they became interested enough to engage in the type of partnerships they found suitable for the entities they represented. There were both disparate and common threads in those expressed interests due to the nature of their original interest and roles they played in various aspects of the project's development. Perceptions by community members were also an integral part of the successful effort. The provision of actual patient care and simulation training were inseparable components of the continued interest and ongoing collaborative efforts of the activities within the health science center under investigation for some respondents.

Summary

This chapter has provided an overview for the investigation of the development of a community college based health science center. The chapter began with an introduction to the issues related to education and the education of healthcare personnel. The across-the-board increased costs of healthcare has created an impetus for all colleges and universities involved in training medically related students to create, or gain access to, improved educational delivery methods.

Chief among the strategies for improving healthcare education is the partnership process. By collaborating with all of an institution's constituents, it is possible to garner

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support for improving programs and add funding for facilities, equipment, and supplies. This process is best carried out with an entrepreneurial approach of cultivating resources in both ordinary and disparate ways. Successes may also come from unexpected sources (Roueche & Jones, 2005).

Finally, a description of the growing importance of healthcare simulation training for students of many disciplines and levels was mentioned. Simulation training can be done on simple part-task trainers or high-fidelity human simulators that replicate human anatomy and physiology to a high degree. Medical scenarios with this equipment can be generated to offer opportunities for team training, medical error reduction, and increased skill levels to practitioners from nursing assistants to physicians.

Chapter Two reviews the literature in areas related to the need and mechanisms for partnership development. It examines the financial crises challenging higher education and relates it to the process of project development. Project planning is discussed along with a review of human simulation relating to healthcare training. There are descriptions of collaborative methods and consortium development needed to acquire, operate, and maintain complex simulators. The value of medical simulators is shown, along with their ability to be used for "hands-on" work, for routine and crisis management for individuals and multidisciplinary healthcare teams.

CHAPTER TWO

Literature Review

Introduction

The primary purpose of this research was to investigate the dynamics of collaboration in the formation of an innovative healthcare training facility at a community college. A secondary purpose was to use the information gained in the primary purpose to propose guidelines that other community colleges may want to consider in establishing similar innovative healthcare training facilities, ones that place a heavy emphasis on human simulation. Collaboration has long been associated with community colleges and is well described in the literature. The type and extent of the collaborations in this case study are virtually nonexistent in the literature. Related studies, articles, and texts illustrate other aspects of how various collaborations occurred and what kept them going, but none emphasized the relationship between a community college, hospitals, and a medical school. The partnerships that came together to construct, equip, and utilize the healthcare training facility at the community college in this research were unique.

This chapter is divided into four sections. The first is a review of the need for and descriptions of collaboration and partnerships in community colleges, along with elements that appear to facilitate success of such collaborations. The second is the planning process in higher education. Third is a review of the need for improvements in healthcare education that relate to the present project, which includes human simulation as a major component. Fourth is a description of selected healthcare training facilities at community colleges, along with a description of the facility presently under investigation.

Need for Collaboration / Partnerships

Community colleges were founded and continue to operate successfully because of cooperation with their constituencies (Roueche, 2005). For several decades, colleges and universities have come together to form various partnerships that advanced their operations which allowed them to address shared needs. Somewhat surprisingly perhaps, and as many educational endeavors tend to do, the popularity of these collaborations tend to wax and wane (Baus & Ramsbottom, 1999; Patterson, 1974).

Interestingly, an organized network of consortia has been in existence since 1968, first organized as the Interinstitutional Cooperative Program (ICP) and then as the Council of Interinstitutional Leadership (CIL). In 1993, the name was changed to the Association for Consortium Leadership (ACL). This group's primary mission is to advocate for the causes of interinstitutional cooperation in American higher education. It serves as a professional association clearinghouse for information on academic consortia and promotes research on interinstitutional collaboration (ACL Consortium Directory, 2004). The Directory lists 106 consortia along with their demographic data, missions, and projects, but none specifically mention healthcare education in their lists of activities. Almost all indicate some forms of joint purchasing, shared library resources, education programs, professional development, research, and public relations, among others.

Cursoe (2001) indicated that research on collaboration has been well documented, but the activities and processes that occur during collaboration, even though they exist, have not. Cursoe focused on the interpersonal dynamics involved in the creation and sustainment of partnerships and how the balance between autonomy and interdependence was established and maintained. Her findings centered around three major areas in

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successful collaborations: (1) Few of those involved were actually trained or had experience with collaboration; (2) Collaboration is an active, dynamic, and developmental process of relationship building; and (3) Collaboration is an evolutionary process for individuals and organizations.

Why do schools need to collaborate? Finances are often quoted as the most pressing problem facing higher education. There are many indicators such as the dramatic increases in tuition and fees, reduced state higher education budgets, declines in the purchasing power of student grant aide, increased student debt burdens, and heightened demand for institutional accountability (Dickeson, 2004; Katsinas, 2005).

Financing for two-year public institutions has exhibited a three-tiered financial model throughout its long history: (1) local control, (2) public funding, and (3) lowest possible cost per student (de la Garza, 2000). These methods of financing higher education may work well during times of plenty, but when funding sources become scarce and the competition for dollars increases, all parties are likely to suffer.

A study by the Education Commission of the States (2000) found that the most serious issues facing the nation's community colleges were the challenges of increasing state and local financial support for community colleges and improving methods by which colleges were funded. The survey highlighted concerns community colleges have due to increased competition for scarce resources and the failure of many legislatures to adequately fund formula rates in accord with enrollments. Future enrollment demands made by the children of the Baby Boomer generation are likely to increase all manner of needs at all levels of education.

According to a study conducted by the American Council on Education, challenges facing higher education came from numerous directions (Eckel, Hill, & Green, 1998). Administrators and faculty members identified the following issues:

1. Pressure to contain costs and keep higher education affordable.

2. Public demands for educational and financial accountability.

3. Increased demands for educational quality and excellent teaching, with their attendant implications for promotion and tenure policies and practices, teaching loads, faculty productivity, and curricula.

4. The growth of alternative models of post-secondary education delivery-including distance education, corporate universities, and transnational delivery.

5. The explosion of knowledge produced both inside and outside the academy.

6. The need to serve an increasingly diverse society.

7. The pervasive impacts of technology on all areas of higher education. (p. 4)

More recently, in a 2003 report of the American Association of States Colleges and Universities (AASCU) in fiscal year 2004, the cumulative gap in state funding was estimated to top $80 billion (AASCU, 2003). With this type of ongoing funding shortfalls and the long list of demands for higher education services, partnerships may provide a means of dealing with several of the problems plaguing higher education. Partnership formation and collaboration on many levels may help alleviate some of the financial and other burdens with which colleges and universities are currently dealing.

The common impetus for creating partnerships revolves around the battle for funding dollars which has a long and continuing history in education. Colleges and universities, including medical schools and schools of allied health, are also subject to these same shortfalls. Academic health centers are generally thought of as those most

dependent upon state legislatures for their operating dollars. This presents a myriad of problems in today's technologically-based society. How is complex healthcare training to be carried out effectively if there is a dearth of facilities to provide the kind of advanced critical thinking and skill development that is needed? Resource development is a crucial part of this survival puzzle.

In a longitudinal study of 11 states using data generated from the Integrated Post-secondary Education Data System (IPEDS), Kenton, Huba, Schuh, and Shelly (2005) found data suggesting that community college boards and administrators might consider being more aggressive in seeking alternate funding sources. Their conclusions were based on consistent information that the traditional sources based on state appropriations and tuition and fees were not expected to increase significantly in the foreseeable future.

Kenton et al. (2005) recommended becoming active in economic development, workforce development, federal welfare-reform programs, and community service. By involving an institution in these activities, external stakeholders were more likely to perceive the college as contributing value and adding to the general well-being of the community (Kenton, 2005). This same strategy was pursued by the institution in this research.

The authors in the above study do not mention partnerships, but it would seem plausible that once a community viewed a college as contributing to the community, it would be more willing to vote for increased taxes (if necessary) in order to support college facilities and programs. Communities are not just the general public, they are comprised of other organized business, educational, and corporate entities to which the college must appeal for support. According to Larrance (2002), the process of leveraging

resources both energizes and creates growth. Larrance (2002) indicated that benefits range from the obvious and planned, to the not so clear. The more obvious benefits may include adding value, saving money, sharing resources and expertise, providing greater efficiencies, improving quality, and avoiding unnecessary duplication. The more obscure benefits may include expansion of learning opportunities for students, faculty, and staff; the addition of knowledge and expertise through the collaborative effort; and the synergistic processes that frequently occur when groups of like-minded people engage in a common endeavor.

Higher education may benefit in other ways by partnering with entities outside the institution. For colleges, these relationships can be a source of direct and indirect income generation and may widen the institutional mission and enhance area status and influence (Abramson, 1996). The benefit to students can be the local delivery of instruction, a better learning experience, and smoother student advancement (Abramson).

Smith et al., (1999) surveyed two-year college presidents regarding partnerships and consortia (see Table 2, page 22). Among the questions asked was, "What elements did you believe were the most important in creating successful partnerships/consortia?" Of the 617 college presidents responding to the 31 elements surveyed, the top rated element was shared objectives (83.8%), second was capability of partners (82.3%), and third was benefits for all involved ((83.0%). These three were important factors considered in the current study. Although in Smith et al., partnerships between two- and four-year institutions were emphasized, the present researcher asked similar questions of all those involved in the study.

Table 1

Ten Most Important Elements for Successful Two-Year or Four-Year College Partnerships According to Two-Year College Presidents (N=617)

Elements	No. indicating very important or somewhat important	Percentage (%)
Shared objectives	517	83.8
Capability of partners	514	83.3
Benefits for all involved	512	83.0
Cost-effective programs	498	80.7
Financial resources	493	79.9
Adequate staffing	491	79.6
Reputation of partners	490	79.4
Program based on needs assessment	486	78.8
Start small and build	474	76.8
Formal contractual agreements	473	76.7

Maurrasse (2002) stated that the partnership movement is growing out of its infancy, and, therefore, more universities and colleges have been entering into partnerships with their communities. But, he questioned how we are evaluating these endeavors, and how significant the partnership movement is. He also indicated that if trust and communication do not exist between partners, effective outcomes will remain elusive.

A more specific refinement relevant to this investigation was offered by

Ottenritter (1998), who suggested that healthcare professions might be conceptualized on

a continuum, from certificate to post-doctorate. Further, she noted several benefits to be

gained by community colleges collaborating with health professions schools:

1. Community colleges provide a supportive experience for disadvantaged
    students on the first levels of the health career ladder.

2. Community colleges also have a great deal to teach universities about
    collaborative, interdisciplinary teamwork due to the variety of programs
    and strong histories of teamwork which could provide models for
    interdisciplinary collaboration among health professions schools.

3. Partnering with community colleges might also be an effective way for
    health professions schools to gain entry into the community.
    Community college health centers could also provide excellent placement
    sites as part of a community health rotation which enhances community
    outreach.

4. Health professions schools can also provide research support and
    expertise that could be of value to community college programs and
    communities. (Ottenritter, p. 57)

Ottenritter (1998) also proposed an emerging paradigm of healthcare oriented to

larger systems based on teams focused on community assets and needs. If the shift

occurred to this paradigm, it would enable community members to contribute and

improve educational projects and develop a greater sense of pride and self. The

community focus would also provide for collaborative practice sites by having

vocational, associate degree, and bachelor degree nursing students working alongside

medical students, residents, and allied health providers in community settings.

Ottenritter's suggestions parallel fairly closely this dissertation project in terms of the

types of training evolutions sought by its constituents.

The Planning Process in Higher Education

Planning is based on decisions made by individuals and/or groups to chart a course of action. In planning for an important project, a group of principals must determine the scope needed to achieve the intended purposes of the facility and actual need for such a facility (Mills, 2003). The college's president in this study was well liked in the community and had cultivated many close working relationships with important individuals in the community and healthcare environments. From a conceptual standpoint, both he and the board of trustees knew they wanted to create a permanent facility for the concerned programs and at the same time allow for renovation of the long standing nursing building.

According to Mills (2003), the final approval of a design and project budget lies with the college administration and board, but from the outset this project was considered within the context of cooperative efforts between the community college and its constituents; local and regional healthcare entities for multilevel simulation training; and the dental hygiene clinic and nursing education expansion. Without this broad base of support and subsequent voter approval for the bond election, the proposed project had little likelihood of success. The actual team assembled to consider the project for the college consisted of the department chairs of the four healthcare programs not having permanent facilities of their own (Dental Hygiene, Emergency Medical Services Professions, Respiratory Care, and Surgical Technology). The chairs represented their staffs, and numerous meetings were held within and between the affected departments. This approach was a new experience for several participants; although many had been colleagues for many years, they had never worked so closely with one another.

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Another aspect of project planning, according to Mason and French (2004), is to engage the principals in a tactic which was actually used in the present project, that of a "charette." A charette is a focused brain-storming session employed with different groups at different levels in the college involved in some way with the design effort. Although only modified slightly from suggested questions from Mason and French (2004), the project's architectural design team asked the following questions:

1. What is the school's philosophy regarding new construction projects?

2. What are the goals of the present project?

3. What are the educational and building expectations and requirements?

4. What are the site's advantages and limitations?

5. What are all the things one would like to see in the new building, and of those, what things must be included?

6. Will the community be involved in the building's use?

7. Who will be partnering with the college on this project?

8. What things are working, and what can be enhanced?

These questions helped focus groups and individuals to consider the overall concepts of a project and provide details and limitations for those involved in more specific requirements for each entity. It also forced the group to work together to create an integrated facility. Although nursing was not going to be housed in the new building, they were included in deliberations. The nursing department had a vested interest in the new structure due to the planned interdepartmental sharing of facilities, expertise, and teaching that was to take place once the project was finished. Renovation of the Nursing Education Center, which is situated next to the new Health Sciences Center in this study, was to begin soon after completion of the new HSC building.

Outside partnerships were formed, and in many cases reformed in this case study. These collaborations and ongoing relationships became sources of pride for the community, the college, its students, and local healthcare providers. The evolution of these collaborations in community colleges are rooted in the histories of higher education, politics, learning theory, leadership, technology, and local persona, and were verified by this dissertation research project.

Need for and Use of Human Patient Simulation

How can bedside clinicians experience the difficulties of patient care without putting patients at undue risk (Gaba, 2004; Gaba, Fish & Howard, 1994). Ziv et al., (2000) explained that if we are to provide the best possible quality care to patients, education of healthcare givers must develop an appropriate range of skills, knowledge, and attitudes. Gaba also asked how it is possible to assess the abilities of clinicians and students as individuals and teams, when each patient is unique?

An article by Groopman (2005) described the professional development of one of the pioneers in human simulation. In the mid-eighties, David Gaba had come to Stanford as a new anesthesiologist; he is described as becoming interested in improving the situation in the operating room where, he thought, there were too many accidents. After a few starts and stops, he teamed with one of his former students, Abe DeAnda, Jr., and together, since they both had engineering backgrounds as well as medical training, they built a human simulator. Although crude, it was a beginning, and by 1992 they had licensed software to a company that made aviation simulators for military pilots.

From this point, other companies became interested in simulators. Laerdal, a Norwegian company, who had been in the business of manufacturing resuscitation

mannequins for many years, purchased a Texas company, Medical Plastics Laboratories in 1999. This partnership produced a high-fidelity mannequin called Sim-Man. A Florida company, Medical Educational Technologies, Inc. (METI®), developed another even more advanced human patient simulator called Stan, short for Standard Man. In 2008, there are now a number of companies marketing various types of simulation equipment and software that range from part-task trainers, some of which are very realistic, to virtual reality systems, and advanced whole body human simulators.

Twenty years ago the technology was not sufficient to allow development of the types of simulators presently available. According to James Gordan (2004), high-fidelity patient simulation will revolutionize medical education because students can practice without risk to actual patients. In medical education, the opportunities to teach and learn in a realistic, risk-free environment have never existed until now. Medical workers function in complex health organizations and are all susceptible to human error. It then becomes imperative to explore and design safer systems of training and practice - simulation can provide such a vehicle. It can also provide "education on demand" in a medical educational system that has traditionally relied on "time and chance." A trainee who does not have an opportunity to rotate into the intensive care unit at the right time may not see a particular kind of illness or complications. Students are often "lucky" rather than assigned to deal with a given set of competencies on a simulator. This puts the breadth and depth of education at the whim of who gets admitted and whether or not a given student is present during that admission. This haphazard approach has led us to the present state of physician training. One choice to deal with the situation is to extend training into longer stays in medical schools, internships, and residencies. But with

decreasing availability of patients as teaching resources, it remains difficult to maintain the same paradigm for healthcare instruction (Gordon, 2004).

Simulation is the act of mimicking a real object, event, or process by assuming its appearance or outward qualities. In order to be an effective teaching/learning tool, a simulator must provide realistic and educationally sound feedback to a user's questions, decisions, and actions. Sufficient realism should be present for users to suspend disbelief during an exercise; however, they do not have to be exact human replicas to afford the goal of realistic processes and actions (Reznek, 2004).

Team training and crisis resource management in healthcare settings may be another effective means to reduce human error in operating rooms, emergency departments, on resuscitation teams, and in other settings within the healthcare environment where human interaction is common and the breakdown in communication and teamwork can have critical consequences (Musson & Helmreich, 2004). Formal training in teamwork for healthcare workers is analogous to aviation crew resource management. Many of the early concepts in managing risk and using simulation in healthcare came from the aviation industry. Research data provide strong evidence that individuals under high stress are more likely to make decision errors, are less capable of processing multiple inputs, and are less likely to maintain high levels of vigilance and situation awareness (Helmreich & Schafer, 1998).

NASA data reveal that the causes of crashes in commercial aviation were due to human error as a causal factor in the majority of accidents and critical incidents. Further studies revealed that the majority of human error involved failures in leadership, communication, decision making, and vigilance rather than technical errors in the

operation of systems or equipment. It was further noted that pilots' actions were a reflection of their training that emphasized their individual technical skills, but not the teamwork involved in managing a large, complex aircraft with a multi-person crew (Helmreich & Schafer, 1998). These findings led to changes in team training.

Historically, anesthesia was the first to use computer-enhanced mannequin simulation (CEMS). In the late 1980s, it was found that 65-70% of all incidents and accidents in anesthesia could be attributed to human error. The acronym ACRM, adopted from aviation, stands for anesthesia crisis resource management. Now other fields have shortened it to CRM and have used its tenets for their own uses.

Inpatient emergencies are often managed in teaching hospitals by trainees in internal medicine. Successful implementation of therapeutic plans requires a technically competent leader who is able to coordinate the team's efforts. The decision-making components of critical care deal with cognition in highly dynamic environments. There are critical elements necessary for training teams to react appropriately in a crisis. In such complex environments, diagnosis, monitoring, and therapy are completely intertwined and occur dynamically with hands-on implementation by a team. In this type of setting, situational awareness and constant reevaluation are paramount (Lighthall, et al., 2003).

Stanford University Medical School has instituted a course called Improving Management of Patient Emergency Situations (IMPES), which has been in operation since 2000 to broaden training of healthcare personnel. The course is structured around two teams, each with one or two interns, a senior resident (second-year in medicine or surgery), and usually a fellow. Each course also includes a bedside nurse who has not

participated in the course before, and a "resource/crisis" nurse who is familiar with simulations and is knowledgeable about where monitors and equipment are kept. Each session also includes a respiratory therapist, anesthesiology resident, and pharmacist who are called into the scenario if requested (Lighthall, 2004).

The evolution of simulation training into areas beyond medicine has expanded the ability of nursing and allied health students and practicing healthcare workers to reap some of the same benefits that have been available to physicians and physicians in training. Nursing programs around the country are beginning to use simulation training on a wider scale. There are simulation facilities at many healthcare centers in which collaborations with medical schools or hospital departments like anesthesia are becoming more common place. Now, even more facilities are being constructed that mimic actual health care facilities.

The first real attempt at producing such a facility in a two-year college setting was the Health Services Technology Center at the Milwaukee Area Technical College which constructed a facility in downtown Milwaukee in 1996, with additions made for nursing expansions in 2002 and 2003. A more recent example of a comparably equipped facility is the Gateway Community College in Phoenix which opened in April, 2000. Gateway, the second of its kind, created an imposing 76,000 square foot, hospital-like structure built by the Maricopa Community College District. The $110 million facility houses the following twelve health careers programs: Clinical Research Coordinator, Diagnostic Medical Sonographer, Health Services Manager, Health Unit Coordinator, Hospital Central Service Technician, Medical Radiographer, Medical Transcriptionist, Nuclear Medicine Technologist, Perioperative Nurse, Physical Therapist Assistant, Radiation

Therapist, Respiratory Therapist, and Surgical Technologist (Shinkman, 2000). Each

department is separate and not integrated as in a real healthcare facility; they are each in

their own pod. This design makes integration and team training more difficult to achieve.

(T. Rodriguez, personal communication, December 10, 2006).

