Owens Community College: a case study on the effects of politics, economics, social factors, and technological factors on future educational delivery strategies, space needs, and design

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Owens Community College: A Case Study on the Effects of Politics, Economics, Social Factors, and Technological Factors on Future Educational Delivery Strategies, Space Needs, and Design

by

Brian A. Paskvan

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the Doctor of Philosophy Degree in Higher Education

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August 2011
An Abstract of

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The purpose of this case study was to explore the influence of four factors—politics, economics, society, and technology—on educational delivery strategies, space needs, and design at Owens Community College. The future effects of these factors on the college were predicted four to six years from the time the study was conducted. The researcher employed the political, economic, social, and technological (PEST) analysis model to conduct the study, and qualitative methods were used to identify the effects of each of the four factors. Technological, political, and economic influences were predicted to be the most influential factors affecting the delivery of education at the college during the next four to six years. The study further revealed the following five predictions: (1) technology will play a major role in the future delivery of education and learning environments; (2) faculty technological competency will be vital to the success of the technological delivery of education; (3) student technological competency will be a factor in the use of
technology to deliver education; (4) funding of college-wide technology initiatives will need to be identified as a college priority; and (5) space needs and design will change due to the use of technology. This study also includes the following recommendations—specifically related to technology and funding—to assist in resolving the issues identified in the study: (1) technological learning environment recommendation: create a technology review and implementation process; (2) technical competency of Owens Community College faculty recommendation: create a technological assessment and training program for faculty; (3) technical competency of Owens Community College students recommendation: create a technological assessment and training program for students; (4) funding initiatives recommendation: develop a funding plan that identifies technology as a college priority.
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Chapter 1

1.1 Introduction

Imagine that the year is 2028, and there are only four major universities and two community colleges located in the state of Ohio. Just 20 years earlier, the state of Ohio was home to 13 public four-year universities, 23 community and technical colleges, and a plethora of private institutions. However, during that 20-year span, many educational institutions closed or merged with the remaining six educational institutions. These mergers were the result of a number of changes that were related to economic, political, and technological factors. For example, several of the political and economic challenges that faced institutions were budget cuts, harsh accountability requirements, significant population losses in their service areas, and demands from their customers that they were unprepared to meet.

Technological advances during that same time frame resulted in significant changes in the delivery of higher education. For example, distance learning became the preferred mode of education rather than attendance at traditional brick-and-mortar colleges, which were replaced by conveniently located learning centers. These changes resulted in extensive mergers among higher education institutions to ensure that they would be able to remain viable entities and provide affordable college educations to the citizens of Ohio.

While any realistic college professor or college administrator may consider this scenario unthinkable and unreasonable, is the concept really
that far reaching? Can institutions survive in an increasingly competitive market by continuing to engage in traditional modes of educational delivery? What will be the demands of future generations of college students—both traditional and non-traditional? How will social and technological advances alter the way higher education institutions conduct business? Clearly, these questions reflect realistic problems for universities and colleges as they face significant changes in the areas of technology, social norms, economics, and political influences. Higher education institutions must consider the effects of these changes when competing in today’s and tomorrow’s global economy, and they must find creative ways to deliver their educational products in ways that address and accommodate these changes.

Educational researchers such as Daniel (1998) and Fahmy (2004) have stated that current methods of instructional delivery are antiquated, and these researchers even have argued that traditional methods of instruction are becoming a way of the past. Is that truly the case, or is there a transformational change on the horizon that might blend current methods with future methods? There is likely no single right answer; however, several researchers, including Kopp, Seestedt, Rohlfing, and Kendall (2003), have stated that traditional faculty-centered instruction, which has guided space design, has not been validated or questioned as an appropriate pedagogical model for all students. Rather, these researchers found that the traditional classroom design has been a major influence on educational delivery methods
and, in fact, a deterrent to new and innovative delivery methods (Kopp et al., 2003).

Dator (2006) was astonished that formal education typically has emphasized traditional methods of instruction and that there has been little mention of the only area over which we have control: the future. Dator also stated that college administrators and faculty need to ask and answer tough questions to prepare for the future, such as, “What kind of curriculum may be needed by the students of tomorrow?” and “What educational delivery systems might exist, and how might these alter the character of learning spaces?” (Dator, 2006, p. 46).

Kopp et al. (2003) have provided insight into the types of instructional methods that may be needed in the future: “During the last 50 years, traditional education practices, which have presumed telling is teaching and listening is learning, have been profoundly impacted by an explosion of new knowledge” (p. 13). Kopp et al. reported that due to the introduction of new knowledge about educational delivery methods, an effort to reintroduce active and interactive roles (both for students and faculty) is essential to a productive learning environment. Kopp et al. also stated that as the roles of students and faculty change, so must the space in which learning takes place. Specifically, Kopp et al. have suggested that creating the classroom of the future will involve advanced technological capabilities, resources, and equipment.
The work of these researchers has strengthened the assertion that education is an industry that is in transition from traditional methods of delivery to new and innovative methods of delivery. They have realized that many forces influence the decisions that colleges and universities have made regarding a number of topics. In a general way, these forces may precipitate responses from educational institutions that range in nature from political and economic to social and technological. Examples of political forces have included increased institutional accountability; demand for the justification of tuition increases; heightened awareness of spending practices; and, perhaps most importantly, Secretary of Education Margaret Spelling’s concerns about the quality and affordability of education (Basken, 2008). Numerous economic issues also have affected the operational abilities of higher education institutions, such as reductions in state funding, increasing tuition costs, higher support costs, rising infrastructure and capital costs, and the increased overhead associated with keeping colleges and universities financially healthy.

In addition to political and economical factors, higher education institutions must also consider the effects of social and technological factors. These two factors are inextricably linked with each other in higher education institutions. The philosophy of the “now generation” has become socially acceptable largely due, in part, to the technology that exists to provide services upon demand. Students, faculty, and parents now have almost
immediate access to many educational services that formally would have taken hours, days, or even weeks to access. Email has become the norm for interaction between faculty and students and can be sent any time from any location where an Internet connection exists, and transacting business exclusively during traditional business hours is rapidly becoming an antiquated practice. For example, at the University of Toledo and at Owens Community College, students are no longer required to come to a physical location during normal business hours (e.g., 8:00 a.m. to 5:00 p.m., Monday through Friday) to conduct business transactions. Rather, students can apply for admission, register for classes, and pay their tuition, all online. Students have become increasingly more proficient with computers and other electronic equipment as technology has improved. For example, an iPod can now hold an entire textbook, allowing students to download their required course reading materials as opposed to the traditional method of purchasing them. Clearly, students’ growing expertise will play an important role in the way education can be and will be delivered. In addition, society has become more accepting of the fact that a legitimate degree can be obtained from an educational provider completely online without students ever stepping foot on a traditional brick-and-mortar campus (if the provider even has a campus).

All of these examples illustrate that education has been in a state of transformational change. Students of Generation Y, or the “net generation,” (1982 to 2001), along with Generation X (1961 to 1981) and Generation Z, or
the “neon generation” (2002-present), will require educational approaches that are different than the ones that traditionally have been offered (Strauss & Howe, 1991). In 2002, Brown wrote about an experience he had while at Xerox Corporation. Brown hired 15-year-old students to conduct research on how they would design schools or learning environments. He wrote that what the research team observed was somewhat shocking. The main observation was the way the students processed information and the environment in which they processed it. Brown wrote that students were able to listen to music, work on their computers, and talk on cell phones all at the same time. Recognition and accommodation of these abilities has begun to influence educational delivery systems, and as these abilities continue to impact student learning, they will also influence the way faculty will need to teach.

Why is this important? What are the stakes if the delivery of education does not change with the demands of society? Is there any real danger to the economic vitality of the country? These are important questions. Ohio’s governor and the chancellor of the Ohio Board of Regents have indicated that providing higher education opportunities to the citizens of Ohio must be a high priority (Strategic Plan for Higher Education, 2008). The election of the governor in 2006 and the appointment of the new chancellor in 2007 repositioned the political importance of higher education in Ohio. The chancellor and governor have placed an emphasis on providing higher education opportunities to Ohio citizens by distributing revenues to colleges
and universities during Ohio’s recent significant economic downturn. This has been a necessary step in securing Ohio’s economic future in that it potentially provides Ohio’s companies with a more educated workforce (Office of Management and Budget, 2009).

Currently, Ohio is ranked 38th in the nation in terms of the number of associate’s degree earned and 37th in the nation in terms of the number of bachelor’s degrees earned among those between the ages of 25 to 64 (Goals for University System, 2007). Ohio currently lags behind the national average in higher education attainment. Approximately 23.3% of Ohioans hold a bachelor’s degree or higher compared to the national average of 27.0% (The Performance Report for Ohio, 2006). These statistics indicate that an additional 271,000 Ohioans would need to obtain a bachelor’s degree in order for the state to reach the national average (The Performance Report for Ohio, 2006).

The governor of Ohio hopes to increase the number of college graduates by 230,000 by the year 2017 (Strategic Plan for Higher Education, 2008). Many of these 230,000 students are expected to seek out community colleges to achieve their educational pursuits. This highly relevant to some college administrators because community colleges have been experiencing the highest increase in enrollment of any other sector of higher education (The Performance Report for Ohio, 2006). According to the Ohio Board of Regents, Ohio also has seen a significant deficit in the number of students graduating
from college when compared to the national average. Ohio awarded 72,657 associate’s, bachelor’s, and graduate degrees in 2006 but hopes to raise that rate to 100,000 during the next 10 years (Strategic Plan for Higher Education, 2008).

1.2 Statement of Problem

The chancellor of the Ohio Board of Regents has challenged Ohio’s public higher education institutions to increase the number of Ohio citizens who earn college degrees by 230,000 by 2017 (Report on Condition of Higher Education, 2008). At a fall 2008 meeting of Ohio’s two-year community colleges’ chief fiscal officers, several administrators asked how the chancellor’s goal of increasing the educational attainment level in Ohio could be achieved in a system that is currently near capacity. With so many factors influencing educational institutions, it is very difficult to fully understand the challenges associated with achieving this goal; in other words, a more complete understanding all the issues that impact this complex situation is required. College campus staff and faculty have been forced to adjust rapidly to the effects of the swift political, economic, social, and technological changes that occur daily in their institutions. Colleges are being viewed by political entities within their states as drivers of economic growth. Colleges at the same time are facing economic hardships that influence the way they do business. In 2005, the Ohio Board of Regents identified between $3.9 and $5 billion of deferred maintenance at Ohio’s two-year and four-year institutions.
(Ohio Board of Regents, 2005). Ohio’s colleges and universities have undergone a tuition freeze for the last two years and are anticipating a tuition freeze for fiscal years 2010 and 2011. Technological and social changes are additional stressors that colleges and universities must understand and accommodate in order to accurately identify the needs of educational consumers in the future. The challenges facing colleges are multifaceted, and it is difficult to fully assess the long-range implications of decisions made today in such a rapidly changing environment; however, such assessment is vital if colleges and universities expect to respond effectively to today’s rapidly changing educational climate and successfully accommodate the needs of tomorrow’s students.

The influences mentioned above represent only a small component of the complex problem that colleges have been facing. Two other components of the problem include the methods by which education is delivered and the space requirements that are needed to meet the college’s goals. Students born after 1991, also referred to as the “neon generation,” and those born between 1982 and 1991, also referred to as the “net generation,” have potentially different expectations of their learning environments than do those who are members of prevision generations. These younger students’ expectations will influence the methods by which education will be delivered in the future. The impact on space will be significant and may result in the need for less physical space due to new advances in technology or alternative classroom
designs that are more conducive to the learning styles of future students. Hughes (2002) has pointed out that the learning environment and the pedagogical methods used in the classroom are unquestionably influenced by the physical layout and topography of the classroom. It is very difficult to anticipate what classrooms of the future will look like, but according to researchers Daniel (1998) and Fahmy (2004), they likely will not reflect the current classroom configuration that is used today at many colleges.

The problem for Ohio’s educational system has now become the need to increase the number of college graduates in a higher education system that has reached near capacity and in which the delivery strategies have been strongly influenced by rapid political, economic, social, and technical changes.

1.3 Conceptual Framework

To fully explore the influence of politics, economics, society, and technology on educational delivery strategies, space needs, and design, the researcher has chosen to focus this study on Owens Community College, which is a large two-year public higher education institution located in northwest Ohio. The researcher employed a case study methodology, which allowed the researcher to conduct an in-depth and thorough examination of the effects that these factors will have on one segment of higher education in Ohio. This study sought to answer the following research question: In the next four to six years, how will Owens Community College’s physical plant be affected by changes in the college’s educational delivery strategies as a result
of political, economic, social, and technological factors? An extensive literature review was conducted for this study and revealed that little research has been conducted on the influence these four factors have had on colleges and universities in northwest Ohio.

1.4 Purpose of Study

The purpose of this case study was to explore how four factors—politics, economics, society, and technology—influence educational delivery strategies and space needs at Owens Community College in northwest Ohio. The case study method was chosen because it is the preferred method of answering “how” or “why” questions in current, real-life situations over which the researcher has little or no control (Yin, 1989). More specifically, the case study method was chosen because it is designed to “gain in-depth understanding of situations and meaning for those involved” (Hancock & Algozzine, 2006)—specifically, those involved with the planning and administration of educational services at Owens Community College. As a result of a need for in-depth understanding of the influence of these four factors, the case study method was determined to be the best approach.

The political, economic, social, and technological (PEST) analysis was selected as a segment of the conceptual framework of the study. The PEST analysis has been widely used in the business community to review the external environment in which an entity operates in order to determine the effects that politics, economics, society, and technology have on a particular
business (Institute for Competitive Intelligence, n.d.). Kotler (1998) stated the PEST analysis assists a business in defining its operational direction. The PEST analysis is designed to ensure that a company’s business strategy is in line with the strong forces that are influencing the business environment (Porter, 1985). While the PEST analysis traditionally has been used only in the business environment, the researcher determined that it also has practical application within the educational arena in light of the many forces that influence the educational process. As a result, the researcher determined the PEST analysis was an appropriate analytical tool to use in answering the research question. Due to the depth and breadth of the many influences that come to bear on the educational process, the researcher limited the scope of each of the four factors. This limited scope resulted in focusing primarily on the effects that these factors will have on how the college will continue to deliver education and their impact on physical space needs and design.

The research was conducted at Owens Community College, located in Toledo, Ohio. The college is the fourth largest of the state’s 23 community colleges, and in the fall of 2008, the college enrolled 21,296 students in credit-earning classes. The researcher chose Owens Community College due to the expanded role the college is likely to play in substantially increasing the number of college graduates in Ohio. To achieve the goal of increasing the number of college graduates in Ohio, it is essential that the college
determines whether it is poised to meet the educational needs and preferences of the population it serves now and will also serve in the future. This study is vital to Owens Community College in that it helps ensure future sustainability and growth by determining the most efficient methods of educational delivery and space design in order to meet the needs of the communities it serves. In addition, this study is relevant for two important reasons: First, two-year public institutions, such as Owens Community College, play an integral role in increasing educational attainment in Ohio—a goal set forth in the University System of Ohio’s strategic plan. Secondly, Owens Community College also plays an integral role in the economic development of the state of Ohio (Strategic Plan for Higher Education, 2008).

This study attempted to answer the following research question:
During the next four to six years, how will Owens Community College’s physical plant be affected by the college’s educational delivery strategies as influenced by political, economic, social, and technological factors?

1.5 Limitations of Study

According to Creswell (1998) and Yin (1989), case study research has limitations. It can be argued that the results of case studies may not be generalized as broadly as the results of other, more experimental methods. This study was conducted at only one location—Owens Community College—and may have limited applicability to other higher education institutions. The number of interviews conducted may also be a limitation. Due to method
chosen to conduct the study the researcher was only able to interview fourteen participants as a method to manage the data. The interviewing of fourteen people may have limited the perspective of the study and may not be representative of others views. Due to the number of interviews conducted for this study, it may not be appropriate to draw conclusions about other colleges as a whole. However, it may be helpful to remember that “case studies like experiments are generalizable to theoretical propositions and not to populations or universes” (Yin, 1989, p. 21). Merriam (1998, 2009) and Yin (1989) also has noted the importance of the rigorousness of the research process and encouraged researchers to guard against bias. The researcher may be somewhat biased due to his connection to the institution where the study was conducted; however, this bias has been mitigated to some extent by seeking input from external sources when appropriate and following rigorous case study protocol.

In addition the time sensitivity of the study may be considered a limitation. The influences studied had the potential to rapidly shift direction at any time. The researcher worked diligently to anticipate and monitor changing dynamics and make adjustments to the information studied when possible.

1.6 Delimitations of Study

The researcher limited the scope and definitions of the four factors used in the PEST analysis in order to focus the research and the intent of the
study. The interview guide was developed with the assistance of a panel of internal and external experts to help further direct the interview process and ensure that the questions asked of the participants would yield the most useful information.

1.7 Setting

Owens Community College is located in northwest Ohio approximately 10 miles south of Toledo, in Perrysburg Township, and operates a second, smaller campus in Findlay, Ohio. Owens is considered one of the fastest-growing higher education institutions in Ohio and currently serves more than 44,000 students who attend credit-bearing and non-credit-bearing classes. The college features five schools that offer more than 130 program areas in agriculture, business, fine and performing arts, health, public service, skilled trades, and industrial and engineering technologies. Owens offers students undergraduate courses that fulfill requirements for the first two years of a bachelor's degree and the opportunity to transfer earned credits to a four-year college or university (Owens, 2008).

Owens has recently opened an additional learning center in downtown Toledo and is exploring a second learning center located in western Lucas County. This new site will house the college’s Workforce and Community Services Division and offer general education courses to the public. The college also recently purchased 320,000 square feet of building space from Penta County Vocational School, which will allow the institution to expand
existing programs, add new programs, and provide additional classroom space for its growing student population.

Owens has more than doubled its student population since converting to a comprehensive community college in 1994 and has nearly tripled its minority enrollment during the past decade (Owens, 2008). The college serves more than twice the number of recent high school graduates than it did 10 years ago and serves more than 350 companies through business and industry partnerships annually (Owens).