Health Sciences Center Development

The way that groups and individuals work together and negotiate understandings

is central to any successful collaborative effort (Richards, Elliott, Woloshyn, Mitchell,

2001). In this regard, the need for the college in this study and the local healthcare

entities to collaborate was essential in creating a successful project. The president, the

four department chairs, division director, and director of institutional development had

numerous speaking engagements with local groups, including chambers of commerce,

service clubs, and retirement communities in order to garner support for the bond

referendum. Cooperation was also sought for coverage of the proposed project in local

media outlets. Students were encouraged to support the proposal through the use of yard

signs and through communication with their own neighbors about the need for an

advanced education facility for healthcare training in the community.

It had been known by the college administration and board of trustees for a

number of years that the college's five allied health programs had a need for a permanent

place to conduct their work. Two programs were off campus in rented facilities and for

two others the faculty were housed in temporary buildings. To accommodate increased

numbers of enrollees, the fifth program needed to move out of the nursing education

facility due to the planned expansion of the nursing program. A need was definitely

present for both allied health and nursing to grow and for several programs to find permanent homes.

The facility in this study was completed in January, 2004. It was conceived during the summer of 2001, with a goal of locating the entire health sciences division at the same site adjacent to the already existing nursing building. A $7.23 million bond election held in November 2001 passed by a 3 to 1 margin. The amount allocated for construction of a new building was $6 million for the Health Sciences Center with $1 million designated to renovate an unoccupied dormitory to house mathematics and clinical laboratory science classrooms and laboratories. An additional $230,000 was allocated for administrative costs.

Support for the bond election campaign quickly developed and came from many different quarters. The local chamber of commerce and its affiliates were strong supporters. Local physicians and hospital became engaged in the effort. It is interesting to note that this central Texas city has one physician for every 142 citizens, but in the state of Texas the average is one in 617. Healthcare is one of the major local industries in the city studied here and generates over $250 million in payrolls to over 15,000 medically related jobs according to 1997 data. (Chamber of Commerce, 2004).

The major local hospital affiliated with a medical school offered to help equip the new facility if they were afforded opportunities to use its resources once it was completed. Additional donations exceeding $12.8 million were received from the medical industry and local benefactors. Construction began in November 2002 and the building was occupied in January, 2004 (see Figure 1, p. 33). The entire building is a 30,000 square foot facility that employs 22 full-time faculty and staff and approximately

175 to 200 native students in both day and night classes. All instructional spaces are located on the first floor (see Figure 2, p. 35) and include a 12-chair dental hygiene clinic that is equipped with a radiography suite, equipment cleaning and sterilizing areas, a dental materials laboratory, patient record storage, a waiting room, and restroom.

Figure 1. A photograph of the North East side of the building showing the main entrance with associated structures and landscaping.

There is also a commons area that includes individual and community seating with sound barriers, computer carrels with Internet access, a vending area, and a food preparation area, along with three general use classrooms. There are five teaching spaces designated as "smart," meaning they are equipped with a variety of electronic audiovisual and computer driven resources (Rooms 1834, 1832, 1804, 1814, and 1860). One is also designated as a "distance education" room (1834) and is equipped with two-way cameras/television monitors. The respiratory care lab (1818) is due for "smart" conversion some time in the spring, 2008.

The clinical simulation side of the building currently includes three classrooms and other spaces to support the emergency medical services professions (EMSP), respiratory care (RC), surgical technology (ST) and the Simulation, Training and

Research (STAR) programs. What is generally thought of as the simulation area (Sim

Center) is composed of approximately 9,800 square feet and includes the following:

Ambulance bay that houses college ambulances

Emergency receiving area with nurse's station and computer

Two major emergency treatment rooms (Trauma 1 and 2)

Two intensive care rooms (ICU 1 and 2)

Three more ICU/Trauma rooms were completed in the Fall, 2007 from
conversion of the EMSP classroom spaces (See Figure 2)

Operating room (OR) with adjacent scrub room and storage rooms

Simulation control room (another due for completion Spring, 2008 for the 3 new
simulation rooms on the North side of the building in the converted EMSP
task rooms

Restrooms with adjoining locker rooms

Laboratory space specifically designed for the RC program with adjacent
cleaning and storage room (shared with the STAR)

Laboratory space specifically designed for the EMSP program was moved into an
adjacent building in January, 2007

A smart class/demonstration room for the ST program (1814) with an adjacent
storage room

In Figure 2 (page 36), a layout of the first floor is shown that divides the building

into three major areas: (1) at the bottom is the Dental Hygiene Clinic; (2) in the middle

and longer portion of the building is the Commons area, labeled 1801; the Commons is a

place for students to gather, and houses vending machines, seating, computers with

Internet access, microwave, and dining area; (3) on the top border of the Commons are

three "smart classrooms;" and (4) just above the classrooms lies the Simulation Center,

which includes the EMSP, RC, and ST classrooms/labs, the OR, the ICU, and ER

Trauma rooms. At the very top is the ambulance bay to the left, along with the

mechanical and gas storage rooms to the right.
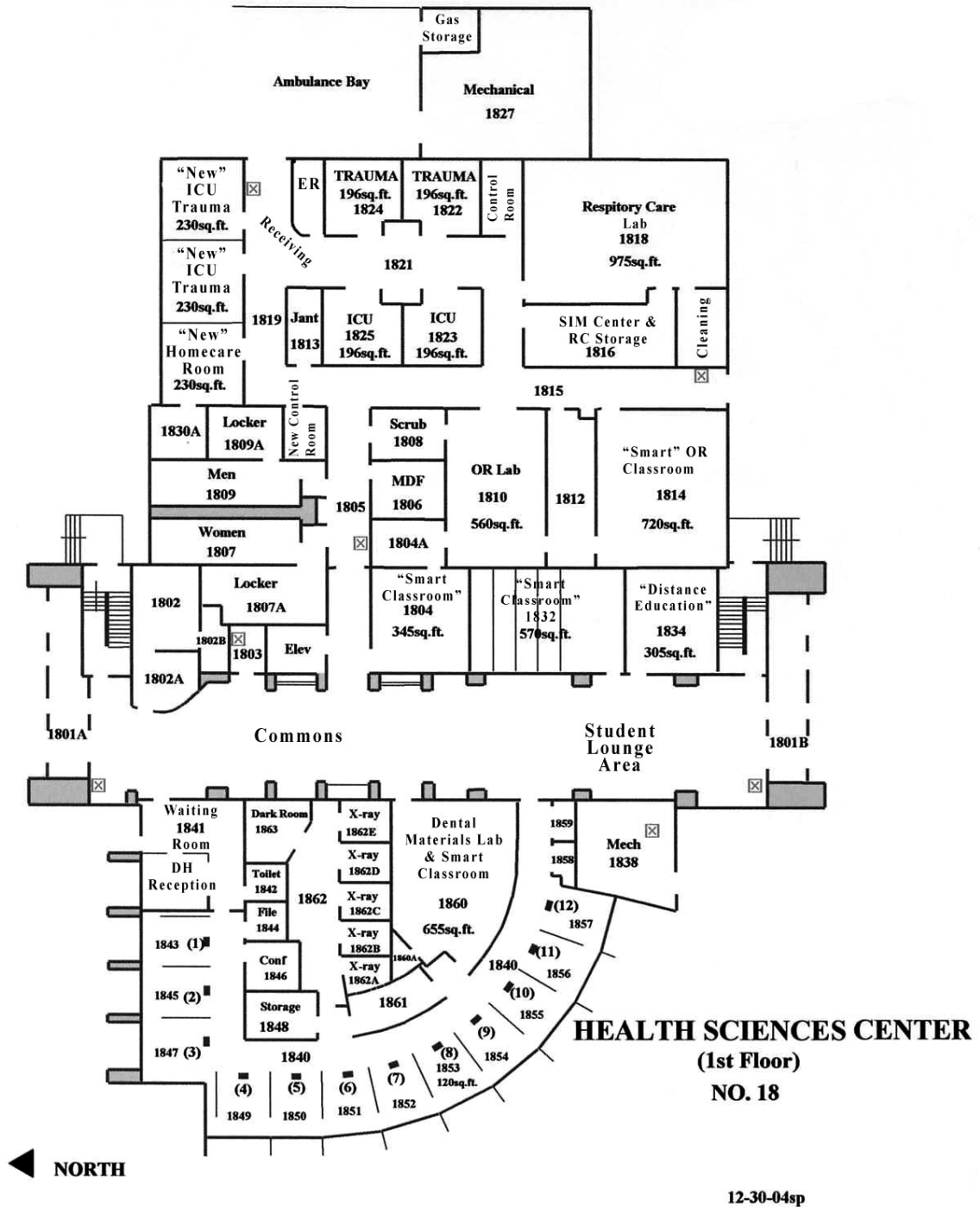
Figure 2. Floor plan of the Health Sciences Center illustrating the instructional, dental hygiene clinic and student spaces on the first floor.
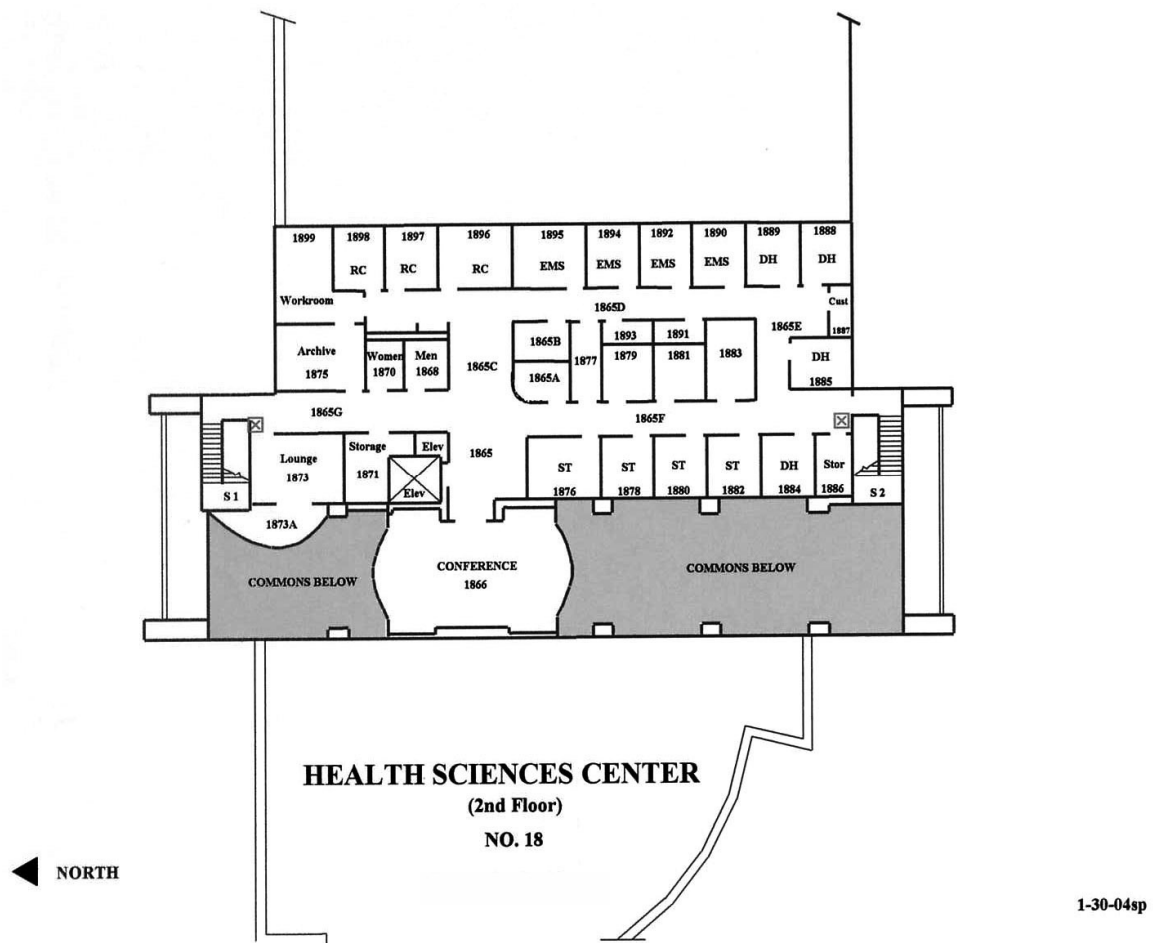
Figure 3. Second floor of the Health Sciences Center

Figure 3 illustrates the second floor, which is made up primarily of faculty offices with some additional rooms for file storage, mail/photocopy, staff lounge, and a small conference room. The large conference room situated over the student commons area will accommodate about 24 persons.

It is also worthy of note that the facility has received recognition in the form of the 2004 American School & University Architectural Portfolio Education Interior Design for Excellence, and the 2004 American School & University Architectural Portfolio for Design Excellence and Educational Design. In addition, the facility was a

Bellwether Award top ten finalist in 2005. It was also the recipient of the President's Award from the Texas Association of College Technical Educators in 2005.

Higher education is now considered a driving force for citizen participation and is positioned to become a major component in community development. Service is one the three accepted basic missions of higher education and community development activities are now incorporated into the mission statements of many institutions of higher education (Williams, 2002). Service is part of the ongoing operation of the facility that was scrutinized by this study. From its opening in January, 2004 dental hygiene students have seen between 350-400 patients in the Dental Hygiene Clinic. Students actually have seen many more since only those in the clinic are closely tracked. Students have gone to area Headstart programs and done fluoride applications for youngsters in the program. (N. Maedgen, personal communication, January 21, 2008).

In addition to patients seen by the hygiene students in the clinic and elsewhere, there have been tours by numerous groups in the HSC, from elementary school children to undergraduate and graduate medical education. Accreditation organizations, local and state political figures, and over a dozen international figures from foreign universities and ministries of health have visited. Thus far, in four complete years of operation there have been 1,475 activities by groups, either touring or participating in some type of training activities in the Sim Center. Tours have provided information about: 1) the physical design, and 2) current and projected use. These tours also help to convey greater understanding to visitors, many of whom may not be familiar with the type, depth, and scope of learning such a facility can provide. Others have come for the purpose of

learning details about the facility with an eye on creating a simulation center of their own (N. Coker, personal communication, January 25, 2008).

The main purpose of the facility is training. During the first year of the Center's operation (2004), there were 34 outside groups taking part in a variety of training activities that ranged from an American Red Cross Disaster Training Institute to competency check-offs for medical students (objective structured comprehensive evaluation - OSCE's) and residents to pre-employment testing for area emergency medical services providers. There has been continued growth of activities for each year the Center has operated. The first year (2004) there were a total of 114 events, followed by 329 the second year (2005), with 511 the third year (2006), and 521 in 2007. It is now used routinely for native community college students, along with medical student OSCEs and residents in OB/GYN, Internal Medicine, Family Medicine, and Surgery.

In 2005, low-income middle school students were provided no-cost athletic physicals by fourth-year medical students with physician preceptors in attendance. This was seen as a positive educational experience by the medical students and their mentors. More and similar activities appear likely in the future.

Summary

Community colleges face serious challenges in fulfilling their mission of being responsive to their local communities. An important part of that mission for many two-year colleges is providing quality healthcare programs. To ensure healthcare programs are satisfying those needs schools are advised to collaborate and form reciprocal partnerships. In that way crucial financial resources may become available to help develop and maintain innovative healthcare programs for community colleges.

In the design process, the major consideration was to house four allied health programs in a state-of-the-art facility. By making it as realistic as possible, it was felt that more effective training could be carried out. How was it possible to develop this high degree of reality in simulated clinical settings? Also was a functional dental hygiene clinic along with technically advanced instructional classrooms for less than $7 million? It was.

In addition to the project itself, the need for this research was evident due to the dearth of published studies on this type of facility and the growing need for better and more efficient training of healthcare workers. A scan of the internet showed many schools and associations creating simulation centers of various types, but no dissertations were found on the subject. There is a growing list of schools that have broadened or deepened their affiliations with other partners in order to acquire advanced technology such as the human simulators considered in this research. However, no in-depth information was readily available as to how they proceeded.

Chapter Three describes the methodologies used to gather data. Naturalistic inquiry was used with the responsive interviewing technique, as a refinement of the data gathering process. Respondents' selection, protection, data handling, and analysis are discussed.

CHAPTER THREE

Methodology

Introduction

The overarching purpose for this study was to investigate the dynamics of

collaboration in the formation of an innovative healthcare facility at a community

college. Without the partnerships that formed as the project proceeded, there would

likely have been no new facility, nor would there be one so well equipped today. The

importance and reasons for the collaborations were key to the successful efforts and may

have similar applications with other institutions.

Research Question

What factors played an important part in the collaborative effort to create an

innovative healthcare educational complex at this community college?

Research Questions

1. How were the collaborations made?

2. How were the collaborations sustained?

3. What were the evolutionary processes in the development of the Health Sciences
    Center?

4. What were the critical circumstances or behaviors that influenced the
    development of successful partnerships for the project?

5. What were the critical circumstances or behaviors that may have threatened the
    success of the partnerships?

6. How important was the use of human simulation to the formation of partnerships
    and to the successful completion of the project?

It is hoped that the insights gained from this study will provide guidance to other community institutions with health careers programs at both community college and university levels who wish to pursue developing similar training facilities and programs by partnering with like-minded entities.

Research Design

This study utilized qualitative research methods. Merriam (1998) described qualitative research as a concept that covers several forms of inquiry that allow the researcher to understand and explain the meaning of social phenomena with little disruption of the natural setting. Further, Merriam also suggested the researcher engaged in qualitative research be interested in understanding the meaning of constructs people have created.

There are numerous branches of qualitative inquiry used by many authors, some of which have gone out of vogue; however the basic characteristics of qualitative research shared by these various forms revolve around the following aims: (1) understanding the meaning people have constructed in their world; (2) the researcher becoming the primary instrument of data collection and analysis; (3) field work being the normal manner in which data are collected; and (4) an inductive research strategy being the primary means of finding themes, categories, typologies, concepts, tentative hypotheses, and even theories which have been inductively derived (Merriam, 1998).

Merriam (1998) also described the concept underpinning all of qualitative research as phenomenology. Phenomenology is primarily based on experience and interpretation to describe a phenomenon. This research will use a variation of the naturalistic approach as described in detail by Erlandson, Harrison, Skipper, and Allen

(1993). The naturalistic process is one that uses the five senses, plus intuition, to gather, analyze, and construct reality from gathered data (Erlandson, et al.). The word naturalistic also encourages a reader to understand that data gathering is a process designed to be an open dialogue between the researcher and the informant. Informants act as conversational partners and construct their meanings as the interview progresses in collaboration and participation with the interviewer. In this way, the interview becomes a co-construct between the researcher and conversational partner (Rubin & Rubin, 2005). In a dynamic fashion, they then "move back and forth in time; construct the past, interpret the present, and predict the future" (Erlandson et al, p. 85).

Data Collection

Data collection was primarily by naturalistic interviews of participants. All forms of qualitative interviews share at least three key features: (1) projects using qualitative interviews build on a naturalistic, interpretive philosophy; (2) qualitative interviews are extensions of ordinary conversations; and (3) interviewees are partners in research rather than subjects to be tested or examined (Rubin & Rubin, 2005). A refinement of basic naturalistic inquiry was employed that is based on the responsive interviewing model of Rubin and Rubin (2005). This approach is based on the following five basic characteristics:

1. Interviewing is about obtaining interviewees' interpretations of their experiences and understandings.

2. The personality, style, and beliefs of the interviewer must be taken into consideration. The interviewer must take into account their own opinions experiences, culture, definitions, and prejudices because they are taking an active part in the conversation.

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3. Due to the personal relationship between interviewer and interviewee, and because that relationship may result in the exchange of private information, the interviewer will incur a serious obligation to protect the interviewee.

4. Interviewers should ask broad enough questions to elicit what interviewees can answer, listen to what interviewees tell them, and modify their questions to explore what they are hearing, not what they thought before the process began.

5. Responsive interviewing is responsive and adaptive by design. It must be flexible enough to follow up on insights and new points brought up by participants, thus ensuring an interview that captures a greater depth of understanding (Rubin & Rubin, 2005).

There was also a review of college correspondence and media sources available from the time of initial planning and consideration of the new facilities through 2005. Both types of data collection amplified the thinking of participants in this broad collaboration and shed some light on the entire process.

Pilot Study

Prior to beginning the main body of this research, a pilot study was conducted. The pilot participants were solicited, as were subsequent potential interviewees, by personal contact (either by telephone or a personal visit). They were given a disclosure letter (see Appendix A) which described the purpose of the study and how the researcher intended to protect the privacy of their identities and responses. The two individuals selected for the pilot had been involved in the project throughout the planning and building phase, and were then using the Health Sciences Center. One was a college department chair and the other was the Director of the Health Sciences Division.