Owens Community College staff members have developed a strategic plan that calls for continuous monitoring of the environment in which the college operates. Because of the college’s enormous growth not only in the number of traditional courses offered but also in the number of online courses offered, the administration has been regularly and consistently reviewing ways to meet the needs of students and the college’s surrounding communities.

Owens Community College’s senior administration has regularly monitored and assessed the needs of the institution and the expectations of the state legislature and Ohio Board of Regents. These assessment and monitoring practices have required the college to examine the methods it uses to deliver educational instruction and meet student demand as well as these methods’ impact on space. These examination and assessment practices
will poised the institution to meet the needs of the students and communities that the college serves.

1.8 Definition of Terms

Important terms relevant to this study are defined as follows:

**Delivery strategies.** The ability to deliver education to the consumer through traditional and alternative methods, mediums, and locations.

**Economics.** Any items related to the financial aspects of the educational process, including but not limited to tuition, state funding, financial aid, and college costs.

**Factors.** Political, economic, social, or technological influences that impact the delivery of education.

**Political.** Any policy or legislative action initiated by the chancellor of Ohio, the Ohio Board of Regents, or federal or state government that has influence on the educational process.

**Society.** External factors that influence behaviors of individuals, such as immediate gratification, unlimited access to information, and generational differences.

**Space requirements.** The actual physical plant location or design of an educational facility.

**Technology.** The use of electronic devices, mediums, and methods to provide instruction or access to educational information.
Chapter 2

2.1 Literature Review Introduction

This review of the literature examines the influence that political, economic, social, and technological factors have on the decisions that colleges make regarding educational delivery strategies. It also examines important connections that exist among educational delivery methods, space design, and space needs. The importance of conducting this type of study stems from the realization that numerous influences can alter the delivery methods institutions may use to deliver their educational products, thus impacting the learning process and the learning environment. The purpose of this literature review is to provide research and examples that highlight the importance and the impact that political, economic, social, and technological factors have on higher education institutions’ educational delivery strategies and their physical design.

2.2 Focus of Literature Review

Little research has been conducted to determine how political, economic, social, and technological factors have influenced educational delivery strategies, the connection among these strategies, and the needs that drive space design at colleges and universities. The majority of the literature reviewed for this study focused almost exclusively on space requirements or delivery strategies. Only a few sources linked external influences, e.g., politics, to delivery methods and space requirements. Therefore, this
literature review focuses primarily on the delivery strategies that colleges are currently exploring or already have adopted; the space requirement and design challenges that campuses are facing; and ways in which the four factors listed above may influence decisions about delivery strategies and space needs. This literature review provides information on an international, national, state, and local level as well as specific information about community colleges.

2.3 **Historical Influences on Higher Education**

To fully understand how education must change in the future to meet students’ educational requirements, preferences, and expectations, the researcher determined that it was essential to examine several historical components of the educational system that have led to its current state of affairs. One of the biggest challenges facing the education sector (and one of its biggest criticisms) has been its inability to change rapidly to meet the needs of its communities. One could argue that education has not been ahead of the curve when it comes to change. Kerr (1987) has claimed that of the 85 institutions that were established before 1520 and are still in operation today, 70 of them are universities. Some might suggest that this is a remarkable figure, while others might question the ability of institutions to accommodate change and adapt. Universities have been slow to change during the past 500 years, but there have been several important periods of transformation. It is necessary to highlight some of the more dramatic points
of change within the educational community during those 500 years and the factors that influenced those changes. This review illustrates the need to study the impact that political, economic, social, and technological factors will have on the future direction of educational delivery strategies and space needs in the modern world.

The first example of an historic transformation occurred in the middle ages and highlights the influence that powerful social and political entities have had on university curriculum. Course offerings shifted from methods of training lawyers and doctors and began to focus more on Christian theology. This transformation was influenced by the church, which was the dominant social and political force of the time (Ford, 2007). Similar political influences are also evident in another major transformation that occurred in the 1600s. The University of Halle was created to serve the Prussian state and to train government officials. The training of state officials required the development of new curriculum, which was outside the normal religious offerings of the university, as well the physical creation of a completely new university (Ford, 2007). These changes were in response to the Thirty Years’ War, during which religious segments were pitted against each other due to their different religious beliefs. When the war ended, religious education faded into the background and was replaced by the state’s need to train government officials, which resulted in the creation of the University of Halle. This
example shows how external political forces played a role in transforming the educational delivery process of the time.

Another example is the creation of the “civic university,” which illustrates the influence that political entities had on education in the 1800s. Congress passed The Morrill Land Grant Act of 1862, which allowed universities to teach agriculture and engineering along with liberal arts (Brubacher & Rudy, 2004). These new institutions and additional course offerings were in response to the needs of the nation at that time. The civic university was the dominant educational force from the 1850s to the 1950s and had a significant impact on the economic progress of the country.

In the middle of the twentieth century, a new university model emerged. The focus of the new university was purely on research (Ford, 2007). The research university became extremely important in the development of the fields of chemistry, biology, and physics, which allowed advances in medicine, manufacturing, and agriculture (Ford, 2007). This was especially important and led to the launching of the first Russian satellite, Sputnik, into space in 1957 (Brubacher & Rudy, 2004). Many of the civic universities, such as Harvard and Michigan State University, reworked their curriculum to become known as research institutions (Ford). The new model helped advance the study of the sciences, which in turn contributed to the nation’s dominance in this area (Brubacher & Rudy). This new model did not emerge without controversy. In 1965, the president of the University of
California, Clark Kerr, stated that because of the research being conducted at universities, these universities were at the “center of American life” (Mattson, n.d., p. 6). Kerr stated that due to their service to the nation and the important role that these universities have played in the social and economic growth of the nation, the term “university” should be replaced with the term “multiversity” (Mattson). The connection that existed between the multiversity and the government was not tolerated well by many, and conflicts arose. For example, protestors took over Columbia University after a gymnasium was constructed on public park land (Mattson). Eventually, conflicts subsided, but the controversy over the university’s central role in society still exists today (Mattson).

2.4 Creation of Community Colleges

The middle of the twentieth century has been an important time of transformation in that the government cleared a pathway to obtain a two-year higher education degree through the creation of a new institution: the community college. While the true beginning of two-year institutions dates back to the 1890s and the consolidation of Baptist colleges in Louisiana and Texas, the creation of the first public community college occurred in 1901 with the establishment of Joliet Junior College (Community College History, n.d.). Joliet initially focused on providing liberal arts programs but in the 1930s began to offer programs focused on job training in response to high unemployment rates following the Great Depression (Community Colleges
Past and Present, 2000). In the late 1940s, President Harry Truman established an initiative to create a community college network (Community College History). The initiative to establish the network was proposed by the Truman Commission, which President Truman created in 1946 to assess the role and objectives of America’s higher education system (Brubacher & Rudy, 2004). The commission determined that every American should be free to pursue an advanced degree and proposed to double enrollment at colleges and universities by 1960 (Brubacher & Rudy). To advance this initiative, barriers needed to be addressed, such as the cost of education and the ability to overcome geographic issues. The commission proposed that a system of community colleges be created to extend free education for two years beyond high school. Each state would establish its own community colleges that would award two-year degrees or provide the first two years of a four-year degree (Brubacher & Rudy).

In 1963, President Johnson signed the Morse-Green bill, the Higher Education Facilities Act of 1963, which “made possible the enactment of a series of legislative landmarks in education” (Woolley & Peters, 1963, p. 1). This bill created a five-year program that offered grants and loans for the construction or renovation of higher education buildings. President Johnson stated that this legislation would help build 25 to 30 new community colleges each year along with technical institutes to train the workforce (Woolley & Peters). He also stated that this bill would help double enrollment in colleges
by providing additional classroom space. The Higher Education Facilities Act of 1963 was the first education legislation passed by Congress since the enactment of the National Defense Act in 1958 (LBJ for Kids).

In Ohio, the movement to offer a two-year education continued under the direction of Governor James Rhodes. Governor Rhodes decreed in the 1960s that a community college would be created in any county in Ohio with a population greater than 100,000. This system created an avenue for the teaching of coursework in arts and sciences as well as technical and vocational training; it further served as the foundation for the creation of Ohio’s 23 community colleges (Fingerhut, 2007). These landmark transformations left their mark on society and refashioned America’s educational institutions.

2.5 Current State of Higher Education

Regarding the future of community colleges in Ohio, Ford (2007) has stated that we may be on the edge of yet another period of transformation. Ford (2007) further wrote that in the future, the major social influences affecting the university will be environmental, economic, and political in nature:

The importance of understanding the history of the university, if only in broad outline, is to recognize how the university has, on occasion, undergone significant and rapid changes in response to externalities. University planners looking only five years out and working on the
assumption that the future will largely resemble the past would have failed to see the kind of changes that were in store for their home institutions. There are reasons to believe that we are now living at an exceptional time in human history and that events outside the university will conspire to change things dramatically. (Ford, 2007, p. 8)

Additional research uncovered during the literature review process for this study has suggested that education clearly is approaching another transformational period. It also seems clear that American educational institutions are not on the leading edge of this transformation. While some institutions have made significant advances in the evolution of their delivery strategies, other American institutions are still tied to traditional strategies. These traditional institutions have not acknowledged the connections among the rapid changes that have taken place in the political, economic, social, and technological environments and their need to adjust, change, and transform their institutions to meet the demands of their consumers.