The purpose of the pilot was manifold. First, it attempted to document the appropriateness of main questions and refine the researcher's skills. The pilot study used

questions in Appendix B, the first version of the Interview Format and Sample Main Questions. By the third interview, the later version in Appendix C was adopted. Questions were added and some deleted by the researcher to gain more in depth information from interviewees. All interviewees were not always asked every question on either form based on the circumstances with each interviewee. The actual questions asked, and their order, sometimes changed based on the role the interviewee played in the project and the flow of the interview.

The pilot study also provided some sense of suitability in terms of time and procedural constructs. Evaluation of the interview and data gathering processes was determined by analysis of main questions, follow-ups, and question probes as to whether they were answered with enough depth and completeness in the form of standard naturalistic responsive processes (see Appendices B and C). Main questions were constructed to elicit responses that spoke to the research questions; although most were mostly not asked directly. Further, the questions, as listed in Appendices B and C, were not always asked verbatim. The phraseology of questioning varied somewhat, because of the flow of the conversations with interviewees. The researcher did ask most of the questions of most interviewees. This procedure was followed per the recommendations of Rubin & Rubin (2005, p. 157) in order for interviewees to answer from their own experiences rather than being asked directly. Follow-up questions were not prewritten and were the interviewer's own attempt to amplify or have the respondent further explain a particular observation or view. This process was continued with the main body of the research.

Probe questions were likewise not prewritten, but were used to help manage how pilot interviews were done with participants who were involved in the development of the center as precursors to the research interviews. Their involvement resulted in a refinement of technique by confirming the basic format of the interview. In listening to their responses, further questions were developed. For example, one of the questions added after the pilot was to ask interviewees what recommendations they would make to other institutions considering a similar project. There were additional refinements in interview design. One refinement was to try and put questions in more of a chronological order. In the pilot, conversational partners were asked to trace their involvement well into the interview, but in the revised version the tracing of their involvement was moved closer to the beginning of the interview. Data gathered from the pilot study were used in the final study since the information provided was essentially the same as that provided by regular participants and of equal depth.

Interview Structure

According to Rubin and Rubin (2005), in order to maximize results and increase the possibilities for rich descriptions, structured conversations are used that are composed of main questions, follow-up questions, and probing questions. Main questions related to the research problem were worked out in advance. The design also changed somewhat, as interviews and concomitant data analysis proceeded. The data types used in this study were predominantly personal interviews along with some documents provided by the College Communications Office, most of which were Board actions submitted to and intended for publication by local newspapers.

Recruitment of Informants

There were nine categories of individuals approached to participate in the study. The individuals contacted ranged from people directly associated with the college as employees or trustees to individuals in the community who played roles as officials or donors. It was thought that an aggregated view from many perspectives of people with various types of first-hand knowledge of the Center would add depth and breadth to the interview process. The nine categories included 5 college administrators, 4 medical school faculty, 3 hospital administrators, 1 medical industry representative, 4 college allied health department chairs, 2 city officials, 2 local donors, 3 members of the college board of trustees, and the architect. The names are obscured to protect the confidentiality of responses and the personal privacy of each of the 25 individuals. The schedule of interviews along with descriptions of the categories of interviewees and places in which the interviews took place are listed in Appendix D. There was no attempt to schedule interviews with particular individuals or groups in any particular order. The participants were recruited and agreed to participate according to times when the interviewees were available for at least one hour. It was left up to the informants to determine when and where they would like to be interviewed. Many elected to come to the HSC and were all interviewed in a private area or office. The groups used were as follows:

1. College board of trustees

2. College administration

3. College department chairs in healthcare related areas

4. City officials

5. Local donors

6. Medical equipment supplier

7. Local hospital administrators

8. Medical school clinical faculty

9. Architect

Protection of Participants

Prospective interviewees were all contacted by telephone and their input solicited after a brief description of the research project. All prospective interviewees contacted agreed to participate. Written informed consents were not obtained, but verbal consent was given after individuals had read a letter of disclosure describing the study, its aims, and their protections (see Appendix A) prior to commencing each interview. The study was described and assurances given that their identities would be protected. They were also told that at any time efforts to use data gathered other than in this dissertation in any way they would be contacted and could at that time refuse to allow such information to be released. All audio taped and transcribed interviews are in the sole possession of the interviewer.

Interviews

The data used for this study were gathered over a four-month period from January through April, 2006. The participants were interviewed with their oral responses recorded and the recorded data then transcribed. The transcribed interviews were offered to each participant for review, if they wanted, per the process of member checking, but none did.

The responsive interview model relies heavily on interpretive constructionist theory (Rubin & Rubin, 2005). In interpretive constructionist theory, importance is given to how people view an object or event and the meaning they attribute to it and what is important. There is an expectation that people will see somewhat different things, examine them through different lenses, and come to differing conclusions, perhaps even conflicting ones.

Table 2 (page 49) summarizes the variety of interview types according to Rubin and Rubin (2005). These interview techniques are not exclusive and even overlap to varying degrees and may all be used with the responsive interview model. It is not uncommon for researchers to use more than one method as a particular interview proceeds and evolves and even more so as multiple interviews are done. Focus and meaning may change during the session. It may go from broad to narrow or vice versa. It is up to the interviewer to pay intense attention to the responses, guide the conversation, and gather relevant information.

For this research several interview categories from Table 2 (page 49) were used since they were not mutually exclusive and entailed only adjustments in questions as interviews with conversational partners proceeded. Since there was a need to determine personal perceptions and recall of events, some of which were 3 to 4 years passed, the "Elaborated Case Study" (see Table 2, page 49) format could be identified as the primary type of interview carried out here. In this type of study, the goal is to find out not only what happened, but why, and what it meant in a broader sense. The hope is to be able to generalize, and discover causes and explain or understand phenomena. "Oral History" was also included since this type of interview is designed to explore past events and can

be used to describe broad or more narrowly focused events. At times, "Investigative Interviewing" in Table 2 was used to focus interviewees' attention on what happened in a particular instance. Another type of investigation that could be construed as being a part of this research study was "Evaluation Research" interviews. In Evaluation Research, the goal is to determine whether programs and policies are working for those who are involved. Since some participants were active participants at various times in the development and use of the HSC, it was important to ask if what was done at all stages of planning, construction, outfitting, and use during these stages were appropriate in the opinions of those individuals taking part in the various phases. The aforementioned processes were all used to varying degrees in this research.

Table 2

The Variety of Qualitative Interviews

Focus/ Meaning	Narrowly Focused Scope	In-Between	Broadly Focused Scope
1. Focused mainly on Meanings and Frameworks	Concept Clarification	Theory Elaboration	Ethnographic Interpretation
2. In-Between	Exit interview	Oral Histories Organizational Culture	Life History
3. Focused Mainly on Events and Processes	Investigative Interviewing	Action Research Evaluation Research	Elaborated Case Study

(Rubin & Rubin, 2005, p. 5)

According to Rubin and Rubin (2005), the term responsive interviewing is intended to communicate that qualitative interviewing is a dynamic and interactive process, not a set of tools to be mechanically applied. The questioning styles in this model reflect the personality of the researcher, who adapts to the varying relationships between researcher and conversational partners which evolve as interviews proceed. As Rubin and Rubin discuss, the researcher and conversational partners are in a relationship in which there is mutual influence and yet they argue that personal involvement is a strength rather than a hindrance. Biases are dealt with by self-reflection. No questions were asked of conversational partners that were accusatory or critical. When leading questions were asked, it was to follow up on comments made by interviewees in pursuit of greater depth or clarification of their responses. Questioning followed many of the formats suggested by Rubin and Rubin in Table 2.

Table 3 (page 51) compares conventional terminology to the terminology used to describe naturalistic processes. To establish internal validity Erlandson, et al. (1993) suggests utilizing prolonged engagement, triangulation, peer debriefing, member checking, and reflexive journals. In this process, external validity is established by using what are called thick descriptions, purposive sampling, and reflexive journals. Thick descriptions are complex, deep terms first identified by Geertz (1973) to describe the focus brought by an interviewer to a narrow range of topics in an attempt to learn greater detail. The depth, detail, and richness sought are rooted in the interviewees' first-hand experiences and form the material that a researcher gathers and synthesizes. A reflexive journal is a diary-like journal in which a researcher makes regular entries that records

personal information about the researcher's schedule, insights, and reasons for adjustments to the research process (Erlandson, 1993).

Common to all forms of qualitative interviewing is the need to establish trustworthiness in the research process. Erlandson, et al. (1993) describe the process of purposive sampling as an adaptive process when the need is for adequate description of a context since it serves as a foundation for transferability. This is in contrast to random sampling which is usually done in traditional studies to gain a representative picture through aggregated qualities. Purposive sampling is a procedure that is governed by insights that emerge about the relevance of concepts and purposely seeks to gather typical and divergent data (Erlandson, et al. 1993). In this process, it is important to bring forth main questions, probing questions, and follow-up questions in order to elicit the necessary detail required of in-depth data gathering (Rubin & Rubin 2005). Thick descriptions and purposive sampling were both used in this study since the aim was to obtain depth to the recall of events, feelings, and other observations of interviewers about the HSC project.

TABLE 3

Establishing Data Trustworthiness: A Comparison of Terms

Criterion-Based	Conventional Term	Naturalistic Term	Naturalistic Techniques
Truth value	Internal validity	Credibility	Prolonged Engagement Triangulation Peer-debriefing

(*table continues*)

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Criterion-Based	Conventional Term	Naturalistic Term	Naturalistic Techniques
			Member checks
			Reflexive journal
Applicability	External validity	Transferability	Thick description
			Purposive sampling
			Reflexive journal
Consistency	Reliability	Dependability	Reflexive journal
Neutrality	Objectivity	Conformability	Reflexive journal

Prolonged engagement allows for increased credibility because it allows the researcher to focus on the subject being studied. If the researcher does not engage long enough, distortions may occur as data is collected. (Lincoln & Guba, 1985). Distortions of data may include personal biases in instances where the interviewee may not trust the interviewer and either give blatantly false information or information they believe the interviewer may want to see. Researchers must be closely attuned to their conversational partners to guard against this possibility (Rubin & Rubin, 2005).

Triangulation is another common strategy used in both qualitative and quantitative processes. It can be utilized to find the position of an unknown data point by using multiple data points as references (Richards, 2005). Richards (2005) cautioned that simply juxtaposing data sources is not likely to reveal useful information and, in any case, requires multiple sources. This research did not use triangulation as a validating process since only two major sources of data were used, i.e., recorded and transcribed interviews, and printed material from the College Communication Office, which passed

the same information on to various media outlets. These written resources were mostly reflections of events that had occurred and were reported, but were not at odds with any of the transcribed interviews.

Peer debriefing is another important tool of naturalistic inquiry that aids in validating the data gathered from interviewees. Peers can serve as amicable antagonists who critique the researcher's techniques, data analysis, interpretations, and organization (Lincoln & Guba, 1985). At least two former graduate students experienced in qualitative interviewing and naturalistic inquiry were asked to participate in this process.

Member checking is another tool that can be used to help provide credibility by allowing conversational partners to test categories, interpretations, and conclusions of the researcher. Several possible strategies may be employed during the data gathering process to aid in eliciting greater credibility and reach the desired depth and richness of the interviews. (Erlandson et al., 1993; Rubin & Rubin, 2005). The possibilities include:

1. At the end of the interview, data may be summarized by allowing respondents to immediately correct errors of fact or challenge interpretations.

2. Member checking may be conducted during interviews by verifying interpretations and data gathered in earlier interview sessions (if applicable).

3. Informal conversations with other members of an organization may also elicit information.

4. By furnishing copies of various parts of the inquiry report to various stakeholders and ask for written or verbal commentary on the contents.

5. Before submitting the final report, a member check can be conducted by furnishing entire copies of the study to a review panel of respondents and other persons in the setting being studied. (Erlandson, p. 142)

The reflexive journal supports the credibility and the transferability, dependability, and confirmability of the study according to Erlandson, et al. (1993). The

reflexive journal is a personal diary of a kind in which information about the research is recorded by the researcher regarding the schedule, logistics, insights, and reasons for methodological decisions. Journal entries may be made daily or weekly and used to confirm emerging concepts and themes, and make adjustments in the research process. For this study, the reflexive journal was kept on a mostly weekly basis depending on the interview schedules.

Data Analysis

As with many types of naturalistic inquiries, data analysis has several main characteristic steps in responsive interviewing (Rubin & Rubin, 2005): (1) analysis occurs throughout the research process - after the first few interviews, analysis begins, and as more occur, the researcher adapts later interviews based on what still needs to be investigated; (2) the objective is to discover variation, portray shades of meaning, and examine complexity; (3) systematic examination of transcribed data with coding and extracting of information; (4) comments made during interviews are broken down into data units, blocks of information examined together; and (5) data units are combined in distinct ways depending on the issue being analyzed. The foregoing process was used for this dissertation research.

Early analysis began in this research process when the first two (pilot) interviews were done. Both were college employees, but served at different administrative levels and at the time of the planning and construction of the facility were both in even different roles. Both had quite different perceptions of the development process and yet many of their comments were closely aligned. The goal for each of the 25 interviews was to try and add greater depth as the interviews proceeded by adjusting questions and probes

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depending on how the conversational partners responded. This was done as part of the

adaptation process aligned with the above mentioned first characteristic step of Rubin and

Rubin's (2005) technique.

The second characteristic step of data analysis used in the responsive interviewing

research process was to discover: a) variations, b) shades of meaning, and c) examine

complexity during the interviews. This was a sometimes subtle process that involved

adjustment during the interviews using follow-up questions, along with reading and

rereading transcripts of entire interviews. For example, in the sixth interview, which was

with a college department chair, the following statement was made. All of the

information in this statement was elicited by the researcher from one initial question,

"Was there any particular motivation that encouraged you to become involved in the

project and when did that begin?" followed by several follow-up/probe questions such as:

"When did the program move from . . . Hospital over here?"

> Initially, when the program moved the classes our offices were in the portable
> building, the classes were in the nursing building across the street. Somewhere
> along the way we ended up having a class in the ISC next to where our offices
> were so they were closer to the offices, I guess. It was basically in the old gym
> part of the ISC, they just put some walls up and put carpeting on the old gym
> floor.

Redirecting and probing deeper, "Was there any particular motivation that encouraged

you to become involved - think of this from a personal and a departmental standpoint?"

> Well, both personal and departmental – the classroom that we had, we had a
> single classroom, which basically had the individual student seats which basically
> that was all a chair and a desk combined. When we had labs we basically were
> forced to push those to the side or push those back in order to get space to put the
> mannequins on the floor to do any sort of lab activity. That was the same room,
> and so it was kind of time consuming, it made a mess. It wasn't easy to basically
> go from a lecture setting to a lab setting because there was set up time and take
> down time, so there was kind of some wasted time. So that and the facilities were
> old, falling apart, basically the floor buckled at one point. We had mold issues in

there. Basically there was a crawl space that went underneath the building in our room, so there were constantly critters coming up from underneath there. So it wasn't a good teaching environment. And so when they started talking about a new building it was very easy to get excited about it, so we could actually have true lab spaces, we could have true classroom spaces that were different to where you could set up things beforehand and easily go back between the two.

The follow-up/probe question was able to bring out further details as to what this conversational partner thought of the situation the department was in, prior to inception of the project.

The third characteristic step in Rubin and Rubin's (2005) data analysis process was simply the process of systematic examination of the transcribed data, which was in this case, 391 pages from the 25 interviews. They were coded in two different ways. First, the transcripted responses were coded and grouped according to which interview question was asked along with key responses by each conversational partner for that question in chronological order. Pertinent follow-up questions that evolved from initial and even other follow up questions that varied from interviewee to interviewee were also asked in an attempt to gain deeper insights into each respondent's views. These data were collated down to 37 pages.

A second grouping was based on the major concepts derived from the first grouping. These data were listed by the derived concept and the number of conversational partners who spoke to the particular concept. These were based on all the questions as asked. The data were then reaggregated across question categories to further refine the process.

Table 4 (page 57) is a representation of some of the above mentioned processes and 13 of the concepts that were found in the transcripts of the 25 interviewees when they were asked the same main question as the department chair (the 6th interview) regarding

their motivation to participate in the project. Although it did very somewhat in actual

wording during the interview process, the prewritten question here was main question 5a:

"Was there any particular motivation that encouraged you to become involved in the

project and if so when did that begin?" There were varying numbers of follow up or

probing questions depending on how thoroughly the researcher thought the response had

been. Table 4 illustrates 13 concepts brought out with these questions and the number of

the interviewee who mentioned the concept. It can be seen in Table 4 that the

overwhelming number of responses dealt with the concept "Need to house allied health

programs," 11 of 25 interviews made this point.

Table 4

Concepts Derived From Interviewee Responses to Questions
Related to the Motivation to Participate in the Project

_____

Question	Concepts Derived and Interviewees Responding

_____

A. Interest in project -
   motivation to participate

Need to house allied health programs - 1, 2, 4, 6, 7, 11, 10, 14, 18, 24, 25
Could unite in one area - 7, 10, 14, 25
Need for sim training facility - 3, 12, 13, 17, 20
Need for critical thinking - 17
Need for pt safety - 17
Less hands on training in schools - 17
Business relationship - 5, 22
Foundation involvement - 8
Raise equipment money - 8
Benefit community - 9, 12, 15, 22, 25
Architect - 18
Company designed schools and hospitals - 18
Hygiene needs - 19

_____

The fourth characteristic step of data analysis, as described by Rubin and Rubin (2005), was to break down the responses into data units. Data units were considered to be blocks of information that were examined together. Data units were descriptions of concepts which come from a simple interviewee phrase or complete paragraph. Examples can be drawn from the quote on page 56 from a college department chair. This entire paragraph response from an interviewee could be considered one data unit describing the chair's response to a follow up question about "motivation to become involved." However, the paragraph could also be further broken down into the following smaller concepts regarding the difficulties using the facilities the department dealt with prior to completion of the project, e.g.,

1. Department housed in a portable building.

2. Had a single classroom that doubled as a lab.

3. Time consuming to restructure classroom for labs.

4. Possible safety issues with buckling floors and mold.

5. Great enthusiasm for possible new facility with separate classrooms and labs.

One can see that out of the one paragraph (p. 55) a number of concepts could be identified. The process of identifying concepts was carried out on all the transcripts and categorized into separate files for this fourth step of data analysis in the study.

The fifth and last characteristic step used to code this research involved aggregating concepts on the same topic from a particular interview question and throughout an entire interview session. As can be seen in Table 5 (page 59), interviewees responded to varying questions by giving answers related to the concept "need to house the college's allied health programs on campus in their own facility" (see Appendices B

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and C for complete set of initial and later interview questions). A perceived strength of this process was to allow conversational partners to respond to various questions with concepts or ideas that came to them. Their responses may have been a function of how they interpreted a particular question, or because they had or did not have knowledge regarding the question(s) posed. These responses were labeled and presented in a shortened outline form as examples of answers to the first research question; "How were the collaborations first made and then sustained (see Table 5, Roman numeral I)?" The 8 derived concepts developed from these 16 responses to 8 different questions was then labeled as the "Need to house allied health programs in their own facility" (Concept A).

Table 5

An Example of How Data Analysis Was Conducted to Form
Concepts in Answering Research Question #1

Question and Derived Concept Developed	Abbreviated Interview Questions with Code Numbers of Respondents
I. How were the collaborations first made? (Research Question 1, p. 9)	
Concept A. Need to house allied health programs in their own facility	Prequestion - visit with early on - 24, 25 Motivation to participate - 1, 2, 4, 6, 7, 10, 11, 14 Circumstances that developed partnerships - 5 Personal influence - 16 Timeline influences - 19 Project jeopardy - 19 Critical circumstances - 21 Follow-up to importance of simulation - 22

It can be seen from Table 5 (page 59) that actual interview questions sometimes elicited replies that provided answers to the major research questions for this investigation.

Summary

The research methods used in this naturalistic inquiry were drawn primarily from the responsive interviewing techniques of Rubin & Rubin (2005). The earlier work of Erlandson, et al. (1993) and Lincoln and Guba (1985) and others were also fundamental to the entire process. Data analysis was from Rubin and Rubin (2005). Purposive sampling techniques were used to increase the likelihood of answering the research questions and producing full and complete descriptions. Information for this study was generated by two types of data: interviews and a smaller amount of written correspondence, including such things as board minutes, newspaper articles, and other correspondence.

Coding and analysis of the responsive interviews was accomplished by applying the five characteristic steps of data analysis advocated by Rubin and Rubin (2005). The process entailed: (1) applying a consistent process of analysis throughout and adapting interviews based on the research questions; (2) discovery of nuances in interviews and examination of variations and complexity; (3) systematic examination of transcribed data with coding of extracted information; (4) breaking down comments made during interviews into data units; and (5) combining data units in ways that were relevant to the five research questions.

Chapter Four contains a report of the results of the study and data collected from interviews of 25 principal individuals involved in the development of the Health Sciences

Center. The interviewees' responses were categorized into 25 derived concepts and then

grouped in ways that answered the six research questions. Additional information was

also found that led to unexpected research findings that are also reported in Chapter 4.

CHAPTER FOUR

Results

The primary purpose of this study was to investigate the dynamics of collaboration in the formation of an innovative healthcare training facility at a community college. A secondary purpose was to propose guidelines that other like institutions may want to consider in the establishment of similar innovative healthcare training facilities, ones that place a heavy emphasis on human simulation. The responsive interviewing technique was used because it allowed for branching, follow-up, and redundant questions to be asked as the 25 interviews proceeded. This technique was used in order to achieve greater depth and understanding of the participants' views.

Specifically, this study sought to answer the following overarching research question: "What factors played an important part in the collaborative effort to create an innovative healthcare educational complex, one that placed a heavy emphasis on human simulation, at a community college?" Each one of the 25 persons in the study group had participated in some way in the development and ongoing functioning of the Health Sciences Center at the community college. Each participant had also been to the Health Sciences Center either during or after construction or both. The 12 participants with clinical backgrounds had all been in the facility as users in some fashion and were familiar with the capabilities and workings of the Center.

The following six research questions were used at thematic markers in the interview process to answer the overarching research question and more fully determine how the facility and its operation came into being. They were used, along with actual

interview, follow-up, and probing questions, to assess whether or not it might be useful

for other community colleges or similarly situated institutions to attempt a similar project

with like processes. The research questions were:

1. How were the collaborations first made?

2. How were the collaborations sustained?

3. What were the evolutionary processes in the development of the Health
   Sciences Center (HSC)?

4. What were the critical ideas, circumstances, and behaviors that influenced the
   development of successful partnerships for the project?

5. What were the critical ideas, circumstances, and behaviors that threatened the
   success of the partnerships?

6. How important was the use of human simulation to the formation of
   partnerships and to the successful completion of the project?

This chapter contains the results of data gathered from interviews of the 25

participants on the importance of collaboration and its offshoots in the development of a

community college health science center. Descriptive analyses of interview data were

supported by findings gathered from written material derived from board minutes,

newspaper articles, correspondence, and seminar presentation material. The data were

related to the major and additional research questions with further amplifying information

subsequently brought forth with follow-up and additional questions that appeared to have

importance to the study. Participants were advised at the outset that there would be

redundancy to the questioning format.

Use of the responsive interviewing technique allowed the researcher to also

expand and more fully develop areas related to the overall collaborative process when

conversational partners spoke of their ideas and perceptions as to the various principal

elements dealing with differing aspects of the health science center planning, funding, and use. After initial introductions/reintroductions, the interviewer re-explained the purpose of the interviews as part of a doctoral research project and confirmed verbal commitment to begin after reiterating and giving assurances that no names would be used without permission. All 25 interviewees were told that no names would be used that could tie a particular person to any particular view expressed.

Repetitive responses were included throughout the summarized response data (see Appendix E, Tables E.1 - E.9) when stated by a different person or group responding to the same question, to provide greater depth and breadth to a particular observation or opinion. In this way a fuller understanding of the HSC was gained from this diverse group. It was also noteworthy that some respondents changed their associations and roles with the college over the years; e.g., (a) the mayor was a former member of the college board of trustees; (b) the then health sciences division director was a former hospital administrator at the primary clinical affiliate and former board member and past chairman of the college board of trustees; and (c) the associate dean of the medical school was a present board member, but was not at the beginning of the construction project.

Deciding what interviewer responses to categorize into the derived concepts recorded in the following tables was done on the basis of the relative importance the researcher ascribed to the responses. There were times when several respondents may have made comments that helped define an area of inquiry and were deemed important enough to include with a "derived concept." In other instances, only one interviewee may have spoken about a particular idea or circumstance, but, because of that person's major role in the project's evolution, their comments may have been enough to support a

newly "derived concept." There were a total of 236 different concepts identified, some of which did overlap considerably, but were in some way distinct from other similar concepts. From that number, the 28 derived concepts were chosen for inclusion into the major group.

As respondents answered questions, certain "derived concepts" were evident many times. These overlapping concepts were mentioned when appropriate, with each research question (1-6); however, only the newly derived concepts were fully explained. Previous concepts, if they again occurred with a particular research question, were only briefly mentioned. This eliminates extraneous material so the reader will not have to reread repetitive descriptions of similar "derived concepts" that had relevancy to more than one of the six research questions.

Research Question #1: How were the collaborations first made?

This first research question was addressed in several ways during the interviews. As a lead-in, most conversational partners were first asked what their initial interest and/or motivation was to participate in the HSC project in some way. Later, to add depth and help with recall, follow-up questions were asked of most interviewees. The actual research question was not asked directly, but developed from several other questions that lead interviewees to express elements of their recollections as to their own knowledge of how they became involved, and/or what prompted them to become participants in the HSC project. Asking the research question directly in some instances was deemed too blunt, and since the formatting of questions was to try and elicit depth, the first question often did not seem to bear directly on their particular job function; e.g., architect or medical school faculty member. It is also important to note that the interview questions

listed in Appendices B and C were not always asked verbatim because in the process of a

conversational-type interviews, this kind of variation was to be expected. Major concepts

derived from participants' responses were taken primarily from Appendix E, Tables E.1

and E.2. These data are summarized in Table 6 and address Research Question #1: "How

were the collaborations first made?"

Table 6

Concepts Derived From Responses to Research Question #1:
"How Were the Collaborations First Made"

_____

Collaborations	Derived Concepts
First Made From:	1. Recognition of Need for New Facility 2. Acquire Simulation Training Facilities 3. Project Seen as Community Benefit 4. President's Presentation to Medical Staff

_____

Concept #1 - Recognition of Need for New Facility

After preliminary comments the first interview question was intended to show

how a particular person became interested or involved in the project. The first major

concept that emerged from answers to these first questions was primarily the

"Recognition of need," or more specifically as one interviewee put it . . . "recognition of

the need for a new facility, because current allied health programs did not have adequate

facilities." The fact was that prior to the new HSC, two of the college's 5 allied health

programs were housed off campus at other locations and that was not seen as desirable

for these programs. Concept number one was supported primarily by responses of

college personnel. Ten of the twelve (83%) individuals directly associated with the

college in the investigation spoke specifically about the need to house the health careers programs at one site (or as many as possible) as a reason for their interest in the project.

Concept #2: Acquire Simulation Training Facilities

The second major concept that emerged from answers to these first questions was the need expressed by the medical community to "Acquire simulation training facilities." Of the four physicians participating in the study, three of the four gave the need for simulation facilities as their primary motivation for participation. As one of the physicians explained, "We very much needed and wanted to have a simulation center and we didn't have the capital to do it. We would have had to go out and raise the capital. It didn't exist." Initially, they appeared to be motivated to partner with the college as an economizing measure. It was thought, even at the outset, that creating a simulation facility might be done less expensively by the college. At that time the hospital administrators were concerned about the cost of a new facility designed for simulation or the cost to retrofit an existing space adequately at their site. Also, they did not know how much such a simulation facility would be used by their people, further complicating the financial issue.

Concept #3: Project Seen as Community Benefit

A third concept derived from answers identified as responding to the first part of question one was "Project seen as community benefit." One physician responded, "I was positively impressed from the very beginning what they were describing about the center. I saw a real boon to health education that would benefit the community as a whole, not just my institution." This thinking was related by 6 (24%) of the 25

interviewees. These views were expressed by a diverse group of 6 individuals consisting of hospital administrators, donors, city officials, and one board member. The importance of the community was stressed throughout the interviews at one time or another by almost all participants.

Concept #4: President's Presentation to Medical Staff

A fourth concept identified from the responses of several participants was "President's presentation to medical staff." This concept was related to the comment, "the fortuitous timing of a presentation the college president gave one morning at a medical staff meeting at the hospital." He had gone to solicit support for the upcoming bond election for the building. The president used two words in helping to describe the project that seemed to catch the attention of the medical school faculty in attendance - "simulation and integration;" i.e., a major part of the facility would be devoted to simulation programming and the college programs would have integrated curricula and share space. This presentation piqued the interest of the physicians in attendance who soon began a dialogue with the college president. Soon thereafter other administrators and faculty at the college began to take part in the discussions.

Summary

The major concepts derived from research question #1 varied depending on the interviewee and their role in the area and their relationship with the college. The main idea expressed by the largest number of respondents was the recognition of need for a new allied health facility. The medical community expressed interest and engaged in the process because of their need for a simulation training facility. The project was seen as a

community benefit by interviewees across the spectrum of roles they played in the project. Lastly, the president's presentation to the medical staff stimulated interest in the possibility of collaborating between the hospital and the college. Now that the collaborations were made the next section dealt with sustaining the partnerships.

Research Question 2: How were the collaborations sustained?

This question was treated much like the first research question in that responses were coded in outline form according to identified concepts. Several of the concepts also seemed to overlap with the first part of the question; for example, "Project seen as community benefit" acted both as an impetus to start the project and as a motivator that helped sustain it in the various stages of planning, development, and implementation.

Presidential leadership was another concept that was coded for how the collaborations were first made and then sustained once it was underway. It is not possible to totally separate the president's influence, both at the beginning, and how his contributions led to the continuing efforts to see the project to completion and beyond. The derived concepts related to sustaining the collaboration were again primarily taken from the tables in Appendix E, Tables E.1 and E.2 and summarized below in Table 7.

Table 7

Concepts Derived from Responses to Research Question 2:
How Were the Collaborations Sustained?

Collaborations	Derived Concepts
Sustained by:	1. Presidential Leadership
	2. Evolving Trust
	3. Commitment to Project

Concept #1: Presidential Leadership

The second research question asked: "How were the collaborations sustained?" It is clear that presidential leadership was a critical factor in the seminal efforts to begin the project, and even more so when partnerships began to develop. Presidential leadership was identified by 14 of the 25 (56%) interviewees as important to sustaining the project's collaborative effort. His influence was thought to be important by the college faculty and board members, community leaders, hospital personnel, and several others. As one administrator put it,

> We had a trusting relationship, and honestly, I believe that this partnership is based on that trusting relationship that actually expanded to the President of the College. The President was able to participate in the discussion, to negotiate partnership issues because there was a trust relationship."

One of the community leaders said,

> . . . he has a way of presenting things that creates buy-in . . . he is a master of it . . . he is seen as a visionary in our community because of the way he is able to do those things and a great leader. So I think that has been a real key to . . . success.

Concept #2: Evolving Trust

The concept of trust was expressed by 8 of the 25 (32%) participants. Trust was thought to be important to the project by all (4) of the college department chairs. Trust seemed to not be present among all groups initially, but developed as the groups worked together. This was especially important with the college department chairs and physician educators. One college administrator said,

> We had a trusting relationship, and honestly, I believe that this partnership is based on that trusting relationship that actually expanded to the President of the College. The President was able to participate in the discussion, to negotiate partnership issues because there was a trust relationship.

Trust was also mentioned by several groups as especially important between the hospital and college. This was highlighted by the positive relationship between the college president and chief academic officer at the primary hospital. Sixteen (64%) conversational partners mentioned this factor as having a beneficial effect on the project.

Concept #3: Commitment to Project

Commitment to the project was said to be important by most groups. Ten of the 12 (83%) college personnel expressed this as an important concept. Without a sense of dedication to maintaining the direction of the building, it might not have been as successful in the interviewees eyes as it now appears. Much of the commitment for the HSC evolved out of the need for a dedicated facility for the health sciences programs. All College personnel indicated they understood the need for support of the programs and the project. A department chair put it this way,

> People are open. Everybody wants their programs to be successful and are willing to listen to others' programs who have different ways of doing things to see how exactly you do it. How can we take advantage . . . in order to improve what we do.

As an example of individual commitment, one of the college personnel singled out by 11 (44%) interviewees was the director of the Sim Center. The director was mentioned by physicians, hospital administrators, college department chairs, and the president as an important person in sustaining the ongoing activities of the HSC. As one hospital administrator put it:

> . . . we knew from the outset when we were off course even just putting the plan together before the building was completed that _____ would be the key person with his past experience and so on, would be the key person to making that facility really run smoothly. And he not only has kept the facility running smoothly, making sure that all the equipment was functioning properly, but probably more importantly, he has worked with the faculty on the design of the

curriculum, the case scenarios, putting those together, and he does do phenomenally much teaching himself and especially teaching the teachers is what he does.

Commitment to the project by the two levels of hospital personnel (physicians and administrators) also became an important factor contributing to sustaining the collaborations. One administrator mentioned that an earlier collaboration had helped form and sustain the present partnership. Another administrator spoke of the need for their institution to add additional dollars as the project went forward. This was in addition to what was initially pledged. Since the building was completed, operating fund allocations have been increased by the same institution every year. Another hospital has also made donations in kind every year since the project was completed.

The continued support of the two donors seemed to increase after the initial planning was done and construction begun. One donor indicated that, "the entire project inspired me to look for higher, better types of equipment and that sort of thing where I could." The other said that they really became interested in this specific project after completing a tour of the building. When this was done, there was enough interest developed that a challenge grant was given and both donors have remained supportive ever since.

Summary

The collaborations were sustained in different ways by the various participants. Initial interest and the later sustained support for the HSC was and is an ongoing testament to the leadership and trust of those involved, and the recognition of the needs of the medical and larger communities for a facility largely based on human simulation.

*Research Question 3: What Were the Evolutionary Processes in the
Development of the Health Sciences Center (HSC)?*

The evolutionary processes that occurred in the development of the HSC covered

several areas. This research question was again approached by asking several different

interview questions, some of which were more direct and others less so. Some

interviewees were more deeply involved in the day-to-day planning and operation once

completed than others. Each did have a role to play in its development and ongoing use.

Concepts were derived mainly from the following questions: 5b., "Could you

trace your involvement in the project," 5c., "Can you describe how you believe your

input may have impacted the project?", 5d., "Initially to what degree did a collaborative

effort of this kind seem plausible to you?" and 5g., "Would you describe the time line

influences that may have impacted the develop of the Center as you know them?" These

questions and variants of these questions, along with follow-ups were asked of the

participants. Further details may be seen in Appendix E, Tables E.1, E.2, and E.4. Table

8 summarizes the derived concepts identified with Research Question #3.

Table 8

*Concepts Derived from Responses to Research Question 3: "What Were the
Evolutionary Processes in the Development of the Health Sciences Center?*

Evolutionary Processes	Derived Concepts
Early (2001)	1. Fundraising Timeline
Middle (2002)	2. Design Process
Late (2003)	3. Rapid Utilization of Building 4. Hospital Department Issues 5. Coordinating Time/Use of Sim Center

Concept #1: Fund Raising Timeline

Evolution of the HSC was also greatly affected by the timeline for fundraising. Virtually all of the interviewees had an understanding of the fundraising efforts and most had participated in some way. The board decided in July of 2001, to set the bond election for November, 2001, obviously not knowing what would occur in September 11, 2001 with the terrorist plane crashes into the World Trade Center and the Pentagon. These events seemed to shock the nation and heighten concerns about safety and available healthcare.

The main fundraiser was the Director of Institutional Advancement. This individual explained that the timeline for raising money was short because the College Foundation was only given six months to meet a very large challenge grant. The Director's main task was to coordinate fundraising efforts by the college. Chief and first among them was to support the bond election which involved getting as many college personnel and others known to her to actively campaign in the community. Other healthcare related people in the area were also encouraged to participate with the net result that the bond passed by an overwhelming 3 to 1 margin. Six (24%) of the conversational partners explained how a "word of mouth" campaign seemed effective in their views.

Another important detail was the raising of funds and donations for equipment to put into the new building. In this case, there was a need to raise almost 1.5 million dollars. The director mentioned that the College Foundation became enthusiastically engaged and that helped raise funds through visits to the hospitals, manufacturers, and with local business leaders. The department chairs also sought funding from various

manufacturers of medical equipment and supplies. Together they raised the amount

challenged by a local donor.

Concept #2: Design Process

Seven (28%) individuals indicated they helped at various stages with the design

process. Interestingly, the president said that they did not have a firm idea about what the

new building would look like even after the bond election was completed. The process of

designing the building was constrained by the available funds. The vice president for

business services reminded participants that there were limited funds, which at least in an

indirect way may have influenced the design of the building to become the watershed

facility it is.

Once the overall concept of a comprehensive health careers building was

approved by the college administration, the college department chairs began meetings

with the architectural design team, in some cases one-on-one and in others by groups.

Prior to these meetings the department chairs had begun going to various sites in the state

to benchmark what types of facilities other programs had. Remarking about a trip to a

community college with small group of department chairs, the current Sim Center

director stated:

> . . . they were separated literally at three corners of the building and they were
> interconnected by hallways that looked like traditional college classrooms down
> the hallways with classrooms and . . . you could believe that you were in a clinical
> setting but as soon as you stepped out into the hallways you recognized fairly
> quickly "Okay, I'm in a college classroom building." So you lost the illusion
> very, very quickly. And driving back . . . we were talking about the layout of the
> building and the discussion progressed to the point where we were saying "Hey,
> wouldn't it have been great if they had put all of that stuff together,
> interconnected it, and made it look like a hospital." And I think that was the point
> where we really began to talk about the mock hospital concept for designing this
> portion of the Health Sciences Center and that discussion of trying to build a

mock hospital, as I recall, was what led into a lot of the discussion that occurred during the campaign of integrated instruction using simulated environments.

As the Center Director continued, he brought out another important point in the design process that had a significant impact on the final design. This same point on making an integrated facility was also discussed by all of the college administrators during their interviews. In designing the facility as multi-use, i.e., by not podding each program in their own dedicated space, it would save the college money and perhaps be more effective. He continued:

> The other thing that was interesting as I recall it is that having, coming up with this design was very attractive to the financial types because they had a limited number of dollars to build the facility. They had already projected what they could raise with the tax increase from the bond election and they were telling us you have to do the whole thing for $6 million dollars. So putting everything together as a shared resource was more efficient and it got more instructional space, more value for the money that was raised than we could have gotten if we split the labs apart into separate areas for each department.

Creating use for this type of shared space was a new venture for the departments involved. One key element that came out in their meetings was the revelation that working in actual health care settings was one of team work and shared resources and that the new facility should have a similar design. The hospital physicians also had their input into the design of the building through many meetings with the college staff before and during the actual design phase, although they never actually met with the architect. Working with the community college may have also been an enlightening experience to the medical school faculty. As one physician put it:

> Once we started collaborating with the college, and it was clear that the college was going to build something, we basically took what we had been working on and gave it to the people at the college and said, 'If you could, this is what we would like to see' And much to our surprise, the college said "Sure, this looks like a good idea", which again was a total surprise to us because we did not expect, again, that our wish list would end up being the same wish list as the college."

Finally, the architect, who was often lauded for her open and collaborative

approach to the design process by the department chairs, remarked:

> I think this particular building is very cutting edge for healthcare professions
> training, and there is sort of this gap continually in education between what you
> are taught in school and what you do at work, and that gap, you know, usually
> takes you ten years to make up when you get out of school . . . But taking this
> particular building and moving it out of the space of the classroom lecture and
> into the space of this is a real world lab and this is as close as we can get to
> teaching you without you killing somebody . . . It really gives students a
> foundation for what happens when they get a real job, when they walk in and
> what does the room look like, and where is the stuff located, and how do I flow
> through that space, and how do I begin to think about what it is when I do this
> career, you know, and how do I fit into that.

Design of the HSC took two years to accomplish and one year to build. During

the two years of collaborative work an integrated facility was designed in which all

interested parties had input. The main constraint was the finite dollars available for

construction.

Concept 3: Rapid Utilization of Building

Concern that the building was occupied and the classes were scheduled too soon

after completion was a primary concern expressed by the director of the Simulation

Center. Most others were not aware of the issues expressed, except for the medical

director and the department chairs whose programs were housed in the new HSC.

Because of the time table and push toward getting the building occupied by the beginning

of the Spring 2004 semester, certain problems arose. The director of the Sim Center

offered the following:

> One of the other interesting problems that that created trying to get into the
> building by the beginning of classes spring 2004 was that we moved into the
> building and went operational without having the AV equipment set up in the

simulation rooms yet, which, of course, significantly limited our ability to use the
simulation rooms because we could connect the simulators to a control room.

All the department chairs stressed that they adapted the best they could under the

circumstances. The department chair for Dental Hygiene reported that the Dental

Hygiene Clinic was totally functional when the building opened and students were able to

see patients right away. Since simulation was new to most of the chairs, the fact that all

of the electronics were not functional was not an overriding concern to them. Most

expressed eagerness to begin teaching in a new building, since none had ever had a

facility designed for their programs, even though some of the hardware was not present

when classes began in January, 2004.