The change-agent institutions in the delivery strategy revolution seem to be positioned in European countries (Mobilizing the Brainpower, 2005). European higher education officials recently have examined the ways in which their roles are changing and, consequently, ways to be less reliant on their traditional physical locations. European universities want to become far more nimble and partner with those entities that provide educational
sites that are more conveniently located (Temple & Barnett, 2007). European countries have adopted the pedagogical philosophy that traditional methods of delivering education may no longer be the only way to provide education to generations of technically savvy students.

Daniel (1998) stated that technology will create “new educational systems” and will remove physical location constraints (p. 28). This forecast predicts a severe departure from the usual approach of providing education in a traditional classroom setting on a college campus, and Daniel further has suggested that traditional methods of delivering education will become antiquated and even obsolete. The topics of antiquated delivery methods and flexible and nimble education centers become increasingly important in an educational environment in which the cost of operating an educational institution’s physical plant comprises the second-largest component of the budget, preceded only by the cost of personnel (Temple & Barnett, 2007).

Ohio community colleges and universities, under the guidance of the Ohio Board of Regents staff, recently have begun to explore the topic of flexible and creative learning centers. In February of 2009, the boards of trustees at colleges and universities were asked to respond to a set of draft questions that will be included in the condition report of higher education in Ohio. The questions centered on facility and technology infrastructure, and the colleges were asked to provide their input about whether or not the questions were appropriate in light of the information that the Board of
Regents was seeking. Owens Community College trustees responded by indicating that the questions were appropriate and reinforced the need to develop creative space management solutions that address the limitations of conventional methods of delivery. The Owens Community College Board of Trustees stressed the need to partner with other entities to create centers of excellence where students can move easily between community colleges and universities (Jezak, 2009). While this report has not been published, the idea that Ohio’s educational leaders are exploring the facility and technology issues that face Ohio’s higher education institutions reinforces the need for this study.

2.6 The Role of Space Planning in the Delivery of Higher Education

Temple and Barnett (2007) have stated that even though space plays a significant role in the everyday work life of higher educational professionals, space has not played a prominent role in the “academic study of higher education” (p. 5). This is crucial information that highlights the lack of research that has been conducted on the important role that space planning plays in delivering quality education and providing an adequate learning environment. Most of the research on space planning (within an educational setting) has had its origins in the work of designers and architects, who may have been motivated to provide cost-effective building solutions (Temple &
Barnett, 2007). Owens Community College is no exception to this motivational factor.

Owens Community College was constructed without the benefit of a written master facilities plan. The former president of the college and the chief financial officer had requested money from the state capital appropriations to add more space at the college as the need arose. While no formal written plan was developed, college administrators at that time did have a conceptual idea for the development of the galleria complex on the east side of Oregon Road. The galleria complex consisted of the library, classroom center, math and science building, student health and activities center, and the center for fine and performing arts. The complex was built to provide additional facilities and meet the requirements of becoming a comprehensive community college. These buildings allowed the college to offer additional programs and classes that led to a two-year associate's degree.

Even though the plan to build the galleria complex consisted of constructing multiple buildings, it did not include an extensive master plan of the campus, nor did it involve faculty, staff, and students with a vested interest in designing the new space. The first time, to the researcher's knowledge, that extensive input and development of a documented plan occurred was the planning and building of the new Findlay campus, located on Bright Road. Extensive input into the programming phase of the building
was provided through multiple meetings with faculty and staff from a variety of departments whose instructors would inhabit the building. This resulted in a building that was well designed and serves the needs of the students as well as the faculty and staff members who work there. Phase II of the Findlay plan has already been constructed, and plans have been outlined for further development of the campus if the need for additional space should arise. This process laid the foundation for the development of the Toledo campus master plan.

After the purchase of 320,000 square feet of building space from the Penta Vocational School, Owens was in desperate need of a plan to integrate the acquired space and to determine how the current physical plant space could be used more efficiently. Over a 24-month period, a team consisting of faculty members, staff members, and students developed a master facility plan that will be used by the college during the next three to five years. In addition to the overall master plan determining how the buildings will be used, considerable discussion has occurred regarding the design of the classroom space and the common areas. The goal of the administration is to provide space that meets the needs of current and future students. The history of Owens Community College’s physical plant development serves as an example of how, historically, the development of the learning environment has been disconnected from the building process.
2.7 Creating the Optimal Learning Environment

Kopp et al. (2003) have suggested that stakeholder input is important and wrote that faculty members must rethink their roles as faculty and use their knowledge to assist with creating learning environments. Temple and Barnett (2007) also stated that further research may be required to build on the connections between the physical design of a campus and the learning environment:

Its (the university) physical presence defines the university in a variety of ways, some obvious and some subtle, and to an extent conditions how interactions within the university take place, how people feel about themselves and others, and how interactions with the outside world occur. (p. 6)

To substantiate their belief that space planning is an important aspect of creating an optimum learning environment, Temple and Barnett (2007) conducted a study that augmented a larger space management study that was simultaneously being conducted in the United Kingdom. The two researchers conducted semi-structured interviews of academic and administrative staff at seven higher education institutions that were research intensive and teaching oriented. The intent of the study was to identify how certain issues might potentially affect the physical plants in the future. Their research illustrated how various influences—e.g., politics, economics, and social and technological issues—play a role in defining
educational delivery strategies. They also found the use of resources, such as space and equipment, was extremely important in meeting the needs of students and the community.

Temple and Barnett (2007) identified exogenous and endogenous factors that influence space demand. Some of the exogenous factors that they identified were government policies, student demand, and relations with society. Some of the endogenous factors they identified were new pedagogical methods, such as changes to the length of the teaching day or year, and technological changes. One finding in Temple and Barnett’s (2007) study further substantiates the importance of studying the four influences identified in this dissertation. Specifically, Temple and Barnett (2007) suggested that during the next 10 years, higher education institutions in the United Kingdom will be required to accommodate changes precipitated by a wide range of social, economic, and disciplinary pressures that impact the institution.

Other researchers, such as Jamieson (2003), have concurred with Temple and Barnett’s (2007) study and found that the relationship between space and the learning experience has not been fully explored. Light and Cox (2001) have determined that much of the research on teaching and learning in higher education has focused primarily on sociological and cognitive areas and has not addressed the physical aspects of the learning environment. Hughes (2002) wrote that there is a growing interest in classroom
arrangement and flexibility. There is an interest in movable tables and chairs to accommodate groups; room arrangements that promote class discussions; and movable physical barriers, such as podiums, to allow for faculty to better interact with students. Mediation of classrooms also has been demanded to enhance the learning environment (Hughes, 2002).

Oblinger’s research has identified a concept called “built pedagogy,” which refers to the way a classroom is designed (Katz & Oblinger, 2005). If all of the chairs face the front of the room, there is a good chance that the room is going to be used for lecturing. If the furniture is constructed to be moved and different designs can be achieved, then different dynamics can and will occur in the classroom. Oblinger suggested that teams should design learning spaces (Katz & Oblinger, 2005) as this approach allows accommodation of a variety of opinions from various stakeholders, such as faculty, students, and maintenance staff. Oblinger wrote that students visit campuses to meet their social needs and engage in intellectual pursuits, not just to attend classes (Katz & Oblinger). In these situations, learning environments become more interactive, and students assume more responsibility for learning (Katz & Oblinger). Oblinger stated that by 2015, space will play a vital role in the success of institutions (Katz & Oblinger). Space planners will need to adapt to emerging trends and work closely with IT personnel to develop and design effective learning environments that meet the needs of students (Katz & Oblinger). Oblinger stated that institutions
will be challenged to adhere to their missions while reacting and adapting to changes in public policy, technology, culture, and other factors (Katz & Oblinger).

Tanner (2000) agreed that a planning gap exists between the construction of classrooms and the learning methods to be used in those classrooms. The importance of connecting classroom design and the learning process is illustrated in the following example. In the 1990s, the University of Guelph, in Canada, decided to link the construction process with the learning process by designing a classroom in which architecture and learning were connected. A committee was created consisting of faculty members, teaching support services staff members, physical plant staff members, and various other key stakeholders. The committee surveyed faculty for input and found that classroom flexibility and arrangement were considered by faculty to be important components of the overall classroom setting; faculty also pointed to the importance of regularly upgrading classroom equipment (Hughes, 2002). Based on the results, a recommendation report was advanced to the administration for consideration. The report was well received by the administration, and money was allocated to start the upgrade of many of the classrooms.

In research conducted by Scott-Weber (2004) and Dittoe (2006), these authors found that traditional classroom settings may be functional, but new and improved learning environments do enhance the learning process. The
University of Dayton recently has experienced this phenomenon by implementing an unconventional learning concept (Dittoo, 2006). The university designed a space that promotes increased student and faculty interaction as well as space for quiet reflection. The university also incorporated a new version of what traditionally has been referred to as “seat time.” The preliminary verdict is that newly designed space has made a positive impact on the learning process, but much more work is needed to connect space design to the optimal learning environment (Dittoo, 2006).