Concept 4: Hospital Department Issues

Several of the physicians expressed frustration in not being able to utilize the

facilities as much as they wanted. They explained that it was not a reflection on the

college, but rather, with their own scheduling difficulties in not being able to bring

medical students or residents and others to the HSC. This conflict arose primarily out of

two major areas: 1) difficulty gaining release time for medical residents and 2) resistance

from faculty to a new way of teaching/learning. To the first point one of the physician

faculty members said the following:

> Moving forward, I guess the next hurdle was "Okay, its built and its out here, and
> we have everything that we want," then the next hurdle was to get people out here
> to use it but use it in such a way that it was collaborative with what the college
> was doing. And my fear when we first came out here was "We are going to have
> this beautiful state of the art simulation center and nobody would come." And the
> reason for that fear was because medical training forever has been an
> apprenticeship, and the residents and the medical students are in the dirty world,
> secret world, cheap labor for the hospital, you know, because they are admitting
> patients and discharging patients, and they are in essential roles that to take them
> out of those roles involves quite a bit of political clout to get them out of that role
> to go do something else. And you are talking about doing a type of education that

is foreign and different to how everybody else trained. So there is a strong cultural pull, say, that you need to train the way I trained, which is to be on the wards and see patients and deal with sick patients and whatever, and this new-fangled idea is probably not so great.

To the second point another medical school faculty member stated:

. . . sometimes in academic medicine it is hard to change. It is hard to embrace new technologies, and I can see how people feel comfortable with the podium and don't feel very comfortable stepping down at the same level and then troubleshooting stuff, which is basically what we do. You know, talk about the experience, do reflective learning, because they are not used to it. So you still have some faculty that are still going to feel, you know, that it is not a real situation, but the majority of our faculty really embrace it and every time we would have more and more."

Concept 5: Coordinating Time/Use of Sim Center

At the outset it was not known exactly what the use characteristics of the new facility would be. From a college standpoint it, seemed easier to determine based on published class meeting dates and times. Since there had never been this type of collaboration before, users felt somewhat uneasy, although excited about teaching in the new building. The major unknown was how much the outside entities were going to use the facility, in fact it was not known exactly how many non-native users there might come to be.

It was anticipated from the earlier discussions and agreements that resident physicians and medical students would use the facility, but no one knew exactly what kinds of time and scheduling demands there might be. A common thread that ran through several of the responses interviewees gave was the already mentioned issue of control of the schedule. The schedule was under the control of the college per the handshake agreement between the president and hospital officials.

One problem that became apparent was that one person (Sim Center Director) was no longer able to keep up with the demand from users, especially outside users. A full-time assistant was being sought after the time of this research. This circumstance developed because of demand extending to 6 days per week on many occasions. The Center was generally open from 7:00 am until 10:00 pm Monday through Thursday and as needed on Friday and Saturday. This grueling schedule has had a debilitating effect on the Director.

Summary

The data indicated a general consensus as to the importance of how the evolution of the center developed. Fundraising timelines, design process/concerns, and cooperation among participants were deemed important contributing factors. The exception was a concern that operations began prior to ensuring completion of all functional components. This was seen as a drawback to the overall timeliness of the Center's development. In addition, there was a need for additional help in the Sim Center. The next section deals with critical factors that may have affected the partnerships.

Research Question 4: What Were the Critical Ideas, Circumstances, and Behaviors
that Influenced the Development of Successful Partnerships for the Project?

The critical factors, circumstances, and behaviors involved in the development of the Health Sciences Center overlapped somewhat, but were pursued to add a deeper perspective in developing a more informed understanding of the creative process. The above question was asked directly, but often; several connecting and follow-up questions were also asked along with this specific question due to the complex and lengthy nature of this research question. Responses to Research Question 4 are presented in Appendix

E, Table E.5, along with summarized responses to various follow-up questions. New

concepts brought out by this research question and related questions are summarized in

Table 9.

Table 9

*Concepts Derived From Research Question 4: "What were the Critical Ideas,
Circumstances, and Behaviors that Influenced the Development of Successful
Partnerships for the Project?"*

_____

Critical Factors	Derived Concepts
Critical Ideas	1. Positive Community Relations
	2. Partnerships/Collaborations
Critical Circumstances	3. Facility Needed by Several Entities
	4. Timing of Bond Issue
Critical Behaviors	5. Communication Among Partners

_____

This research question dealt with three critical factors. Incorporating three factors

gave interviewees much to contemplate. Some of the topics have been dealt with already,

such as: 1) evolving trust, 2) involvement of college personnel, and 3) the design process.

Only those that merited further description or were major new concepts were included in

the following discussion.

Concept #1: Positive Community Relations

Community relations were listed as crucial to the success of the project from two

major aspects: 1) Without community support and passage of the bond election, the 7.23

million dollars would not have been available for construction of the HSC or for other

remodeling projects on campus, and 2) Community leaders were essential from a

fundraising standpoint. Much of the additional money raised for equipment came from

area citizens who were able to make such contributions.

Nine people (36%) from across all categories listed community relations as

essential to the success of this project. Six (24%) informants characterized

partnerships/collaborations as an important element. One respondent commented:

> First and foremost, I think it was because it was collaboration. I am certain that
> on its own . . . College could have done some things, all of which would have
> been good and positive. However, it would not have had the scope and the
> magnitude had it not been for the collaboration between the college and the
> medical entities . . . because those medical entities are such an integral part of our
> community here, when they partnered, in effect, with . . . College to support its
> being built, and at the same time made a commitment to the college that if you are
> going to do this, we won't."

The foundation upon which this project began with the president and board,

moved to the hospitals and department chairs, then to the community, and then to the

business partners. As one community leader put it:

> . . . one of the beauties of our entire community is that we actually partner so
> much, whether it be the city, the county, the Chamber, the Economic
> Development Corporation, the college, the major employers. There is a lot of
> synergy that comes out with partnering.

Concept #2: Partnerships/Collaborations

The partnerships that developed did not evolve as a matter of course. When asked

a follow-up question about the scope of the project, the College President said:

> And I guess the thing that began to force me to think in the direction of
> collaboration was we weren't going to be able to build a facility big enough to
> build it the way _____ built it, for example, and build all the separate pods.
> That perhaps the only way we were going to do this was is if there was some
> collaborative effort.

Conservation of funds may have lead to initial collaborations among the college

departments and then the hospital/medical school, but these groups soon began a

concerted effort to broaden the partnerships with manufacturers, businesses, and donors. The President had also mentioned, at one point in his interview, that he would have been content had the new building turned out to be more in the traditional mold of each department having its own labs and spaces. The idea for collaboration seemed to be borne of necessity and this concept overlapped with the circumstance and evolutionary processes in the development of the HSC.

Concept #3: Facility Needed by Several Entities

The facility, as it was designed, was attractive to many outside entities involved in healthcare delivery. The college departments, as has been stated, were in need of new facilities. The major hospital in the area, which trained residents and medical students, had expressed interest and support since the beginning of the planning phase. Several local hospitals, and even some quite distant, expressed interest in using the facility once it was completed because of its capabilities. Area EMS departments, military medical units at a nearby base, and others also expressed interest in participating in training evolutions in the new center. Most of this new interest came about after the completion of the project. Few were apparently aware of how "hospital like" it would be until it was near or at completion.

Concept #4: Timing of Bond Issue

There were two issues that appeared to facilitate passing of the bond referendum. First, timing of the bond election was immediately after the 2001 attack on the World Trade Center and 4 (16%) interviewees speculated that at least some community support was likely due to that major catastrophe. A community leader said,

". . . really that was an unusual time. The economy was at some question, the market had gone way down . . . I mean, there was obviously people were scared, people didn't go shopping, you know, that short term the grocery stores were overrun and then nobody went out and shopped. Restaurants suffered because nobody, you know, everybody stayed home and watched the news and no one went out to eat, and those were the happenings going on. But, you know, we were, I won't say we were immune to it but we were, as our own economy, we were probably a little more prepared than some others and we weren't as affected quite as substantially as some other communities.

The second issue was the fact that the bond market was down. One college administrator stressed this point. This was seen as beneficial event since the college could now go to the voters for a lesser increase in taxes. This would allow more advantageous terms in servicing the debt.

Concept #5: Communication Among Partners

Communication was an offshoot of the collaboration concept. It was thought to be a critical factor since without open and frequent communication in the formative stages of the project it would not have gotten any momentum. Nine (36%) of interviewees described early efforts at communicating with the community as especially important. Fifteen (60%) partners in the project mentioned the essential nature of communication with one another as important.

Summary

Once again, there was a broad mix of factors interviewees thought were important to successful partnerships for the project. These factors clustered around the concepts: 1) positive community relations, 2) partnerships/collaborations, 3) facility needed by several entities, 4) timing of bond issue, and 5) communication among partners. These

were mostly positive concepts. This research question was then followed by the fifth

research question which asked about possible threats to the project.

Research Question 5: What were the Critical Ideas, Circumstance or
Behaviors that Threatened the Success of the Partnerships?

Factors that may have threatened the success of the project are summarized in

Table 10. Some of the responses came directly from a specific question about possible

threats and follow-ups or sometimes even from unrelated questions. Conversational

partners often expounded and expressed comments related to other possible problems that

were not necessarily threats.

When questioned if they were aware of anything that might have put the project in

jeopardy 8 or 32% said "No," or were not aware of any. Many interviewees did mention

at least one particular circumstance that could have threatened the success of the project,

but no one related any instance in which they thought there was immediate danger to the

project or the collaboration. Comments from interviewees were taken primarily from

Appendix E, Table E.7 and summarized in Table 10.

Table 10

Concepts Derived From Responses to Research Question #5: "What were the Critical
Ideas, Circumstances or Behaviors that Threatened the Success of the Partnerships?"

Critical Factors	Derived Concepts
Critical Ideas	1. Leadership Not Behind Project
Critical Circumstances	2. Funding of the Project 3. Timing of Project
Critical Behaviors	4. Lack of Cooperation Among Collaborators

Concept #1: Leadership Not Behind the Project

Leadership by the executives at the college, hospitals, and other major entities

could have easily derailed the project at various stages of development. As one

department chair put it:

> Regardless of how vocal the champions of the idea had been at the lower levels in
> the organizations, without the two CEOs, or the CEO at the college and the Chief
> Academic Officer at the hospital saying it's going to work, I don't think it would
> have.

In all, 12 (48%) spoke about the relevance of the leaders of each of the major entities who

collaborated on the HSC.

Concept #2: Funding of the Project

Six participants (24%) indicated that failure of the bond referendum could have

posed a threat to the project. If the bond had failed, the college would not have been able

to create a full dental hygiene clinic, simulation center, mock operating room, and the

other features that have set this building apart. One city official said,

> There was not any element in our community, any faction that was out to defeat it
> for any particular reason. . . . There was absolutely none. You never saw a poster
> that said 'Vote no on the . . . College bond issue.' I can never remember hearing a
> single negative comment to this project.

If funding for the equipment had not been forthcoming from private donors,

hospitals, and various manufacturers and suppliers, there would have been a well

conceived and constructed building, but without the tools to make it work.

Concept #4: Lack of Cooperation among Collaborators

One response to a follow-up question was asked of one of the college department

chair participants regarding continuation of the collaborations. He responded:

I don't think you are ever out of the woods and into clear sailing on a partnership like this. As I see it, the problem or the difficulty with partnerships is that they are built entirely on the good will of the people involved in the partnership. And as long as you have people who are willing to collaborate and who have a sense of goodwill toward the other partners in the consortium, things will work. All it takes is for a handful of people to come into the picture who have either territorial or proprietary attitudes and it can derail the entire process overnight . . .

This person had experience at another educational institution with a collaborative arrangement somewhat similar to the one in this study. After several years of success, this other collaboration failed when the parties ceased to have realistic common goals and another partner wished to seek domination over the other. This led to failure of the collaboration and dissolution of the partnership, according to the interviewee, which later resulted in a loss of funding for one of the parties.

Summary

According to most interviewees the major threat to successful completion of the project revolved around passage of the bond issue so the project could be funded. Timing was again mentioned here. There were some concerns expressed about the need for strong leadership by those in authority in the organizations participating. Another key area some interviewees spoke about was the critical nature of the people involved in the collaborations, their desire to be willing participants. The final research question asked interviewees about their perceptions of how important human simulation was to the project.

Research Question 6: How Important Was the Use of Human Simulation to the Formation of Partnerships and to the Successful Completion of the Project?

This question was addressed by two related questions. These questions and variants of these questions, along with follow ups were asked of the participants. The

Health Sciences Center (HSC) has two major clinical training components; 1) Dental Hygiene Clinic and 2) the Simulation Center. This research dealt primarily with the human simulation side; although some of the interviewees were especially interested in the dental hygiene area of the building and lent their financial support to that portion of the HSC. Further details may be seen in Appendix E, Table E.3. This table was the main source of information derived and illustrated below in Table 11 which summarizes the derived concepts identified with Research Question #6.

Table 11

Concepts Derived From Responses to Research Question #6: "How Important was the use of Human Simulation to the Formation of Partnerships and to the Successful Completion of the Project?"
_____

Formation of Partnerships	Derived Concepts
Simulation	1. General Perceptions on Simulation 2. College Personnel Interest in Simulation 3. Manufacturer Marketing Motive 4. Hospital/Physician Need
_____

Concept #1: General Perceptions

All 25 interviewees spoke positively about medically related simulation. Lay individuals in this study compared their own work experience or other work environments with which they were familiar. They often spoke of the need for healthcare practitioners to work on mannequins before they performed an important procedure on the interviewee, should they become patients in a healthcare facility. Eleven (44%) stated that it would help reduce errors and increase patient safety. At least one member

in each of the groups interviewed mentioned error reduction as an important aspect of simulation training in healthcare.

Prior to the interviews in this study all informants had visited the Health Sciences Center at least once and seen the mannequins in operation. All participants had at least an overall idea about the function and layout of the building. Non-clinical people seemed to appreciate the capability of hands-on simulation as practiced in the Center, but the more clinically oriented respondents were more specific in their descriptions of its importance to the future of healthcare. One college administrator said, "I wish every healthcare provider could have simulation experiences before they touch a patient, and I applaud the academic medical accreditation bodies for making that a rule."

Further, the medical director of the Simulation Center stated:

. . . it is difficult because a lot of the time what you want to do is find out how much your learner knows or push your learner to the point of discomfort so he or she can handle later on complications. Well, you cannot do that with standard care of a patient. You cannot say I am going to make this more difficult, so now it is more difficult for you to intubate or more difficult for you to do this task without compromising patient care. So that would not be ethical to do. So under direct observation you cannot really introduce distracters or problems with equipment or increase the level of complexity of the task, and that is something that you can only do in a safe environment."

This view seemed to be held by all healthcare practitioners in considering the advantages and future of medically related high-end human simulations. All were aware of the extensive capabilities of the human simulators available to users of the Sim Center in the present study.

Concept #2: College Personnel Interest in Simulation

College personnel were also greatly interested in simulation. Most college faculty had done some amount of simulated learning experiences with their students, but not to

the degree that it would be possible in the new building. The Emergency Medical Services Professions department had a human simulator for about one year prior to moving into the HSC. Respiratory Care and Surgical Technology had also used simulators to varying degrees, but not to the extent that they were now available. This new resource would now allow these departments to venture into areas of instruction and expand their capabilities to a level they had long anticipated.

Concept #3: Manufacturer Marketing Motive

The manufacturing partner was primarily interested in the project from the simulation standpoint, since the company had much to gain from partnering with the college, hospitals, and medical school in that they hoped it would help market their products. The manufacturer gave large discounts for purchases of equipment and made support personnel almost immediately available in order to keep the simulators functioning. The representative had indicated that the simulator was a relatively new product for them and that having a beta site nearby was going to be an essential component of their ability to market new products.

Concept #4: Hospital/Physician Need

For the hospitals and physician faculty, it was a primary motive for engaging with the college. They did not have the resources to create a separate simulation facility on their own without incurring undue expense. All hospital related personnel thought simulation training was essential to increasing the efficiency of medical training and most appreciated the prospect of starting team training with community college students as part of a more realistic team approach to healthcare practice.

The next section deals with additional findings brought out by additional, follow-up or probe questions. These recommendations were mostly aggregated from a specific question regarding the interviewee's thoughts, as if they were consulting with another college. Follow-up questions were asked when it seemed appropriate. Additional comments were listed when interviewees specifically stated that a thought was pointed toward what someone else might consider when designing a healthcare training facility.

Table 12

Additional Derived Concepts: Recommendations Participants Made for
Creating Similar Community College Healthcare Training Facilities

———————————————————————————————
Derived Concepts
———————————————————————————————

1. Benchmarking Process - First Step
2. Willing Partnership Process
3. Seeing a Need for Simulation

———————————————————————————————

Concept #1: Benchmarking Process - First Step

The concept with the most responses was researching/benchmarking the project as a first step. Twelve (48%) suggested that other institutions compare what they were contemplating with other facilities and consortia to see how they might fit with their own planning and resources. Benchmarking is a common practice now and one college administrator thought educational institutions should begin internally, and said: ". . . with their own departments and faculty, talking about the concept. They have an opportunity now because there are centers like ours around to go out and see

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what these centers look like, and I think they've got to decide."

He added,

> . . . I think it's got to start with the people on that particular campus and those
> schools that are going to be part of it. They've got to know they can work
> together, that they can come to agreement, and that it is something they really
> want to do . . . and I don't think it can be coerced by an administrator or anybody
> else.

Concept #2: Partnership Process

Six (24%) informants said there should be willing partners. This group consisted

of persons from four different categories of interviewees. A college administrator said,

> I think they have to decide are there going to be partners out there, or is this
> something that we are going to do totally on our own, or do we really want to try
> together? If we are serving major hospitals in our area, do we want those
> hospitals to be partners? Not everybody can have a medical school, but virtually
> everybody has got hospitals.

The associate dean of the medical school suggested, ". . . the key is to have the right

people who enjoy working together and basically have the same goals for both the

community and the college and their individual institutions that they may be involved in

. . ."

Make community partnerships was mentioned by 6 (24%) of the conversational

partners. One college administrator said:

> It's an ideal situation because community colleges in general, I don't think, see
> themselves at the level of providing education or maybe sophistication that they
> would be or see their students at the level that they would be comfortable working
> with a medical school. I think if we see this replicated, I predict that we will see it
> first and most often with health sciences centers connected to universities, but
> there is no reason why other community colleges can't do it. If you have the
> health science programs, you are teaching healthcare providers at some level. To
> me, it is unimportant at what level you are teaching your students. All of the
> students are learning to take care of patients.

These comments were similar to many others.

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When asked if some other entity could duplicate this project one of the medical

school faculty stated:

> I think that this can be duplicated somewhere else. I think that we have a
> partnership that can be mimicked and duplicated somewhere else. And, I think it
> all depends on the leadership. It all depends on whether the, in this case,
> president of the college, and either the CEO of the hospital, the dean for academic
> affairs of the hospital, or whoever happens to be that key person that is making all
> of those decision, whether those two share goals. Because if they can share goals,
> it is easy to share resources when you share goals.

Concept #3: Seeing a Need for Simulation

Seeing a need for simulation was suggested by three people as one of the elements

critical to creating a similar center. A medical faculty member suggested:

> . . . start at inventorying the faculty perception of needs. And if you don't, you
> know, that's ultimately your faculty who are your teachers and you have to help
> them meet the needs they perceive. And it may require some faculty development
> to alter their perceptions of the needs. If your faculty don't recognize the
> importance of simulation you may want to bring in new faculty if you are
> convinced that simulation is essential.

All participants mentioned simulation as a means of educating healthcare

practitioners as summarized previously in Table 6 and spoke of its importance.

Three administrators, one college and two from the hospitals, thought there was a

need to have a memorandum of understanding (MOU) in order to clearly delineate roles

and responsibilities of the participating parties. The present partnership is only now

creating such a document, but has functioned for more than two years without a formal

written agreement.

Summary of Findings

Occasionally like concepts emerged, even in responses to different questions

given by the 25 conversational partners. Responses were often similar in context to the

six major questions developed for this study, but were not always direct answers to these specific questions. The research design was purposely redundant in asking questions to respondents in order to probe more deeply into their opinions and offer them opportunities to revisit their thoughts. Conversational partners were asked a series of questions ranging from about 15-18 basic questions with numerous follow-up questions depending on their roles and responses. There were times when the interviewees seemed to be speaking about one topic and then would spontaneously move into a different topic area altogether. Some answered questions before being asked one of the prewritten questions by the researcher.

The findings presented in this chapter represent 28 derived concepts that were: either repeated often by interviewees or were, in some cases, based on the expertise of a particular respondent, or a single comment. In a few instances, these single comments were deemed important enough to support a major derived concept. The next chapter contains a summary and discussion of the major findings of this study and offers suggestions to others who may be considering a similar healthcare training facility. Recommendations for further research are also presented.

CHAPTER FIVE

Summary, Major Findings, Discussion, Recommendations, and Conclusions

Summary

The overarching research problem in this study was: "What factors played an important part in the collaborative effort to create an innovative healthcare educational complex at a community college?" To answer this overarching research question and to carry out the purposes of this study, six research questions were developed. They were:

1. How were the collaborations first made?

2. How were the collaborations sustained?

3. What were the evolutionary processes in the development of the Health Sciences Center (HSC)?

4. What were the critical ideas, circumstances, and behaviors that influenced the development of successful partnerships for the project?

5. What were the critical ideas, circumstances, and behaviors that threatened the success of the partnerships?

6. How important was the use of human simulation to the formation of partnerships and to the successful completion of the project?

These research questions allowed the researcher to examine the influences that were present in the planning, funding, construction, and ongoing operation of a community college-based health science center. This study also examined the role collaboration played as a major part of this process as perceived by the 25 participants who were involved in various ways in its development and operation. Another influence that bore on most of the interviewees was the prospect of having human simulators available.

Previous research supports the development of consortia in higher education (Maurrasse, 2002; Roueche, 1995). Some university consortia have been developed among medical schools and, to some degree, between schools of medicine, nursing, and allied health. Community colleges also have long histories of non healthcare related collaboration, especially with their own communities. However, little has been tried with extensive partnerships between community colleges, hospitals, and medical schools. The type of HSC collaborative project studied in this research was based on the informal, anecdotal information gleaned from 25 interviews.

There have been other published and more formalized processes and recommendations for project management that might also be beneficial in starting a health sciences facility. For simulation center development, Loyd (2004), advocated use of the Balanced Scorecard (BSC) approach that could begin with SWOT (strengths, weaknesses, opportunities and threats) analysis, followed by the development of mid and ending points for consideration. The BSC consists of four basic questions:

1. Who are the customers?

2. What is the most appropriate way to accomplish the service?

3. What resources do we have to provide the services?

4. How is a quality product ensured?

Holder (2004) wrote about simulation center planning from a business viewpoint and also suggested using SWOT as a strategy for determining the feasibility of a stand alone facility. While these approaches are laudable from a pure planning standpoint, Loyd (2004) and Holder both wrote as if the sponsoring institution was a hospital, not a two-year college. Even though SWOT was not utilized in the present project, the leaders

of the institutions involved in the present project determined it would be much less expensive to build a facility at the two-year college. It was estimated that the construction of the HSC cost the college approximately half of what it might have cost the hospital, according to one of the college administrators interviewed.

Hoffman-Johnson (2005) wrote specifically about collaboration between community colleges based on negotiated order theory and Kanter's model of innovation used as theoretical frameworks for undertaking strategic partnerships. Rather than focus on these models or theoretical constructs, mentioned here and above, the concepts found in the present study came directly from the participants in the project and it is hoped that these observations and five recommendations may be even more helpful to others.

Methodology

The design of this qualitative study was structured and carried out using the responsive interviewing technique developed by Rubin and Rubin (2005), as described in Chapter 3. This technique is based on a naturalistic process that is highly reliant on interpretive constructionist theory. This theory of inquiry allows the researcher to focus on the interviewee's views, their work, and experienced events. It also allows the researcher to focus on discreet events rather than averages of responses in order to build an understanding of those events.

A pilot study was conducted prior to beginning the main body of data collection. The pilot participants were solicited, as were subsequent potential interviewees, by personal contact (either by telephone or a personal visit). The two individuals selected had been involved throughout all phases of the Health Sciences Center (HSC) project. The pilot study helped to determine the appropriateness of main questions and to refine

the researcher's skills. The pilot study used questions in Appendix B, the first version of the Interview Format and Sample Main Questions.

Data collection began in the Spring 2006. After the pilot study was carried out, 23 other individuals, who had also been involved at various stages of the HSC project, were recruited for interviews. Data collection was accomplished by conducting responsive interviews with participants. These individuals were allowed to express their views as fully as they desired. Most were asked 15-18 questions from Appendices B or C. All were also asked a variety of follow-up and probe questions in order to elicit deeper understandings of their views and recollections. Their responses were recorded and transcribed verbatim.

Data analysis in responsive interviewing has several main characteristic steps according to Rubin & Rubin (2005): (1) analysis occurs throughout the research process - after the first few interviews, analysis begins, and as more occur, the researcher adapts later interviews based on what still needs to be investigated; (2) the objective is to discover variation, portray shades of meaning, and examine complexity; (3) systematic examination of transcribed data with coding and extracting of information; (4) comments made during interviews are broken down into data units, blocks of information examined together; and (5) data units are combined in distinct ways depending on the issue being analyzed.

The analysis process proceeded according to the precepts of Rubin & Rubin (2005). Data were classified, compared, and combined to get a working group of concepts that spoke to the research questions. Some concepts were not considered because, in the judgment of the researcher, they did not offer sufficient weight for

inclusion. This process was followed in this research and resulted in the identification of 236 concepts. These concepts were then reduced to the most important 28 concepts related to the research questions. Later, these 28 derived concepts were analyzed further and reduced to a more workable set of 5 major factors/recommendations that community colleges could consider in establishing their own healthcare training facility.

Major Findings and Discussion

The literature has little directly to say about the specifics of the present research, although collaborations have been a hallmark of community college existence for many years (Dotolo, 2007; O'Banion, 1997; Roueche, Taber, & Roueche, 1995; Savukinas, 2004). Cursoe (2001) found that to create and maintain community college partnerships, it was necessary to strike a balance between autonomy and interdependence between partners. Her findings centered around three major areas in successful collaborations: (1) Few of those involved were actually trained or had experience with collaboration; (2) Collaboration is an active, dynamic, and developmental process of relationship building; and (3) Collaboration is an evolutionary process for individuals and organizations.

Cursoe's (2001) findings seemed to parallel the present study in many ways. This research delved into the personal and organizational dynamics of how one rural community college was able to collaborate with other parties to construct and outfit a first rate healthcare training facility. All of the individuals interviewed were from the general area, and helped in some way to plan, finance, construct, occupy, and use an advanced healthcare training facility. Many of the interviewees had not participated in collaborations of the great depth found in this project. The collaborative process, once

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started, continued and evolved as the project went forward. The evolutionary process was and is still ongoing.

Forming partnerships helps leverage resources by creating opportunities for growth and energizing participants (Larrance, 2002; Spangler, 2002). Derived benefits include adding value, saving money, sharing resources and expertise, increasing efficiencies, improving quality, and avoiding duplication. The aim of the HSC project was to take advantage of these characteristics because of the institutional culture, circumstances in the community, and the personal traits and desires of a diverse group of collaborators.

Table thirteen summarizes the 28 derived concepts found in this study. These concepts were derived from the 236 specific concepts identified from the 25 interviews. The 28 derived concepts are presented in summary format in Table 13.

Table 13

Summary of the 28 Derived Concepts

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1. Recognition of Need for New Facility	15. Facility Needed by Several Entities
2 Acquire Simulation Training Facilities	16. Timing of Bond Issue
3. Project Seen as Community Benefit	17. Communication Among Partners
4. President's Presentation to Medical Staff	18. Leadership Not Behind Project
5. Presidential Leadership	19. Funding of the Project
6. Evolving Trust	20. Timing of Project
7. Commitment to Project	21. Lack of Cooperation among Collaborators
8. Fundraising Timeline	22. General Perceptions on Simulation
9. Design Process	23. College Personnel Interest in Simulation
10. Rapid Utilization of Building	24. Manufacturer Marketing Motive
11. Hospital Department Issues	25. Hospital/Physician Need
12. Coordinating Time/Use of Sim Center	26. Benchmarking Process - First Step
13. Positive Community Relations	27. Willing Partnership Process
14. Partnerships/Collaborations	28. Seeing a Need for Simulation

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The following pages contain a review of the major findings relative to the six research questions. These, along with some additional findings, are discussed along with suggestions community colleges might consider in planning their own projects. The aim is to add to the research on community colleges and how they collaborate with healthcare organizations and others in creating integrated, functional healthcare training facilities.

Research Question 1: "How were the collaborations first made?"

There were four major derived concepts identified as being important to how collaborations were first made: 1) Recognition of need for new facility, 2) Acquire simulation training facilities, 3) Project seen as community benefit, and 4) President's presentation to medical staff. These concepts are summarized and discussed on the following pages.

To even think about a new project someone must recognize that there is a need for it to be done. The need for a new healthcare training facility at the college was mentioned by ten (83%) of the 12 individuals associated directly with the college during the interviews. It was well known by the college that the healthcare programs were housed in less than desirable facilities. Had the health career programs been in reasonable housing, even if some of them were off campus, it is unlikely the new facility would have been constructed, and the college would not now be reaping the rewards that it has enjoyed because of the HSC. From recognition of a need, comes support, in this case the need had existed for several years and the college had made attempts to deal with that problem. The existing situation with the college's allied health programs became critical when two programs lost their off campus housing support and had to be moved into

temporary quarters on campus. The college had to act in order to preserve those and the other programs affected by this situation.

The college programs had been interested in simulation training for some time. The EMSP, and to a lesser extent the RC programs, had used simulation for several years. Physician interest and the financial support rising from that stemmed from their desire to have a facility capable of providing high fidelity human simulation in a hospital-like environment. The acquisition of such a facility was of interest to both core groups. Physicians needed it to maintain accreditation standards with the national medical school and graduate medical education accrediting agencies. Had the local physician group decided to build their own facility, the hospital/medical school would not have been so enthusiastic in their support of the college's project. The college would still have been able to construct the facility and it would have likely had the same room arrangements, but it would not have been as fully equipped or used to the same great extent.

The community benefited from the HSC as seen by all three hospital administrators. They all saw the need for cooperation to expand their own training resources even though they may or may not have been involved with medical or graduate medical education. This group saw the Health Sciences Center as a benefit to the entire community. Their hope was to utilize the Center as a training platform for competency testing, continuing education, and public education. This has come to pass and community interest remains high. Media coverage has become almost routine in covering activities of various sorts in the HSC. It has become a place community members can point to with pride as an advanced training facility in a small, rural Texas

city. The donors and the manufacturer's representative all expressed its value to the community.

The college president's presentation to the medical staff occurred one morning as he was meeting at the hospital to garner support for the bond issue, but inspired greater interest in the possibility of collaborating with the college in actually helping build/outfit the new facility. This was seen as a fortuitous event by six of the respondents who were aware of the presentation. When the President went to that meeting and spoke of plans to build an integrated facility that hoped to use simulation, he stimulated unforeseen interest in partnering from the hospital group.

These above 4 derived concepts all contributed to the start of the project. They also remained important throughout.

Research Question #2: How were the collaborations sustained?

It was crucial to maintain momentum once the project began as suggested in Cursoe's (2001) work. Responses to the second research question were uniformly positive. They revolved mostly around the importance of the following derived concepts: 1) Continued presidential leadership, 2) Evolving trust among the participants, and 3) Continued commitment to the project.

The President was again mentioned as being the most important participant in the ongoing HSC project. Presidential leadership was cited by 10 (40%) of interviewees as vital to its continued success. The importance of presidential leadership is well documented in the literature (Daniel, 2005; Fulton-Calkins & Milling, 2005; Gordon, 2005). In this instance he was well known in the community and seen by many as a community leader. He made efforts to become engaged in the community in roles

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outside his presidency; e.g., chairman of the chamber of commerce. His leadership was a

starting point and his continued interest and involvement ensured successful project

completion. This emphasizes the importance of having the CEO of an enterprise as a

prime mover in a major and expensive project. If others see enthusiasm and commitment

from a president to a project it is more likely to succeed. As one of the donors said, "I

only wanted to talk to the top person." One of the physicians added, ". . . to have

(President's) personal involvement in it and commitment to the project which was so

very evident, gave the project a lot of credibility I think in the community at large and

really contributed to its success."

Some elements of trust were present at the outset and evolved to a greater extent

as the project continued. Many of the participants were acquainted with one another to

varying degrees before the project began. As might be expected from the previous

paragraph, the President already was well known and trusted by many. This included the

leadership of collaborating hospitals and city leaders. Others in the partnering

organizations were often less well known to each other. The college department chairs

had an evolving trust relationship because, even though they had worked together, they

had never shared a single facility. The growth of trust became an important element.

The President stated,

> And that's the thing that when a lot of visitors come and want
> to know the details about the Sim Center that they just kind of marvel at, you
> know. You mean you guys just sort of worked this agreement out . . . where
> is your document that is 50 pages long that says you can do this and you can
> do this, and so trust was huge. And trust was built, I think, because of the
> personal relationships. It was people who knew people, who trusted people,
> who allowed it to happen.

Commitment to the project was said to be important by 10 of the 12 (83%)

college personnel. It evolved principally out of the need for a dedicated facility for the

health sciences programs and the need for physicians to have someplace to do simulation

training. The dedication of the Sim Center director was singled out by 11 (44%)

interviewees as essential to the ongoing successful operation of the Center. The director

was mentioned by physicians, hospital administrators, college department chairs, and the

president as an important person in sustaining the ongoing activities of the HSC. The

commitment of hospital personnel was another important element because without strong

and continuing interest and financial support the present functional structure of the

operation would have ceased.

The concepts of presidential leadership, evolving trust, and commitment to the

project were seen as important factors that allowed the HSC to be built, outfitted, and

flourish as a multi-use, healthcare training facility. It was also important to have a

dedicated individual whose job it was to maintain the Sim Center once it was functional.

These same factors would be valuable for sustaining most community college-based HSC

projects involving partnerships and large capital outlays.

*Research Question #3: "What were the evolutionary processes in the development of the
Health Sciences Center?"*

The program developed over time and in doing so evolved in different ways to

meet the needs of participants. The evolutionary concepts derived from Research

Question 3 were: 1) Fundraising timeline, 2) Design process, 3) Rapid utilization of

building, 4) Hospital department issues, and 5) Coordinating time/use of Sim Center.

According to the interviewees, the fund raising timeline was influenced by several factors. First, its proximity to the terrorist attacks of September 11, 2001 was mentioned because to some, this event appeared to heighten public awareness of the need for well trained, healthcare providers.

The bond market was also down at the time and an attractive bond rate was negotiated. It was also mentioned that the needs of the college and major local hospital coincided at the same time. There was also ample time to develop collaborative plans for the new facility. However, the college development officer was given a tight fundraising timeline of six months to raise $1.5 million for a matching grant. All of these factors formed a nexus of circumstances which helped the college raise the necessary funds to build and outfit the HSC.

The planning and design processes of the facility were done in an organized and open manner. The design process followed closely the suggestions of Mason and French (2004) to identify institutional philosophies, goals, expectations, site characteristics, building needs, degree of community involvement, partners, and other needs. These questions were asked of those involved in the planning and design processes and, in addition to those actually housed in the HSC, included groups who might use it only periodically. By using this more open, inclusive approach, participants seemed to feel part of the process, which in turn fostered more cooperation and good will.

Rapid utilization of the building was said to be a negative by only a few (4 or 16%) of respondents. One of those was the Sim Center director who expressed frustration at not being able to fully utilize the finished capabilities of the HSC. In his opinion, it delayed significantly the full use of the building because individuals were still

working through technical problems two years after the building opened. This might have been avoided if occupancy had been delayed until full installation and successful testing of the entire system was accomplished.

Hospital department issues were expressed by physician educators with frustrations arising primarily out of two major areas: 1) difficulty gaining release time for medical residents in training and 2) resistance from faculty to a new way of teaching/learning. These types of conflicts are long standing in the medical community. According to Patow (2005), these challenges exist because of difficulties integrating simulation into traditional education programs.

Coordinating time and use of the HSC was expressed as an issue by two major groups. First, the native programs had concerns about the scheduling of the large classroom in the HSC. Sim Center use was a concern of all who were targeted users including the physician groups. These issues might have been avoided if a hypothetical schedule could have been created, which in turn, might have had some influence on the design process.

In summary there were five evolutionary processes affecting the development of the HSC. None of these, however, seemed to greatly affect the successful completion of this project.

Research Question #4: "What were the critical ideas, circumstances, and behaviors that influenced the development of successful partnerships for the project?"

The critical ideas, circumstances, and behaviors that influenced the development of successful HSC partnerships began with the community and the collaborations that were established. The derived concepts from this research question were: 1) Positive

community relations, 2) Partnerships/Collaborations, 3) Facility needed by several

Entities, 4) Timing of bond issue, and 5) Communication among partners.

Keeping community relations positive was key to passage of the bond

referendum, along with strong alliances with community leaders. Nine people (36%)

from across all categories of interviewees listed positive community relations as essential

to the success of this project. Positive relations were aided mainly by the long standing

good will engendered by the college president. It was also helpful that many other

college staff members had been active in the community. Without meeting the needs of a

community, a two-year college is not fulfilling its role (Anderson, 2001). A community

is more likely to support its community college if it is perceived as fulfilling that role. In

this case, the 3 to 1 margin of for, versus against, on the bond issue was a positive sign of

the community's strong support.

Efforts at collaboration in this research started somewhat modestly with talks

between the major hospital and college, but soon broadened to include other hospitals,

manufacturers, and local donors. An idea for collaboration, borne of necessity to build an

adequate facility to house the allied health programs, soon developed and grew into a

much grander vision because of the entrepreneurial pursuit of more partners with more

ideas and available resources.

The need for the new facility by several entities was established early. To appeal

to the broader community, not only did the building need to meet the needs of its native

programs, but outside groups as well. The building needed to mimic an actual healthcare

facility in order to maximize its attractiveness to healthcare groups. It could then be

suitable for almost any group who performed actual bedside patient care, whether in critical or non-critical care settings or even surgical settings.

Timing of the bond issue was important to its successful passage. This was discussed above in the Timeline section of Research Question 3.

Communication among partners was essential. Had communications at all levels not been forthright and open the project may not have come to fruition. It began between the leaders of the two major collaborators - the college and the major hospital. It continued with representatives at the user level and permeated the entire project. As a board member stated: "The most critical thing in building a partnership is communication. That's all that it is, the sitting down and listening as well as talking."

Another critical factor to the success of this project were positive community relations, effective partnerships/collaborations, multiple entities needing the new facility, opportune timing of the bond election, and effective communication among the partners. These concepts could be used as guidelines for other such projects by other community colleges.

Research Question 5: "What were the critical ideas, circumstances, and behaviors that threatened the success of the partnerships?"

Threats will be common to any project, be it large or small. The findings in this study related to threats by the interviewees were: 1) Leadership not behind project, 2) Funding of the project, 3) Timing of project; and, 4) Lack of cooperation among collaborators. These threats were limited in number and were important, but did not have a direct effect on the successful development of the HSC.

Leadership at the executive level is an important factor in an organizational enterprise. The college and hospital leaders all saw common ground for a collaborative project and went forward. Had they not had a similar vision of their institution's roles and functions, the HSC would not now be populated with multiple levels of students and practitioners working in simulation. The importance of top level leadership was mentioned by 12 (48%) of conversational partners as essential to project completion.

Funding of the project came about because of the collaborative efforts and circumstances at the time. At any one of the following points, the program could have been either derailed entirely or severely limited: 1) a bond referendum, 2) donations from hospitals for equipment, 3) donations from local private donors, and/or 4) donations from manufacturers. Funding the project could have also been more constrained by funding if the bond market were not as low as it was at that time. Because it was so low, the college was able to ask for 7.23 million dollars from the voters instead of a lesser amount which would have constrained the size of the building and limited its functionality.

Most projects of this type are usually limited in some way by timing elements. Had the 9/11 disaster not occurred would the voters have been as supportive? There would not have been outside support for equipment and supply purchases if the medical establishment had not been interested in simulation or had already built their own facility. Their interest did coincide with the timing of their need for such a capability. One of the local donors put forth a short and strict timeline for raising matching funds that the college was fortunate enough to make. The manufacturer was also thinking of constructing an in-house simulation center and that would have obviated the need to partner with the college had that happened.

Another possible threat could have been the lack of cooperation among any of the various collaborators. Eleven (44%) interviewees stated that if any of the persons or groups involved in the partnerships had decided to not participate, that could have threatened the success of the project. The President, in describing this type of threat said, "If one of the major entities, either our side or their side, got up from the table at some point and said, 'This isn't going to work.'" the important collaborative aspect of the project would have been doomed. This necessity of cooperation is well supported in the literature (Calvert, 2004; Kussrow, 1995; Lunquist & Nixon, 1998)

None of these four threats materialized at any stage of the project's development and implementation. The leadership of the organizations concerned fulfilled their roles and kept their organizations focused on completing the HSC undertaking.

Research Question 6 was, "How important was the use of human simulation to the formation of partnerships and to the successful completion of the project?"

Human simulation is a growing area in healthcare training at all levels (Gaba, 2004; Kneebone, 2006; Sinz, 2006). The importance of simulation to this project cannot be underestimated. Without it, several of the partners in this collaboration would not have had the motivation to participate, thus limiting the development of the HSC. The principal derived concepts for this research question were: 1) General perceptions on simulation, 2) College personnel interest in simulation, 3) Manufacturer marketing motive, and 4) Hospital/Physician need.