2.8 Technology and Social Influences

In addition to the factors already discussed, there are additional influences that need to be addressed. The significant advancements made in the area of technology and changes in social expectations have altered teaching dynamics within the classroom. They have created challenges for educators in that technological and social influences have significantly changed students’ abilities and expectations. This change is readily apparent in the significant generational differences in technological aptitude that colleges and universities experience within their current student population. For example, the American baby-boomer generation (1946-1960) witnessed the introduction of the television, which forever changed the way that information is disseminated. Generation X (1961-1981) experienced the introduction of video games, and the “net generation” (1982-2001) was raised
with the personal computer and the Internet. The “neon generation” (2002-present) is learning about emails and iPods before learning the alphabet.

These advances in technology have impacted how students learn and how faculty members teach. The full impact of these swift technological advances on the learning environment has yet to be determined and is an area in need of further research. Ehrmann (1999) stated that “technology is providing the foundation for the reorganization of higher learning” (p. 42). He also stated that technology, such as computing, video, and telecommunication will revolutionize the delivery of education (p. 42). Carlson (2000) agreed that discovering the most effective ways to use of technology to deliver instruction would be higher education’s most important challenge. To illustrate rapid adoption of technology and its effects on the education process, the use of email has dramatically increased as part of the course experience. In 2000, more than 60% of courses used email as part of instruction compared to 10% of courses in 1994 (Carlson, 2000).

Levine’s (2000) research also has pointed to the need to further study technological issues and their influence on classroom strategies. He identified technology as one of five primary forces that will impact delivery strategies. During the last eight years, Levine has predicted a number of technological changes, many of which have come to pass. He predicted that education would become more global with the introduction of technology. He predicted that the delivery strategies of some institutions would evolve from
a traditional onsite delivery system to a more streamlined online course delivery system (Levine). He further predicted that students would require more individualized higher education experience due to their diverse backgrounds and would desire flexible delivery methods (Levine).

Levine (2000) also predicted that students would create educational portfolios that would highlight and emphasize their achievements. He also predicted that degrees would be replaced by transcripts that would showcase students’ competencies and allow for the movement of students from one institution to another without penalty. Katz agreed with Levine and has predicted that by 2015, students will demand a seamless system be in place that allows them to move from institution to institution (Katz & Oblinger, 2005). He predicted that students will expect to customize their education and that information technology will play an increasingly larger role in the delivery system. Lewin (2009 a) gave an example of three institutions that have been moving toward an unprecedented, by American standards, way of using comparable standards to award degrees (Lewin, 2009 a). The three educational institutions include the University of Minnesota, Carleton College, and North Hennepin Community College. Their partnership was established with the goal of making the process of getting full credit when transferring with an associate’s degree easier (Lewin, 2009 a). The project used the principles of the Bologna Process, which centers on determining the competencies students must demonstrate as opposed to determining degree
eligibility based on earned credits or courses completed (Lewin, 2009a). Levine (2000) also predicted that a shift from teaching to learning will become a way of life at higher education institutions, and professors will become a highly revered resource that will be marketed to attract students.

While all of these predictions have not yet come to fruition, colleges and universities are conducting business differently than they did just eight years ago. As an example, portfolio systems have gained popularity and are becoming the norm at many institutions rather than the exception. These portfolio systems house students’ educational works and can be used as a way to showcase students’ competencies as they strive toward their educational pursuits.

Other researchers have agreed that technology will have a significant impact on the educational delivery process. Fahmy (2004) stated that due to technological advances, current teaching methods will evolve. But what does this really mean? Will all classroom lectures be enhanced by interactive activities? What impact will this type of research have on the traditional classroom pedagogy? What types of technologies will be needed to provide an optimal learning environment? What caused the shift from the traditional method of learning? These represent only a few of the questions that higher education institutions have been struggling with and continue to struggle with today.
2.9 Economic Influences

In addition to major changes in technological and social factors that have influenced classroom and space design, there are economic factors at work in higher education institutions. There are few college administrators who have not heard complaints from parents, students, congressmen, and faculty about the cost of education. College affordability discussions have taken place in many households and in congressional chambers. Report cards have been issued that rank states on a number of educational factors, including affordability. Many states have received failing grades in the area of affordability, and the number of states receiving a failing grade in this area grew from 36 to 43 in 2006 (Measuring Up, 2006). Ohio has not fared well in this category, and a recent report from the Ohio Board of Regents has indicated that tuition and fees for Ohio’s educational institutions are currently almost 50% above the national average (Report on Condition of Higher Education, 2008). These recent developments have provided a clear indication that leaders will need to address the issue of affordability of Ohio’s colleges and universities to assist in future economic development within the state.

There are other economic influences that need to be studied to understand what impact they have on an institution’s ability to deliver its educational product. Ford (2007) argued that colleges and universities are in a time of great change based on the forces that influence them. Ford’s
statement was predicated on the fact that a variety of global influences will continue to impact the economy, such as high oil prices and global climate change. It is very important that college administrators and planners understand global trends and how these trends will affect future college initiatives. Oil, for example, is critical to the economic stability of the country. As the price of oil increases, so does the cost of transporting goods. As the price of goods increase, consumers are left with less money to pay for other goods. If there is less discretionary income, then families may not have funding to pay for higher education (Ford, 2007). This example illustrates critical interdependencies that keep an economy stable.

Another good example is the role economic diversity plays in influencing the delivery of education in a college setting. What does a college or university gain or lose from being economically diverse? How does a college become economically diverse? The University of North Carolina provides an interesting example of the ways that a university’s decision to become more economically diverse can impact other institutions. In October of 2003, the University of North Carolina announced that it planned to provide tuition for any student whose household income was less than 150% of the poverty level (Leonhardt, 2008). This action had a huge ripple effect in the higher education community. To stay competitive, other universities followed suit with programs equally as generous, if not more so, than the University of North Carolina’s, and the bidding war began. Harvard one-upped North
Carolina, Virginia, and the University of Maryland by offering to cover nearly all educational expenses for any family with an income of less than $40,000. Massachusetts Institute of Technology and the University of Pennsylvania followed suit with lucrative incentives to attract low-income and middle-income students (Leonhardt, 2008).

Economic competitions similar to the examples described above have not been limited to four-year institutions or private institutions but rather have occurred among a wide range of institutions. An example of a competition between a four-year and two-year institution is the two new programs recently initiated by the University of Toledo and Owens Community College. In an effort to attract new students and achieve the goal of increasing the number of Ohioans with college degrees, the University of Toledo and Owens Community College created programs that compete for lower-income students. The University of Toledo recently has launched a scholarship program that allows Pell-eligible students from school systems within Ohio who have maintained a 3.0 grade point average to attend college for free. Owens Community College also has created the Owens Success Program, which guarantees Pell-eligible students from Toledo Public schools a free education.

While this may seem like a generous outpouring of financial assistance, higher education administrators have been forced to ask themselves several important questions to prepare their institutions properly.
for this program. For example, what impact will a more diverse student body have on educational delivery strategies? Will lower-income students be as academically prepared as their higher-income peers? What additional resources may be required to ensure student success? Is this money well spent? Institutions of higher education will undoubtedly focus on exercising discretion as they decide which strategic initiatives to undertake during the next several years. This discretion is designed to ensure that proper resources are allocated to be successful since states have been facing an economic downturn since 2007 and funding levels to state programs have been reduced. Education has suffered significant cutbacks many times during economic declines. According to Supiano (2008), many college chief financial officers believe that tuition increases will continue to outpace inflation. Clearly, the economic issues facing institutions are monumental and will greatly influence the ability of colleges and universities to react to the needs of their students and communities.

2.10 Political Influences

Because the role of economics is so intimately tied with that of politics, both factors must be included in any discussion that focuses on higher education at the policy level. There are numerous political factors that must be accounted for when determining the strategies that will enable a college to move forward. Without question, colleges and universities are highly influenced by the political decisions made at many levels within the political
hierarchy. Recent articles within the *Chronicle of Higher Education* have illustrated a variety of political influences (both direct and indirect) on colleges and universities. According to the *Chronicle of Higher Education*, community colleges recently have struggled to overcome increasing competition, declining state support, and increasing accountability (Blumenstyk, Sander, Schmidt & Wasley, 2008). These are three very important issues that can be influenced by political processes. For example, because of decreasing state funding, educational institutions have been forced to raise tuition to support the rising costs of educational delivery.

With sharp tuition increases, many students have turned to community colleges as a financially viable alternative. This trend has had an impact on the demand for educational services and ultimately has created new issues for community colleges. In a recent survey, 16 of the state’s top community colleges reported that they do not have adequate space to meet the needs of the communities they serve (Blumenstyk et al., 2008). Of course, this now raises the question, how do community colleges meet this increased demand? The simplistic answer would be for community colleges to adopt strategies that accommodate the needs of the communities they serve. This most likely can be achieved through non-traditional delivery methods. Colleges and universities will be required to develop more efficient educational delivery methods that will satisfy the demand, address accountability issues mandated by Congress and the taxpayers, and provide
students with a quality educational experience. This will not be an easy task, especially since the field of higher education traditionally has been slow to react to change. However, when forced, history has proven that that the field of higher education can enact transformational changes to secure its continued success.

As these changes are made and new methods are developed, new measures of accountability must also be developed. These measures of accountability play an important role in determining how effective alternative methods of delivery are in the education process. Current methods of assessment, such as graduation rates, may not adequately portray an institution’s effectiveness in educating students. This is especially true if students demand a more fluid and flexible environment where they can move from institution to institution to increase their competencies. The question to be addressed by higher education professionals is whether degree attainment or completion of a series of competency-based measurements is a more accurate measure of success. According to Blumenstyk et al. (2008), the willingness of community colleges to use graduation rates as a success measurement has become a significant point of controversy. Blumenstyk et al. (2008) argued that the success of community colleges should be based more on the success of their students—for example, attaining professional or vocational jobs upon completion of their coursework. If Blumenstyk et al.’s recommendations are implemented, the following questions must then be
addressed: Will institutions implement strategies that fit easily into established methods of measurement? Will methods of delivery be limited due to accountability issues? More importantly, will new methods of delivery succeed in educating students? There are no clear-cut answers to these questions, but institutions will be forced to respond to them in the future.

This section has shown that politics has greatly influenced the field of higher education from a number of different perspectives. Politics is a crucial factor that needs to be studied to fully understand the environment in which colleges and universities will be forced to operate.

2.11 Space Needs and Design

This literature review has shown that space needs and design will progress and will need to be intimately connected to the major delivery strategies that will be implemented by higher education institutions. The most compelling reason to study this topic comes from two real-life examples that illustrate the importance of understanding how influential factors, educational delivery strategies, and space requirements fit together to transform two educational institutions into even more effective learning environments. The following is a summary of a study on how two institutions connected the forces that influenced decisions about educational delivery strategies and used that information to build institutions that met the needs of the community.
The study was conducted at two community colleges in California for the purpose of evaluating the major influences on each of the community college districts (Smith, 2007). The two colleges took very different approaches in accommodating the needs of the community in which they serve. Many factors influenced the decisions the colleges made in their delivery strategies—decisions that ultimately played a role in how they managed their physical space.

Economics was at the forefront of many of the decisions these two institutions made. California’s Los Rios Community College District (LRCCD) service area has seen a 73.2% population growth from 1980 to 2005 and is expected to continue to grow through 2015. Similarly, several counties surrounding Sierra Community College District (SCCD) represent some of California’s fastest-growing areas with an anticipated growth of 46% between the years 2000 and 2015 (Smith, 2007). Both of these colleges needed to respond quickly to the demands of their service areas. Both colleges also have played an important role in the economic development of the area. Each college analyzed its high-demand programs and developed a plan to meet the community’s needs. Los Rios Community College chose to add learning centers in areas of high growth with programs focusing on health care, construction, retail, and service. Adding these learning centers was a quick and cost-effective method to serve more students, and it was determined that
this approach was more beneficial than adding a fifth full-service campus to
the Los Rios structure (Smith).

Sierra Community College took a different approach and created a 20-
year master plan that called for maintaining a single college with multiple
campuses (Smith). SCCD’s facilities master plan was completed in 2003 and
closely aligned with the district’s plans. The district leadership looked at
trends, goals, and resources to meet the needs of the new campuses as well as
their overall mission of contributing to the economic well being of the
community. Based on this information and the anticipated growth rates for
the region, the direction of the district was determined, and a list of projects
was developed by the district staff (Smith). The analysis by both institutions
allowed them to determine the needs of the communities in their new
locations and to develop programs to meet those needs. This, in turn, spurred
the economic development in those areas by providing a well-trained
workforce.

Social issues also played a role in developing the delivery strategies of
these two colleges. For LRCCD, the goal was to offer education options in
high-growth areas and to locate the new learning centers close to mass
transit hubs. By locating these learning centers strategically, the amount of
commute time for students would be reduced, and additional students could
be served (Smith, 2007). The goal of SCCD was also to provide reasonable
access to campuses by locating them within a one-hour drive time.
Other social issues, such as age and diversity of population, also played a role in determining the two institutions’ approach to space and educational delivery strategies. SCCD developed a new campus at the Roseville Gateway Center that implemented a specific emeritus program to reach the local seniors. The Nevada County campus followed suit and started an emeritus program to serve the area’s senior population, which comprises 25% of the county’s residents (Smith, 2007). Median age also became an area of interest for LRCCD. There has been a 6% increase in the median age of students since 1990 at LRCCD (Watts & Barista, 2005). This age increase is of interest to LRCCD because older students also tend to be working students who often enroll in classes to improve their skills rather than earn a degree (Smith). This may result in a reduction of overall credit hours, which impacts the institution’s revenues.

The diversity of the population was also taken into consideration. Los Rios determined that when spending $532 million in construction from 2003 to 2015, the success of their very diverse population would be a key priority. Because the trends indicated an increase in the non-white population, their focuses needed to be on how to make their population successful—for example, offering English as a second language classes as a first step in breaking down cultural differences (Smith, 2007). These social issues influenced the way education was delivered by these institutions, and they are key factors that cannot be dismissed in planning a delivery strategy.
Political influences also emerged in the expansion of these colleges. The Chancellor of California’s Community Colleges supported the expansion of space at these two colleges based on increased demand in their service regions. However, the chancellor did not provide this support without holding the institutions accountable. For example, the chancellor determined that the SCCD campus would become self-sufficient only after it reached 500 full-time equivalents (FTEs). This represented an important milestone achievement due to the weather constraints facing the SCCD educational sites during the winter months. Until the 500 FTEs were met, not all programs were offered, potentially forcing students to attend classes at other locations (Smith, 2007).

Financing the massive construction efforts was also political in nature because bond funding was used to finance the construction efforts. The availability of the funding impacted and influenced the building priorities that were set by the district staff (Smith).

In addition to the other factors, technology played a role in the institutions’ ability to deliver education. The service districts of the two colleges were very large, and not all of the needs of the communities they serve could be met face to face. Therefore, distance education was used to bridge the gap for many areas where a learning center or campus could not be located.
2.12 Conclusion

This literature review has identified sources that illustrate the need for further research on factors that influence methods of delivery in higher education, especially technological, economic, social, and political factors. The general consensus of most researchers is that educational delivery strategies will evolve and that institutions will again face a time of transformational change.

Community colleges are in need of redefining their methods of delivering education due to all of the factors that are influencing them internally and externally. The ability of colleges to determine what program offerings are important and how to deliver them successfully will be critical to the success of the community college sector and vital to the economic development of the state and nation. Community colleges, especially in the state of Ohio, have been viewed as a sector that will experience high growth due to the extensive educational needs that exist in order to rebuild Ohio’s economy. The four factors—politics, economics, society, and technology—are comprehensive in nature and will encompass the most critical issues influencing institutions for the next four to six years. These factors will shape and mold the education of the future and stretch our educational facility infrastructure to full capacity unless precautions are taken. In the case of Owens Community College, these precautions will need to include plans for how the institution will deal with an aging physical plant that includes 45-
year-old buildings and an aging infrastructure as well as the development of the classroom of the future that includes all of the latest technological advances to serve future students.

The importance of this study is further demonstrated by the reduction of funding from the state, the explosive enrollment growth experienced by Owens, and the pressure from political entities to serve more students. Owens Community College is an excellent case study due to the significant changes the college has experienced during the last 10 years, which include a substantial increase in distance learning classes, significant overall enrollment growth, an aging physical plant, and the recent acquisition of additional buildings. These factors have presented Owens with a unique opportunity to utilize the data collected during this study to create the campus of the future through strategic renovation of a major portion of the college’s physical plant.

The literature review substantiates the need to connect the design of the learning environment with the learning process. More importantly, the literature review reiterates the need to connect the learning process to future students’ abilities and demands as well as the needs of the community. The following figure illustrates the interactions among the four factors that influence the educational delivery strategies, future space needs, and design.
Fig. 1. Model depicting the interaction among (1) four influencing factors, (2) educational delivery strategies, and (3) design and needs.

This model represents the most critical aspects affecting institutions during the next four to six years. The literature clearly suggests that a gap exists in understanding how these elements collectively influence the ways in which community colleges determine how to meet the needs of future students.
Chapter 3

3.1 Methodology

This study was designed to answer the following research question:

In the next four to six years, how will Owens Community College’s physical plant be affected by the college’s educational delivery strategies as influenced by political, economic, social, and technological factors?

3.2 Research and Design

The goal of the study was to determine how four influences affect the delivery of education, space needs, and design at Owens Community College. The researcher explored a variety of methods to conduct the study but determined through the studies of other qualitative researchers, the review of information obtained in graduate classes, and in discussions with the researcher’s dissertation committee that a qualitative study should be conducted. The researcher reviewed the writings of Creswell (1994, 1998), Patton (1990), Gerring (2007), Marshall (1989), Rossman (1989), Denscombe (2003), Gall (1996), Borg (1996), Stake (1995), Yin (1989), Hancock (2006), Algozzine (2006), and Merriam (1998, 2009) to gain a better understanding of the process used to conduct a qualitative research study. After reviewing historical information about qualitative research methods, the researcher found that qualitative methods experienced an increase in legitimacy during the mid-twentieth century (Merriam 2009). In the late 1970s, researchers in the fields of education and health began to use qualitative methods to
conduct research, and now, nearly 40 years later, it has become an acceptable method of formal inquiry (Merriam, 2009).