The general perceptions on simulation may seem somewhat of an unusual concept to have derived from this study. Most healthcare people interviewed knew about, and some had used simulators, the lay interviewees were enthusiastic about the approach

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since they had all seen the Sim Center and its resemblance to an actual hospital. The worth of simulation seemed to derive from the view that student training in healthcare needs to be afforded advanced systems to learn how to treat effectively and generally take better care of patients. The college examined in this research created such an environment, but only with the concerted efforts of a variety of interested parties.

College personnel interest in simulation grew out of the perception that greater efficiencies could be had by adopting simulation as a major teaching tool. It was also seen as new; and the prospect of having anything technical, expensive, and new was energizing to the faculty. They understood the value of being able to simulate a myriad of patient problems and scenarios. Because simulation is relatively new in terms of its availability to large numbers of healthcare educators, the desire to acquire and implement simulation into curricula should be high.

Collaboration by the manufacturer was helpful to the college and its other healthcare partners because they were able to obtain a full complement of simulators at greatly discounted prices. While manufacturers routinely work with potential customers in negotiating favorable pricing, this case may be somewhat unique. Because the manufacturer was less than 40 miles away from the campus, it was to the company's advantage to have a fully outfitted user's site close at hand where the company could bring potential clients. The type of close relationship between the college/hospital/manufacturer developed in this study may not be possible with other colleges contemplating a similar undertaking.

The needs of physicians and the hospitals for simulation were immediate. Their interest came from the mandates that grew out of the national medical organizations'

Institute of Medicine's (IOM) 2000 report, "To Err is Human," which encouraged

focusing on safety rather than blame. This report gave rise to mandates from the national

accrediting bodies for medicine and graduate medical training such as the Liaison

Committee for Medical Education (LCME) sponsored by the American Association of

Medical Colleges (AAMC) and the American Medical Association (AMA). For resident

training, the Council on Graduate Medical Education (CGME) was another group which

created requirements to incorporate simulation into training. For all healthcare

organizations involved in almost any aspect of medical training, there exists the mandate

to utilize simulation as a vital part of the training regimen (Lighthall, Barr, Howard,

Gellar, Sowb, Bertacini, 2003; Patow, 2005).

Recommendations for Practice

The overarching research problem in this study was:

What factors played an important part in the collaborative effort to create an
innovative healthcare educational complex at a community college?

To answer this broad question, the 236 concepts found in this study were narrowed to 28

derived concepts. These concepts were then further reduced to a workable set of 5 major

factors/recommendations in this section. It is hoped that these recommendations will

provide useful guidance for two-year colleges contemplating the establishment of a

health careers facility to better serve their communities.

The following recommendations are offered as considerations for developing a

community college-based healthcare training facility. Some of the ideas put forward are

almost universal, whereas others are more unique to two-year institutions. Many of these

recommendations overlap and create a complex matrix of behaviors and circumstances.

Later in the chapter a step-by-step process is suggested for two-year colleges wanting to establish a Health Sciences Center.

First Major Recommendation

Strong Leadership. It is incumbent on organizations to have a champion in a leadership position in order to fully engage potential partners (Roueche & Jones, 2005; Svara, 2005). The one most likely to initiate a HSC project would be the college president or chancellor. Effective presidents should be well connected to the community and motivated to promote the project (Anderson, 2001; Cook & Lasher, 1996; Hoffman-Johnson, 2005).

The college president and leaders of other key organizations are also essential to effective collaboration. When explaining cooperation with the partners the manufacturer's representative said, "The president of college and senior medical staff came to our offices and made a presentation and offered a partnership, so officially we were approached by a consortium consisting of the College, the hospital and the college of medicine." This group persuaded the manufacturer to become a partner in the project and this relationship continues to flourish.

It is crucial that departments within the college are also led by individuals who are willing to work together for a common good. Several interviewees said they thought the intracollege collaborations were an anomaly. The architect commented:

> Usually people will not make compromises across departments. I mean, they may make compromises within the department, but I'm not giving up one inch to those people over there that I don't work with. But I think everybody on this project was more focused on the common good of the overall building, and how the departments could interrelate and work across each other.

She added: "The president had a big vision, the department heads had a vision, they saw each others' vision and walked in the same direction. The departments' willingness to accommodate one another's needs helped facilitate the entire project." By engaging in this process the departments were able to present a unified front in dealing with other constituents.

The most important leader in this process was the president. Without his leadership and advocacy the project would have stalled or would not have existed at all. His ability to recruit leaders of other organizations to collaborate along with energizing his own staff led to a successful project.

Second Major Recommendation

Collaboration is essential. Engaging the community is a core duty of two-year colleges. Without strong community support, bond elections will likely not pass. A strong relationship with the community should be cultivated by all college personnel (Francis, 2006). Business/hospital partners were key participants in this study. For those schools thinking of building a healthcare training facility, in these days of declining state allocations, attracting hospitals and other partners would be beneficial to help offset costs and help fulfill the college's duty to the community it serves.

The collaborative effort should also be an egalitarian effort. The manufacturer's representative stated,

> I think one of the things that would doom you to failure is if you see a superior and an inferior partner . . . So an unfair partnership I think would pretty much be doomed, unless that's the way the partners want it, and that's not really a partnership.

As the partnership grew with the physicians it may have helped dispel some preconceptions they may have had regarding the capabilities of the two-year college. A quote mentioned earlier from one of the physicians explains part of this thought, "I think there probably was an under appreciation of what was going on at the college for most people that are up with the hospital and the health science center, and I think that has completely gone away."

Third Major Recommendation

Fundraising sources and strategies. Raising funds may be highly dependent on national or local situations, such as the economy, the tax load, and other outside factors that may bear on the psyche of the citizens. There are a number of fundraising strategies that may be employed by community college. One of the first often considered in the face of declining state dollars is to raise tuition, but this does little to raise funds for capital expenditures. Perhaps a more viable approach would be to create or reenergize an active development foundation (LaBeouf, 2003). Developing collaborative relationships with community partners would be one more tactic that was used successfully in this study. Bond issues would also be an effective fundraising strategy for community college HSCs.

Funding for the project in this study largely revolved around the ability of individuals and organization to come together for mutual benefit. By collaborating, the parties in this case study were able to achieve all of their own goals. In this case, the major hospital committed to purchase equipment to outfit the HSC and allocated an annual operating budget to the HSC. These allotments supplement both personnel and supply costs. All legitimate funding sources should be investigated and cultivated to aid the college's effort to assemble the required financing for a health science center. The

architect again said, "So this is a great example of how little funds and an elaborate building and a collaborative effort can give you more than bigger funds than compartmentalizing."

Fourth Major Recommendation

Good Communication. Open and frank communication is another key element. Participants must be willing to negotiate sincerely about their needs. Through the communication process, participants must work through and negotiate compromises. It must be understood from the outset that it is highly likely that no one will get everything they want. During the interviews the President said:

> "I knew all along . . . it was going to depend on the faculty's willingness to make it happen or it was never going to happen. That is not something that an administrator can just say, you guys are going to do it this way."

The importance of good communication is supported by numerous researchers (Eddington, 2006; Kouzes & Posner, 1995; Williams, 1998).

Fifth Major Recommendation

Need for Simulation Technology. Many two-year colleges now have a variety of health career programs, and most of these colleges will likely have hospitals in the immediate area. This provides an opportunity for collaboration in acquiring simulation technology. The technology can be expensive for the most advanced whole body human simulators. Prices range from around $30,000 to over $200,000. In order to be cost effective simulators should be used frequently. When the simulators are in place they require dedicated personnel when used daily or multiple times a week.

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Advanced simulators may be used for simple tasks or complex crisis situations. There value derives from their ability to mimic physiologic functions to a high degree. Simulators can be made to speak, with the controller able to say virtually anything to a student or group of students engaged with the simulator. There vital functions such as heart and respiratory rate can be varied almost infinitely, invasive and noninvasive blood pressures, breath, heart, and bowel sounds can likewise be simulated. The most advanced mannequins can even react to "drugs" as if they were actually administered. IVs can be started, blood drawn, defibrillation performed and numerous trauma situations simulated with the high fidelity mannequins.

For instructors there can be a significant learning curve to be overcome in understanding the capabilities, programming scenarios and developing appropriate debriefing sessions. This technology, with all its great capabilities should be useful for virtually all students in training to be bedside caregivers. Both two-year colleges and hospitals/healthcare agencies should have a growing and continuing need for simulation based technology for many years to come.

The five recommendations mentioned above will provide a conceptual starting point for two-year colleges as they consider the type of HSC they might construct. Strong leadership from the outset is critical for success. This leads to effective collaboration which is essential. Both of these factors aid in identifying fundraising sources and strategies. Good communication remains a key element throughout the process. Acquiring and using simulation technology is another important component of an advanced healthcare training facility.

These recommendations give rise to the following suggestions which are given for institutions that have already decided there is a need for a healthcare training facility. Not all institutions will have the same makeup as the college in this study. It will be up to them to identify the scope of use, as well as the intrinsic and extrinsic users and participants in the entire process. Figure 4, below illustrates the general guidelines suggested for a healthcare training facilities project similar to the one reported in this research.
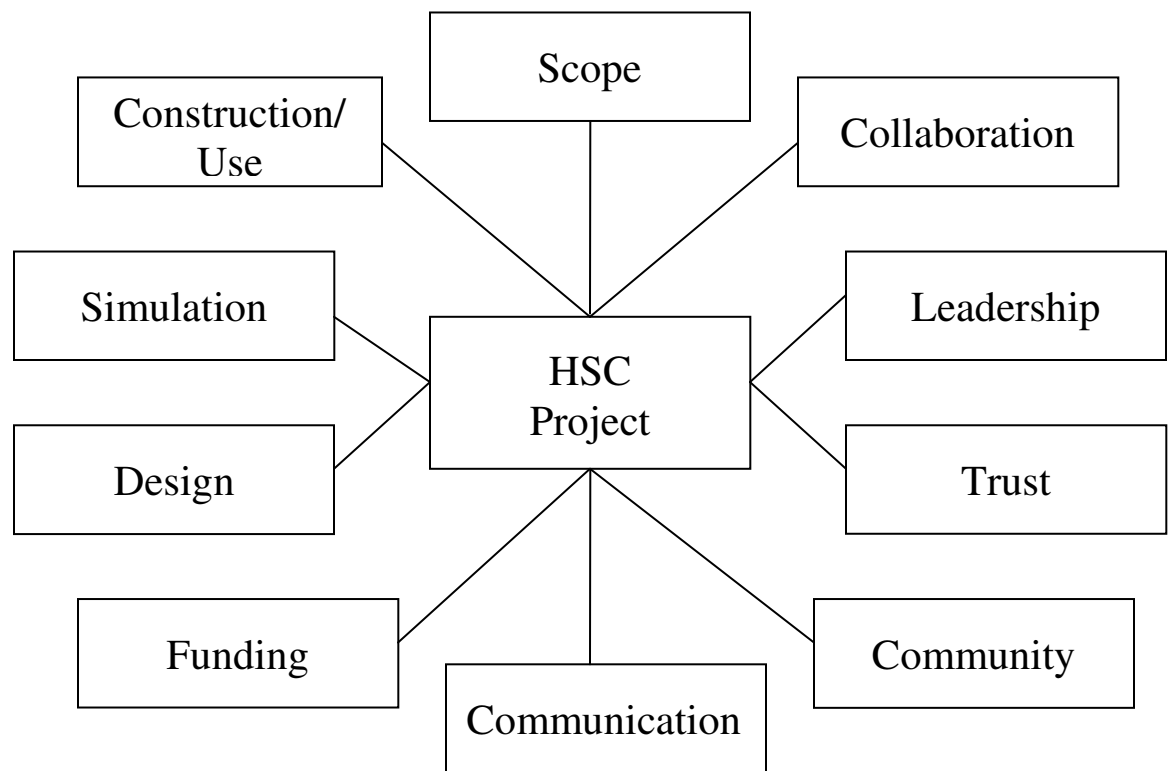

Figure 4. Guidelines for an HSC project

The guidelines are further illustrated in Table 14 (page 120) and are suggested to act as an overall strategy for a project. Some may be somewhat sequential, many will likely occur simultaneously. While these guidelines are somewhat general in nature, it is

recommended that institutions consider these as they approach such an important

endeavor. Each situation is different and issues may arise that cause institutions to

emphasize certain of the guidelines more strongly than others and that is to be expected,

depending on individual circumstances and needs.

Table 14

Possible Guidelines for Developing a
Community College Health Science Center (HSC)

_____

Guidelines	Actions	Examples
Scope	Determine scope of building, create MOU	Programs such as: CH, EMS, LVN, RN, RC, ST
Collaboration	Determine who will use facility include in all planning	Native programs, hospital groups, others, e.g,. continuing education programs, hiring/competency assessments, high schools
Leadership	Identify key personnel college hospitals others	CC President - key person CEOs - hospitals Community - Mayor, CoC
Trust	Trust evolution	Build trust and goodwill by willingly working together for common good
Community	Involve community in project	Educate community about project key to later funding process
Communication	All parties - most other factors built on effective communication	All major parties must resolve to have open, honest communication

(*table continues*)

Factor	Actions	Examples
Funding	Identify possible funding sources, timing can be issue	Bond elections, donations - dollars or or in-kind equipment/ supplies
Design	Select architect and other collaborators/ users for design work	Should be competent in school/ hospital design and involve all concerned Benchmark at other schools
Construction/ Use	Select builder and construct facility Occupy building, reaffirm use relationships	Build and test all systems prior to building acceptance and sustain collaborations between college & partners

An early consideration is to determine the scope of use and generate a Memorandum of Understanding (MOU) if outside partners are involved. This encourages a community college to consider who the native occupants will be and who those extrinsic users might be. Does the school wish to have all its health career programs in one building or are there reasons to divide them? Should nursing and other health careers offered by the school be housed in one facility? The MOU also protects all parties whenever there may be misunderstanding. It should clearly delineate each party's scope of authority, responsibilities, and limitations. The MOU also protects each entity in the likelihood that there may be key personnel changes at any of the participants' organizations.

If groups outside the college are likely users, then they should be allowed to collaborate with the college and a working relationship established during the planning phase. These early working relationships will be beneficial later when the building is

finished. Will there be medical students or residents? If there is no medical school or the local hospitals do not have residency programs, then there may still be a market for outside groups who need programs for local or area continuing education programs, or hiring competency assessments.

Leadership is important on several levels. Here it is important that the college president or chancellor be a motivating force for the project. The perception among the more rank and file personnel is if the leader of an organization is not a cheerleader for the project then it is not important, regardless of the nature of the project. If the president and other key officials can go to the community, hospitals, service clubs, private or commercial donors, and promote the importance of this type of facility it will increase the possibility of its successful beginning and completion. By being engaged in the promotion process, key personnel will then cause the college staff and community to be more energized and supportive.

Trust is another mainstay of major projects with multiple collaborators participating. It may be that the parties have some misgivings at the outset. This was the case in this research project. Such reservations can be overcome with a willingness among all parties to accomplish the overall goal of construction and successful use of a HSC. Trust, it is often said is earned. In this case, the overall goal was to construct a multiuse facility for native and non-native students. Trust did evolve in this project. It seemed that the reason was that everyone's focus was on the potential benefit of the HSC to all concerned and willingness to compromise. The goal of trust must be kept in the forefront to achieve the desired outcome.

The community can be both a source of funding and beneficiary in the creation of a healthcare training facility. If the community is asked to vote and pass a bond election in order to capitalize a building project for a HSC, they must be informed about its relevance to them and see the value of having such a facility in their community. This can be done through early and effective communication.

Communication is another foundation factor that permeates the entire process. Effective leaders must communicate well in order to establish strong partnerships. Trust is engendered by open and sincere communication. The communication process should flow up and down the administrative lines of the participating organizations on a regular basis for the collaborators to stay well informed. This enables participants to remain focused and engaged in the project.

Funding sources must be found because building a replica of an expensive healthcare facility can be a daunting task for a two-year college. The major source of capital funding for HSC construction is likely to be a bond election. It has been mentioned that in some cases schools may think they cannot afford to build a mock hospital. The reality is that it is cheaper to build an integrated, realistic facility, instead of providing each program with separate areas for practicing critical skills.

Design can complement the funding process by creating an integrated facility that actually looks like the inside of a hospital. The design should be done in consultation with the college programs and hospital collaborators who are planning to use the facility once it is completed. There can be an emergency room receiving station for nurses to work with standardized patients and trauma rooms in which all manner of students/practitioners may practice (nurses, RTs, EMTs, X-ray techs, lab techs, resident

physicians, and/or medical students). One could also have one or more intensive care rooms to complement the trauma rooms with the same set of participants working there. An operating room (OR) would also complement the facility, especially if there was a surgical technology program. The OR could also be used for team training for anesthesia or surgical residents. This room could also serve as another ICU or trauma room if needed. With the present emphasis on dealing with mass causalities, it makes it even more important that healthcare students train together. This can be accomplished if such an integrated and economical design is targeted at the outset. Since a HSC is likely to be outfitted with a high degree of technological features, it is important that design engineers consult with manufacturers of equipment slated for inclusion in the building. This will help to ensure that cabling and other electronic elements are properly specified.

Construction of the building should proceed on time and with minimal change orders if the design team is able to devote enough time and effort in planning the facility. The college needs to ensure that the construction manager overseeing the project is capable and knowledgeable. Once the construction of the building is finished, it needs to be thoroughly tested to make sure all the installed electronic and gas supply systems function as designed. All deficiencies should be corrected before the building is accepted by the college.

Once the building is accepted and programs have occupied the building, the partnerships should be reaffirmed. A plan for room use should be created, and once classes begin, a tracking system should be put in place to monitor, which and how, groups utilize the various facilities in the building. Meetings should be continued among users to ensure clear communications and keep conflicts to a minimum.

It is hoped that these recommended guidelines may be of assistance to others considering the prospect of building a healthcare training facility. If a two-year college constructs their version of a health sciences center, it should be designed to meet their own individual needs and not a duplicate of the one in this study. A new HSC should become something both they and their communities could point to with pride.

Recommendations For Research

This researcher used a qualitative process to study the formative processes that helped create an actual health science center at a community college. Listed below are some recommendations for additional research.

1. Expand participant base and replicate the study at the present two-year community college.

2. Is a real or manufactured "crisis" needed to generate the type of community/voter support enjoyed in this study? An investigation of the motivating factors for this type of support needs to be studied at other community colleges.

3. A longitudinal study should be undertaken with the present collaboration, and then compared to other healthcare training partnerships between community colleges and their partners to investigate the sustainability of those partnerships.

4. An important element of education research related to healthcare revolves around simulation. Much is written about the efficacy of simulation, but little has been said about creating simulation centers, especially in two-year colleges. More research is needed to examine the development of simulation training facilities in community colleges.

5   This study focused on the practical nature of healthcare project development. The results shed light on what a small sample of participants thought about their own participation in the HSC project. A quantitative study is needed to validate these results in the same community college.

6. The replication of this study at a different, but similar, two-year college is needed to validate the findings reported here. Was this college's experience in developing the partnerships and facilities unique.?

7. A national study of two-year college healthcare training facilities is needed to determine the current status of this growing area of healthcare education.

8. The step-by-step guidelines proposed here should be tested at another community college or perhaps even a 4-year institution to see if this process has value.

Conclusions

For two-year colleges offering healthcare training programs, the concepts presented here should not be overlooked in planning similar HSCs. It is important that community colleges continue to take a strong position in the training of healthcare givers. Two-year colleges are legitimate players in healthcare education and can provide economical and quality educational opportunities for students at all levels. Medical schools, hospitals, and universities should not overlook community colleges as important partners in the process of developing the nation's healthcare workforce. It is hoped that the recommendations offered here will assist other community colleges and others as they embark on the development of health science centers.

APPENDICES

APPENDIX A

Disclosure Letter to Interviewees

January 15, 2006

Temple College Health Sciences Center Contributor
123 Healthcare Street
Central, TX 99999

As part of my dissertation work at Baylor University I am writing to ask for your help with a study chronicling the development of the Health Sciences Center at Temple College. This study is part of an attempt to learn what brings people together to create such a center, and to examine what factors may have led to such an effort.

You were selected as a potential interviewee because of my understanding that you participated in the development of the facility and/or its continued use. I am also contacting others who might have played a role in its creation and/or ongoing success.
I anticipate that the interviews should not be over an hour, and I suspect we may need only a brief follow-up at a later time. The interviews are projected to be carried out during the months of January through April 2006. They will be recorded and transcribed into text form. Following this process a follow-up interview and/or confirmation of the transcribed text will be scheduled or sent to you for your approval.

Your answers will remain completely confidential and anonymous and no individual responses will be identified. I have been authorized to use the school's name, but otherwise no other identifying information will be provided in the study unless authorized by some competent legal authority.