The researcher identified four specific descriptions of qualitative methodology that added support for the use of this method in this study. Merriam (2009) wrote that qualitative research is “discovery oriented research where the findings are not predetermined” (p. 7). Patton (1990) has suggested that “qualitative methods permit the evaluator to study selected issues in depth and detail” (p. 13). Research experts Hancock and Algozzine (2006) have written the following about qualitative approaches to conducting research:

If little is known about an issue, a qualitative approach might be more useful. Whereas a typical quantitative research project identifies and investigates the impact of only a few variables, qualitative research attempts to explore a host of factors that may be influencing the situation. (p. 8)

Marshall and Rossman (1989) have suggested that qualitative research should be used for research that is “descriptive and stresses the importance of context, setting, and subjects’ frame of reference” (p. 46). After debating the relative merits of both qualitative and quantitative approaches to explore political, economic, social, and technological influences on Owens Community College, the researcher concluded that a qualitative methodology would be appropriate for this study. Support for this methodology was also found in
Gall and Borg’s (1996) work, which stated that a qualitative approach allows the researcher to delve deeply into a particular topic and, through descriptive writing, “bring a case to life in a way that is not possible using statistical methods of quantitative research” (p. 584). Creswell (1998) has suggested that qualitative research provides a “holistic picture, analyzes words, [and] reports detailed views of informants…” (p. 15).

The researcher then reviewed the different types of qualitative studies and determined that an intrinsic case study was the most appropriate method to use when conducting the study. An intrinsic case study format was selected because it focuses on “learning more about an organization and less about examining or creating general theories or generalizing research findings to broader populations” (Hancock & Algozzine, 2006 p. 34). Merriam (1998) has indicated that intrinsic case studies are intensive and holistic and that their purpose is primarily to analyze a social entity. The researcher also chose the intrinsic case study method because of its ability to emphasize rich descriptive images through the use of a variety of information sources (Hancock & Algozzine, 2006). The researcher reviewed publications by case study experts, including Yin (1989), Stake (1995), Gerring (2007), Merriam (1998), Hancock and Algozzine (2006). Hancock and Algozzine (2006) have supported the use of case study methodology based on the following description:
Case studies are intensive analyses and descriptions of a single unit or system bounded by space and time. Topics often examined in case studies include individuals, events or groups. Through case studies, researchers hope to gain in-depth understanding of situations and meaning for those involved. (p. 11)

Yin (1989) also has supported the idea that case studies are appropriate to answer research question that involve “social and political phenomena” (p. 14).

By choosing an intrinsic case study methodology, the researcher was provided with the opportunity to delve deeply into the ways that politics, economics, society, and technology influences would affect Owens Community College’s ability to deliver education and their affect on space needs and design during the next four to six years. Additionally, the researcher determined that this approach provided the best opportunity to better understand how the individual components of the PEST analysis model interact with one other and their ultimate effect on the college’s delivery of education. As outlined in Chapter 2, it is important for Owens Community College to determine how the PEST forces may influence the college in the future to ensure that the college is ultimately positioned to achieve the goals set forth in Ohio’s educational strategic plan.
3.3 Conceptual Framework

Once the researcher determined that the intrinsic case study method, was the most appropriate to use for this study, the next step was to identify the theoretical model or conceptual framework that would be used to conduct the study. In providing advice to researchers, Merriam (2009) suggested that to help identify a conceptual framework, it is helpful to understand “what is known about the topic, what aspect of the topic you are going to focus on, what is not known, why it is important to know it, and the precise purpose of the study” (p. 68). To answer those questions for this case study, the researcher chose the political, economic, social, and technological (PEST) analysis model as the conceptual framework for this study. While the PEST analysis model traditionally has not been used in social science or educational research, it has been used in a wide variety of applications ranging from business to strategic planning. Little is known about the development of the PEST analysis model, but it was thought be used for the first time in the late 1960s by Frances Aguilar (Thakur, 2010). Aguilar concluded that the four environmental influences—political, economic, social, and technological—should be scanned when identifying ways to judge strategic plans through analytical means (Thakur, 2010). Hax and Majluf (1991) also have supported the use of the environmental scan as an important tool to better understand the climate in which a company operates.
Hax and Majluf (1991) have described the purpose and value of conducting environmental scans:

The Environmental Scan provides an assessment of the distinct business opportunities offered by the geographical regions in which the firms operate. It also examines the general trends of the various industrial sectors related to the portfolio of businesses of the corporation. Finally, it describes the favorable and unfavorable impacts to the firm from technological trends; supply of human resources; and political, social, and legal factors. The output of the Environmental Scan is the identification of key opportunities and threats resulting from the impact of external factors. (p. 74)

The business community has used this model since the late 1960s and has added additional factors as needed to meet the demands of the times. The PEST analysis model also has been referred to as the STEP or STEEPLE model as more environmental influences were added. In the business model, under each factor heading is a listing of items that may be studied to determine each factor’s effect on the business unit. For example, political influences include tax policies, government attitude, and employment laws. Economic influences include economic growth, government spending, and taxation. Social influences include population growth, education, and income distribution. Technology influences include rate of technology transfer, new inventions, and new developments (Orfano, 2011).
For the purpose of this study, the four factors of influence—politics, economics, society, and technology—were subdivided to further specify the scope of research. The political influences included policy and legislative action, issues relating to the chancellor of the Ohio Board of Regents, and federal or state government influences on Owens community College’s educational process. The economic influences included items related to the financial aspects of Owens Community College’s educational process, including tuition, state funding, financial aid, and college costs. Social influences included external factors that influence behaviors of individuals, such as generational differences, observational learning, and the need for immediate gratification of students who attend Owens Community College. Technological influences included electronic devices as well as mediums and methods to provide instruction or access of educational information at Owens Community College.

By using the PEST analysis model, the researcher was able to establish a process of analysis that would effectively answer the important questions raised by Merriam (1998): “...what is known about the topic, what aspect of the topic you are going to focus on, what is not known, why it is important to know it, and the precise purpose of the study” (p. 68).

Once the method was determined, the researcher established a protocol for data gathering and data analysis. Guidelines provided by Hancock and Algozzine (2006), Creswell (1994), and Merriam (1998) were
followed to ensure effective interview techniques and data gathering procedures were utilized. The guidelines included identification of key participants, development of an interview protocol, identification of appropriate interview settings, proper recording of participants’ responses, and strict adherence to ethical and legal requirements. A description of how each of the guidelines was met is included in the following paragraphs.

Yin (1989) and Hancock and Algozzine (2006) have noted that identifying interviewees is a critical step that, in part, determines the quality of the information and success of the study. Creswell (1994), Hancock and Algozzine (2006), Merriam (1998), and Denscombe (2003) have indicated that the participants selected for inclusion in the study should have the ability to contribute to the study through their knowledge. The researcher ensured that participants were able to make valuable contributions by identifying those who, by virtue of their affiliation with the college, possessed important knowledge and insight regarding the influence on Owens Community College of the four factors of the PEST analysis model. The list of participants was established by the researcher. These participants were selected based on their employment positions within the college and their educational expertise; they included members of the board of trustees, staff members, and a faculty member. Senior administrators, such as the president, provost, associate vice president, and dean of the school of arts and science, were selected based on their deep understanding of the college’s operations and
their vast knowledge of how the four influences would affect the college in the future. The board of trustees member was chosen based on her intimate knowledge of the political environment at the state and federal levels. The director of information technology services, director of e-learning, and the faculty member were selected based on their particular subject matter expertise in technology and business. External participants identified as the OLN director of innovation and a representative from a local architectural firm were interviewed based on their employment position within the community and the nature of their interaction with Owens Community College. A total of four students were selected to participate using the generational definitions provided by Strauss and Howe (1991). Based on Strauss and Howe’s definitions, the researcher identified the four students to interview based on the year in which they were born. Through this selection process, the researcher ensured representation from each of the four largest generational groups currently attending the college (Baby Boomer generation (1946 to 1960), Generation X (1961 to 1981), Net generation (1982 to 2001), Neon generation (2002-present)).

Due to the nature of the study only a limited number of interviews were able to be conducted. Therefore the researcher was able to only interview one faculty member and one individual from each of generational categories outlined above. The researcher carefully selected the faculty member to ensure that their comments would beneficial to the study. The
students were selected to allow the researcher to obtain a variety of generational perspectives related to societal expectations and student needs. The researcher has identified the number of individuals interviewed as a limitation of the study.

The following is a list of interviewees:

Owens Community College Personnel:

1. President
2. Provost
3. Dean of the School of Arts and Science
4. Associate Vice President of Operations
5. Information Technology Staff
   a. Director of Information Technology Services
   b. Director of E-learning
6. Faculty Members
   a. One School of Business faculty who uses alternative methods of delivery
7. Owens Community College Board of Trustees member
   a. Vice Chairman
8. One currently enrolled student from each of the following categories:
   a. Born 2002-present (Neon generation)
   b. Born 1982-2001 (Net generation)
c. Born 1961-1981 (Generation X)

d. Born 1943-1960 (Baby Boomer)

Other interviewees included the following:

1. Ohio Board of Regents staff member
   a. Loaned Executive OLN Director of Academic Innovation

2. Architects
   a. One representative from an architectural firm chosen to design the renovation of the recently purchased Penta space for Owens Community College

Prior to the interviews, the participants were read the following brief explanation of the study and were given the opportunity to decline the interview:

Explanation of Study:

The initial focus of this study is to determine the relationship that exists between certain influences and the delivery of education at Owens Community College. The influences of interest are political, economical, social, and technological in nature. This information will be used to guide the college in planning its future delivery strategies and space needs. You will be asked to state your opinion on a series of topics related to the delivery of education at Owens Community College and the four
identified influences. Additional questions may be asked to delve deeper into a particular area of interest. After the delivery of education and influence questions have been answered, you will be asked your opinion on how the college’s space needs and design might be impacted by the influences discussed earlier. Your responses will be recorded, but you will remain anonymous for the purpose of reporting the study. You may stop the interview at any time. Any questions?