Participation in the interview process is entirely voluntary. By participating, however, you can help me help others who are working toward all levels of better medical and healthcare education. I will contact you within a week or two to set up an appointment time that is convenient for you. Also, If you would like to receive summary results of the interviews, I will provide a sign-up form after the interviews are completed. If you have any questions or comments about this study, I would be happy to talk with you. You may reach me at 254-298-8928 or at bill.cornel@templejc.edu (email), or you may contact my faculty advisor, Dr. Al Smith, Baylor University at 254-710-3050, al_smith@baylor.edu.

Thank you very much for your help with this very important study.

Sincerely,

William Cornelius, MHSM, RRT-NPS, RCP
Chairman, Dept. of Respiratory Care
Temple College
Doctoral Student, Baylor University

APPENDIX B

Early Interview Format and Sample Main Questions

1. Introduce/reintroduce self.
2. Introduce topic and purpose - Dissertation research on the development of the Health Sciences Center at Temple College.
3. Establish/reestablish connection with conversational partner.
   a. Reassure that questions to be asked will be those with which they are familiar.
   b. Reassure that they will not be judged or graded on the quality of their answers.
   c. Explain how the researcher connected them with this project.
4. Will begin with light, easy questions (early questions may vary as to role person played in project development):
   a. Do you remember when you first heard about the HSC project?
   b. What degree of interest did that generate at the time?
   c. Did you visit with others about the project early on?
5. Preliminary main questions focused more on the research questions:
   a. At what point did you become interested enough in the HSC to participate in some way?
   b. Can you describe how you believe your input influenced the project?
   c. Was there any particular motivation that encouraged you to become involved?
   d. How did your role as _____ at the time influence your participation?
   e. To what degree did a collaborative effort of this kind seem plausible to you?
   f. How comfortable were you in partnering with the others involved?
   g. Were there those with whom you felt more comfortable working?
   h. How was the dental hygiene clinic/simulation aspects of the project important to you?
   i. Were there critical issues that you felt were important to the project that might have put it in jeopardy?
   j. Could you trace your involvement in the project?
   k. Were there any critical circumstances that you feel helped develop the partnerships?
   l. Would you explain how you think simulation training might be important in preparing the healthcare workforce?

(Format after Rubin & Rubin, 2005)

APPENDIX C

Revised Model Interview Format and Main Questions

1. Introduce/reintroduce self: Name and Title of Interviewee - Day, Date and Time
2. Introduce topic and purpose - Dissertation research on the development of the Health Sciences Center.
3. Establish/reestablish connection with conversational partner.
   a. Reassure that questions to be asked will be those with which they are familiar.
   b. Reassure that they will not be judged or graded on the quality of their answers.
   c. Explain how the researcher connected them with this project.
4. Will begin with light, easy questions (early questions may vary as to role person played in project development):
   a. Do you remember when you first heard thought about creating a health sciences facility?
   b. With whom did you visit about the project early on?
5. Preliminary main questions focused more on the research questions:
   a. Was there any particular motivation that encouraged you to become involved in the project and if so when did that begin?
   b. Could you trace your involvement in the project?
   c. Can you describe how you believe your input may have impacted the project?
   d. Initially to what degree did a collaborative effort of this kind seem plausible to you?
   e. What factors made the development of this health science center project different from others you have been involved with?
   f. Would you describe what influences may have affected the collaborations that occurred with this project that distinguished it from others of which you might be aware?
   g. Would you describe the time-line influences that may have impacted the development of the Center as you know them?
   h. How comfortable were you in partnering with the others involved?
   i. With whom did you feel most comfortable working with during this project?
   j. How were the dental hygiene clinic/simulation aspects of the project important to you?
   k. Were there critical ideas, circumstances and behaviors that you felt were important to the project that might have put it in jeopardy?
   l. What were the critical ideas, circumstances and behaviors that you feel helped develop the partnerships?
   m. Would you explain how you think simulation training might be important in preparing the healthcare workforce?
   n. What recommendations could you make that would facilitate the development of a similar center at another similar institution?
   o. What do you think were the 2 or 3 major factors that led to the successful completion and on ongoing success of this collaborative effort?
   p. If you could participate in the project all over again, what would you do differently?
   q. Would you like to add anything else to your comments?

Format after Rubin & Rubin (2005)

APPENDIX D

Interview Schedule

Interview No.	Date	Participant	Location
Pilot Interview 1 -	1-18-06	College Dept Chair	HSC
Pilot Interview 2 -	1-25-06	College Admin	HSC
Interview 3 -	1-26-06	Med School Faculty	HSC
Interview 4 -	1-30-06	City Official	HSC
Interview 5 -	2-6-06	Medical Equipment	HSC
Interview 6 -	2-7-06	College Dept Chair	HSC
Interview 7 -	2-7-06	College Dept Chair	HSC
Interview 8 -	2-7-06	College Admin	Office
Interview 9 -	2-27-06	Hosp Admin	Office
Interview 10 -	2-20-05	College Admin	Office
Interview 11 -	3-1-06	College Dept Chair	HSC
Interview 12 -	3-6-06	Hosp Admin	Office
Interview 13 -	3-7-06	Med School Faculty	HSC
Interview 14 -	3-7-06	College Admin	Office
Interview 15 -	3-8-06	Local Donor	Place of Business
Interview 16 -	3-10-06	Med School Faculty	HSC
Interview 17 -	3-11-06	Hosp Admin	Office
Interview 18 -	3-13-06	Architect	Place of Business
Interview 19 -	3-28-06	Local Donor	Donor's Home
Interview 20 -	3-28-06	Med School Faculty	HSC
Interview 21-	3-30-06	College Admin	Office
Interview 22 -	3-30-06	City Official	Place of Business
Interview 23 -	3-31-06	Board Member	Place of Business
Interview 24 -	4-5-06	Board Member	HSC
Interview 25 -	4-6-06	Board Member	Place of Business

Location Legend: Interviews were conducted in the following locations:
    HSC – In a private area somewhere in the Health Sciences Center
    Office – In the interviewee's office
    Place of Business – At the interviewee's place of business in a private room
    Donor's Home – One was done at the donor's private home office

APPENDIX E

TABLE E.1

Summary of Responses Involved in Motivation to Participate in the Collaborative Project

_____

Groups	Expressed Concepts
College Trustees (3)	Needed new facility for programs housed in less than ideal facilities Had responsibility to programs and community
College Administration (5)	Off-campus programs needed new home On-campus programs had no permanent home
Department Chairs (4)	Chance to all work together instead of spread out all over campus Needed better classrooms/facilities Old facilities hurt ability to attract and retain students
City Officials (2)	Programs in temporary facilities College was growing Agreed with concept of building College addressing needs of community
Local Donors (2)	Aware of project - interest piqued after tour of facility Wanted to hear from the person running it (president)
Medical Equipment Supplier (1)	Business relationship important - close to all this expertise Could see benefits of such a collaborative effort Want everyone to learn really well because they will eventually be taking care of me
Local Hospital Administrators (3)	Project would enhance health education that would benefit entire community Needed to develop clinical simulation center Hospitals didn't have space or manpower
Medical School Clinical Faculty (4)	Dean wanted to investigate building a simulation center Needed simulation center but didn't have capital Mandated simulation for medical students and residents

(*table continues*)

Groups	Expressed Concepts
Architectural Design Personnel (1)	School issued request for proposals - our company was interested

TABLE E.2

Summary of Responses that Trace Involvement in the Collaborative Project

Groups	Expressed Concepts
College Trustees (3)	Board wanted to grow college programs
	Wanted to get allied health programs out of old facilities
	Member of building committee
	Had responsibility to community that was in line with ability of the college to accomplish and pass bond
College Administration (5)	Spoke at bond support meetings
	Monitored for problems
	Got everyone together and was the cheerleader
	Worked on financial plan, debt service, board and programming people to keep project within budget
Department Chairs (4)	Presented chance to all work together instead of spread out all over campus
	Needed better classrooms/facilities
	Traveled around state looking at design of other facilities
	Input on preliminary plans
City Officials (2)	Programs were in temporary facilities
	College was growing
	Agreed with concept of building
	College addressing needs of community
Local Donors (2)	Aware of project - interest piqued after tour of facility
	Wanted to hear from the person running it (president)
	Lent my name and support
	Wanted the dental hygiene facilities and equipment to be most modern and first class available
Medical Equipment Supplier (1)	Business relationship important - close to all medical expertise
	Could see benefits of such a collaborative effort
	Wanted everyone to learn really well because they will eventually be taking care of me

(*table continues*)

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Groups	Expressed Concepts
Local Hospital Administrators (3)	Saw it as a boon to health education that would benefit entire community Needed to develop clinical simulation center Hospitals didn't have space or manpower Brainstorming, creating shopping lists of suggestions
Medical School Clinical Faculty (4)	Dean wanted to investigate building a simulation center Needed simulation center but didn't have capital Became medical director of the Sim Center As associate dean for graduate medical education anesthesia wanted simulation training for residents Influence more related to teaching EMS Had interest ten years ago in anesthesia and began to look at simulation
Architectural Design Personnel (1)	As architect got administration's view of what was wanted in relation to students and public Moved to user meetings to establish a program Job was to listen and translate needs onto to paper within budget and scope Manage all systems - budget, looks of building and fit

TABLE E.3

Summary of Responses Involved in the Importance of Human Simulation in the Project

Groups	Expressed Concepts
College Trustees (3)	One hundred percent necessary Sim center went beyond my expectations Speechless when I think of training ramifications Crucial Students can learn from mistakes and successes
College Administration (5)	Critical, most important tool we have Can simulate real life experiences Can choose situations student may see rarely See not as substitute for clinicals, but as complement Fortunate because we have large hospitals here so don't have same problems as smaller
Department Chairs (4)	No one has anything like this in dental hygiene Have used camera for remediation When we got first simulator, saw this was way to go Not enough opportunities in clinicals to teach critical events Important to have facility where we could use high quality simulation
City Officials (2)	Did not realize its full importance like we see today More hands on you get better you are going to be to do your job
Local Donors (2)	Has to be tremendous help because not everyone can practice on live patients Critical - have a diverse group of health professionals coming out of school Will become the norm
Medical Equipment Supplier (1)	Brings realism to learning - suspension of disbelief Prior to simulation only place was to work on real patients - not best way to learn if mistakes made We know it works in aviation and space, but no study proves it

(*table continues*)

Groups	Expressed Concepts
Local Hospital Administrators (3)	Tremendously important resource, provides meaningful learning environment Sim center was of interest because of glamour of having such a sophisticated center
Medical School Clinical Faculty (4)	Expected med students to do simulation before real patients New concept, many faculty are not yet comfortable Difficult to assess students' abilities on other measures of competence Integrates knowledge and skill Can push learner beyond what can do in actual patient care setting without compromising patient safety That was our need going it to project - entire buy-in was in regard to simulation Simulation is going to become the standard Need simulators because fewer patients per capita Ability to practice multiple times - in real life may be hit and miss
Architectural Design Personnel (1)	Simulation aspect drove one whole side of building If simulator why not real hospital room? It is completely the way of the future

TABLE E.4

Summary of Evolutionary Processes in the Development of the Health Sciences Center

Groups	Expressed Concepts
College Trustees (3)	Need for people to understand you have to go into debt to build adequate building Decision to where money is going to come from to build Interest rates were low - allowed us to maximize amount of bonds we could obtain
College Administration (5)	Short time line made difference with challenge grants Hospital interest in integrated simulation training facility was key to their support Timeline went smoothly because of almost two years of programming and construction drawing development Not a lot of squabbles about project Trust was built because of personal relationships - people knew people Planned budget well Financial pledges from outside helped us concentrate bond funds on construction
Department Chairs (4)	Been told for years we were going to get own clinical site Was after September 11 and community wanted to support bond issue Involvement with hospital and med school may have prolonged planning process for facility Should have waited to move in until totally finished and all components working Have operated this now for 21/2 years without a memorandum of understanding - testimony to trust
City Officials (2)	Nothing unusual, went through normal steps
Local Donors (2)	They (allied health programs) had no home
Medical Equipment Supplier (1)	Company was in its infancy and wanted to partner with users to develop better products

(*table continues*)

Groups	Expressed Concepts
Medical Equipment Supplier (1)	College president and senior medical staff came to us and made presentation and offered partnership
Local Hospital Administrators (3)	Getting appropriate people in hospital to work with college people
Medical School Clinical Faculty (4)	Just opening center gave us great exposure Opened in January and by May students were enthusiastic Strict timelines in beginning because building had to be built Getting all equipment in center and getting all ready for use Coordination with Sim Center Hospital/department commitment to assign faculty here as opposed to clinical still difficult
Architectural Design Personnel (1)	All projects have a time schedule and budget - this project had adequate time We hit all our schedule dates This is a great example of what a little money and collaboration can do This is a more cost-effective approach than compartmentalizing

TABLE E.5

Summary of the Critical Ideas, Circumstances and Behaviors that Influenced the Development of the Successful Partnerships for the Project

_____

Groups	Expressed Concepts
College Trustees (3)	Communicating key to develop partnerships Appropriating right amount of money in the bond No one stood alone Faculty was on board Expanding - needs to continue to grow President's involvement in the community helped sell idea of it being a community project Community has commitment to health education
College Administration (5)	Facility needs by both entities (hospital and college) Trust among partners Motivation to improve learning experience for all levels of students Recognition that HSC would be an excellent thing for entire community Everyone saw it as a win-win situation Leadership, from president to board of trustees and college foundation Working with the faculty Forming coalition between hospitals and college Funding package and community support was paramount Support from all concerned Went forward without written understanding - trust
Department Chairs (4)	President willing to go to community for bond Department chair input Find individuals willing to make change Program directors working together with president and board support Board support for bond Educating community Getting medical/hospital support Can't do it by yourself We were attempting to build a facility that was really very ambitious for under $6 million

(*table continues*)

Groups	Expressed Concepts
	Medical school and residency programs needed simulation facilities for accreditations
	This type of facility helps hospital recruit residents
	If hospital built such a facility it would have been costly and likely underutilized
	More cost effective for us than hospital
	World class manufacturer of simulation equipment being so close and willing to partner
	Economics helped force us into a design we might not have considered
	Trust between the college president and chief academic officer at the hospital
	Strong advocate in each involved college department
	Strong media support
City Officials (2)	Relationship in having partnerships within the community essential
	Already had good relationships before project - right people talking to the right people
Local Donors (2)	Two people - college president and medical school dean
	These kinds of partnerships only happen when one person inspires another
Medical Equipment Supplier (1)	Collaboration - did not have to replicate facilities
Local Hospital Administrators (3)	College and hospital see eye-to-eye - philosophy of teaching and wanting cutting edge technology
	Partnerships grow more partnerships
	Be associated with a medical school or hospital because it makes it easier for corporate sponsors
	Major hospital and college are equal partners - important for long-term relationship
	Timing is everything
	Leadership, with president's personal involvement
	Demonstrating value of project to community
	Persons on our board had an interest

(table continues)

Groups	Expressed Concepts
Medical School Clinical Faculty (4)	Working relationship between college president and medical school dean
	Willingness of college to take on partner and truly collaborate
	Willingness of people to put egos aside
	Flexibility of Sim Center director
	Openness and willingness to have meetings at both places
Architectural Design Personnel (1)	Everybody on the team from the president on were listening to each other and working collaboratively
	When the budget grew tight everyone sacrificed a bit
	This project was unusual because often people don't reach across departments

TABLE E.6

Summary of Critical Ideas, Circumstances, and Behaviors That Threatened the Success of the Partnerships

Groups	Expressed Concepts
College Trustees (3)	If board hadn't been behind project
College Administration (5)	Passing bond election If health career educators had not teamed up and worked together Had to get community support - was easily done If either college or hospital people said it wasn't going to work Had to get right firm to bid on project - initially not
Department Chairs (4)	Person who was division director at the time did not always work collaboratively Passing bond election Some faculty did not fully trust each other or hospital Some concern hospital would "take over" If college departments would have been territorial If hospital had adopted attitude of "it is ours" it would have derailed project
City Officials (2)	Passing bond election
Local Donors (2)	(No responses)
Medical Equipment Supplier (1)	Passing bond election Without proper vision allowing enough time is critical to such a project
Local Hospital Administrators (3)	Money raising had plateaued at one point Concern from college people that hospital would take over facility - took pains to allay by emphasizing it as a college facility Some risk with any collaboration Ongoing efforts now it is completed Timing seemed to be crucial about when college needed certain things

(*table continues*)

Groups	Expressed Concepts
Medical School Clinical Faculty (4)	Needed buy-in from hospital department chairs
Architectural Design Personnel (1)	We had not done anything this collaborative before
	No, success here was based on good early decisions

TABLE E.7

Summary of Recommendations for Others Considering Construction of a Community College-Based Health Science Center

Groups	Expressed Concepts
College Trustees (3)	Have the right board makeup because that is key to having right president with right vision Do it like us developing relationships with all partners Essential to get business, medical and educational communities directly involved Do something that benefits and is visible to entire community Create consortium first, begin planning, and make them all feel they are part of the project
College Administration (5)	Find academic medical center and partner with them Community college should be able to do it if they are already teaching health sciences Get people at highest level talking between potential partners Develop memorandum of understanding Prepare and over prepare before taking it to the public Must have a respected top leader selling project Finding money for expensive simulation equipment Grant writer or go through college foundation Partnering with major healthcare entities Selling faculty on idea Faculty must know they want to work together Not everyone has medical school, but most have hospitals - so can work together Come to agreement with potential partners before beginning project
Department Chairs (4)	Take time, open communication, full involvement of concerned parties Figure out the culture - are departments willing to come together and actually share resources Come and look at what we have done and fit to own campus/culture

(*table continues*)

Groups	Expressed Concepts
	Put in 100% more storage than you think you will need
	Look at all participating programs and get involvement
	Have good memorandum of understanding to set ground rules in case a participant stresses relationship
	Build enough support with participating entities that programs together should work once building finished
	Identify potential partners early and define relationships
	Engage architect who understands healthcare and education
	Decide on simulator(s) going to be used and work with engineers from company and architect to design system that works
	Check contractor work on regular basis
	Make companies certify all equipment to work for five years
	Don't open until everything works
	Understand that simulation activity is going to expand to all available time and block out time for maintenance, etc.
	Must plan for maximum use and adequate staffing so as not to rely on and burn out one person operations
City Officials (2)	Push the envelope on the project - kept adding to it even though it increased cost - in long run better product
Local Donors (2)	Create public awareness of need
	Have model to show potential donors
Medical Equipment Supplier (1)	Tell someone to come and look at this facility
	Go and see someone who is doing it already
	College and president must be well respected in the community
	Communicating needs well to the community
Local Hospital Administrators (3)	Involving all stakeholders and ensure a balance
	Assess need
	Position the college well with community leaders
Medical School Clinical Faculty (4)	Can be done elsewhere but president and CEO/med school dean must share vision
	Have champion on each side of partnerships
	Have realistic goals

(*table continues*)

Groups	Expressed Concepts
	Discuss funding issues up front
	Failure if superior and inferior partnership develops
	Inventory faculty needs - may involve faculty development to alter perceptions of needs
	Having adequate resources to give faculty - beauty of this building is attractive to users
	Getting people involved in creation in center encourages them to support it once completed
	Periodic feedback and reevaluation
	Have to have faculty that are aware of needs and pursue those needs
Architectural Design Personnel (1)	Building should be individualized for each client - key to their acceptance

TABLE E.8

Summary of Comments Made if the Project or Participation Could Be Redone

Groups	Expressed Concepts
College trustees (3)	Oh, nothing. We did everything right I would have asked for more money and made it bigger
College administration (5)	Bring all the partners together to be part of the design process I don't think so
Department Chairs (4)	Larger classrooms More organized student area Have much closer contact with contractors Insist on name brand computers Would not have opened until we knew everything worked Blocked out time for "down time" in Sim Center Have everyone adopt standard format for simulations Insist on rehearsals for large simulation exercises
City Officials (2)	Have more vision I probably would have pushed harder about money
Local Donors (2)	Not really
Medical Equipment Supplier (1)	(Not asked)
Local Hospital Administrators (3)	Be more involved
Medical School Clinical Faculty (4)	Not sure . . . My involvement has been beyond my scope of responsibilities
Architectural Design Personnel (1)	Make it larger Set up the labs to be Distance Ed too

TABLE E.9

*Summary of Comments to the Question: "Would you Like
to Add Anything Else to Your Comments?"*

Groups	Expressed Concepts
College trustees (3)	Oh, nothing I would have asked for more money and made it bigger Critical contributions of faculty and staff
College administration (5)	Bring all the partners together to be part of the design process I don't think so Come up with some creative ideas to make more multidisciplinary
Department Chairs (4)	No
City Officials (2)	We're proud to have the center in our community
Local Donors (2)	Have taken people from all over to see Center they can use as model
Medical Equipment Supplier (1)	Pleased with results
Local Hospital Administrators (3)	No, except pleased to have been a part of it Very important that we be a part of the project Brings greater depth to community Helps with recruiting healthcare workers
Medical School Clinical Faculty (4)	It's a great partnership and I love my job
Architectural Design Personnel (1)	Launching point to turn college into a university?

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