3.4 Interview Guide

A structured interview guide was developed by the researcher to guide the interview process and to help narrow the scope of the study. Merriam (2009) has noted that an interview guide provides increased confidence in the interview process. The interview guide was constructed to obtain the participant’s opinion on a number of issues related to the four influences under study. The researcher chose a semi-structured/open-ended interview protocol as outlined by Denscombe (2003), Merriam (2009), Yin (1989), and Patton (1990) to create a flexible and informative interview process. The researcher developed a list of structured questions to be asked of each participant. Additional follow-up topics listed under each of the primary questions were used if the researcher determined that additional information could be obtained by asking further probing questions (Creswell, 1994). According to Merriam (2009), this approach is an effective method for
conducting interviews and yields “substantive information about the topic” (p. 105).

Construction and testing the interview questions was also cited as an important step in the interview process, according to Stake (1995). He stated that a “researched-question-based set of questions” should be developed in advance and should be piloted (p. 63). Merriam (1998) also has recommended that questions should be tested before the actual interview takes place. The researcher piloted the questions with a panel of Owens Community College employees and a panel of external colleagues to obtain feedback on the effectiveness of the questions (see Appendix A). Owens Community College employees included the college’s attorney, the executive director of fund development, and the vice president of human resources. The employees were chosen due to their decades long experience in their field of expertise as well as the number of years they had been involved in higher education. The external colleagues interviewed consisted of the president of Beaver County Community College, the president of Colorado Mountain College, and the vice chancellor of the Ohio Board of Regents for Efficiency and Accountability. These individuals were selected because (1) they have extensive knowledge of higher education systems, (2) the positions they hold at their respective institutions have direct bearing on this study, and (3) their opinions provide an independent perspective.
3.5 Interview Process

The interviews were conducted during a 12-week period beginning in October 2009, and all 14 interviewees (as described in Chapter 3.3), participated. Interview protocols were followed by using a focused interview, which consisted of an approximately one-hour interview with defined questions as outlined in Section 3.4 (Yin, 1989).

During the interview process, the researcher took extensive field notes and digitally audio recorded all of the sessions as is recommended by Merriam (1998) and Creswell (1998). All interviews were held in the Vice President for Administrations Office at Owens Community College, with the exception of one off-campus interview and one phone interview, which were not conducted at Owens Community College at the request of the two participants. The Owens Community College interview setting was conducive to a one-on-one interview setting and provided a quite comfortable environment as defined by Denscombe (2003) and Creswell (1998). As recommended by Merriam (2009) and Denscombe (2003), once each interview had been concluded, the researcher transcribed all of the field notes and further examined and analyzed the discussions recorded during the original interview process by listening to all of the interviews twice. The interview recordings were also transcribed and used in the data analysis. The researcher provided all of the interviewees the opportunity to review a complete copy of the transcripts, as well as a summary of their individual
comments, prepared by the researcher to ensure accuracy and to ensure that their rhetorical intentions were accurately represented. The transcript review process was completed as outlined by Denscombe (2003) and Merriam (2009).

Once the interviews had been completed and the responses transcribed, the researcher began analyzing the data by reviewing all the responses, field notes, and transcripts. This was a large task due to the volume of information obtained during the interview process. The researcher determined that by identifying categories and coding the participants’ responses, common themes could be identified. Creswell (1994), Denscombe (2003), Yin (1989), and Merriam (1998) all have agreed that this is an acceptable method to begin the data analysis process. Creswell has written that “data analysis requires that the researcher be comfortable with developing categories and making comparisons and contrasts” (p. 153). Merriam (1998) has added that “devising categories is largely an intuitive process, but it is also systematic and informed by the study’s purpose, investigator’s orientation and knowledge, and the meanings made explicit by the participants themselves (p. 179). The Sage Encyclopedia (Given, 2008) and Merriam (2009) also have described effective protocols for the coding process and listed two types of coding pertinent to this study. Axial coding is the process of “relating categories and properties to each other, refining the category theme” (p. 200). Selective coding is when “core categories” are identified to further group the data (p. 200).
In the initial analysis of the data, the researcher used a systematic three-step approach to manage the data. During the first step, the researcher took the responses of all 14 participants to each question and combined them together under each of the question headings. This allowed the researcher to create one document listing all the participants’ responses to each question.

In the second step, the researcher created the following categories to manually code the participant’s responses and began to identify common themes. The researcher chose to manually code the data instead of using a software package due to the fact that the categories were clearly identifiable based on the interview questions and the participant’s responses.

1. Funding
2. Assessment/accreditation
3. Ohio system/10 year plan
4. Federal initiatives
5. Classroom Flexibility and design
6. Technology
7. Miscellaneous
8. Enrollment/class offerings
9. Human resources
10. Family abilities/expectations
The researcher axial coded the data by assigning one of the above numbers to the responses of each participant based on the subject matter contained in each response (Merriam, 2009). Participant responses that reflected subject matter that fit into more than one category were assigned to all applicable categories. The researcher created a new Microsoft Word document and grouped together all of the responses that were similarly coded under each question heading by copying and pasting participants’ responses. This created a document that reflected all of the participants’ responses for each of the PEST category questions grouped together using the category numbers listed above. Through this process, themes within the responses began to emerge.

In the third step, the researcher used selective coding to group the data into additional similar themes (Merriam, 2009). The researcher identified the themes from reviewing the participants’ responses. The categories were as follows:

- C = Classroom issues
- P = Program issues
- F = Faculty abilities
- S = Student abilities
- State = State issues
- $ = Funding/economic issues
- FAO = Financial aid issues
FP = Federal issues  
CAP = Capital funding issues  

Once these three steps were completed, the researcher examined and analyzed all of the participants’ logically grouped responses and began to develop an answer to the posed research question. The researcher then drafted an outline of Chapter 4, ranking the likely influence of each factor of the PEST analysis model on the college’s delivery of education, space needs, and design during the next four to six years from most influential to least influential. The process followed by the researcher was consistent with data analysis procedures outlined by Merriam (2009) and Denscombe (2003)—i.e., breaking down the data into categories that are useful in answering the research question.

3.6 Triangulation

Once the Chapter 4 outline had been completed, the researcher began to focus on obtaining internal validity for the study through triangulation. Yin (1989) stated that triangulation is an important component of the qualitative research process that helps ensure the accuracy and reliability of data. Merriam (2009), Patton (1990), Creswell (1998), and Denscombe (2003) all define “triangulation” as the use of multiple data sources to confirm or refute emerging findings. Triangulation was achieved by conducting interviews with different individuals; reviewing institutional data, environmental scans, federal and state reports, and newspaper articles; and
collecting demographic information related to the college’s legal district. The researcher reviewed an extensive list of internal and external documents for the purpose of adding validity to the study. The following is a sample of the Owens Community College information reviewed by the researcher:

- President’s Cabinet meeting notes for 2009 to 2010
- 2010 and 2011 college budget projections
- State funding allocations for full-time equivalents 1994 to 2009
- 2005 and 2007 Owens Community College Planning Council environmental scans
- Web course statistics 2003 to 2010
- Grants the college received from 2003 to 2008
- Disbursement of federal financial aid 2001 to 2010
- Board of Trustees Finance Committee meeting minutes 2008 to 2010
- Board of Trustees meeting minutes 2007 to 2010
- Classroom of Tomorrow Committee recommendations 2009
- Owens Community College six-year capital plan 2011 to 2016
- Developmental education completion data 2007 to 2010
- Owens Community College news releases 2010
- Preliminary headcount information for Ohio public colleges 2009
- Personal communication with Ohio Association of Community Colleges 2009
The environmental scans highlighted political, economical, social, and technological challenges the college will face during the next several years. In addition to environmental scans, the college’s strategic plan was also used as a resource. The college’s plan identified the college’s priorities, which included topics such as educational delivery strategies and organization vitality.

Board of trustees and college committee meeting minutes were reviewed and used where applicable. Committee meeting minutes were reviewed, and personal communications between the researcher and Owens Community College staff members were used to ensure triangulation.

In addition to the internal documents examined, numerous external documents also were reviewed. The following section provides examples of...
the types of external documents and information that were reviewed and
their relevance to the study. For example, the researcher conducted a policy
analysis to determine the effects that state and federal policy changes have
had on higher education. Reviewed documents included Ohio’s 10-year plan
for higher education, which serves as the governor’s and chancellor’s strategic
plan for the state of Ohio’s higher education system through 2017. Ohio’s
performance reports on higher education also served as valuable resources for
triangulation purposes. The performance reports provided a comprehensive
overview of performance of higher education in the following areas:
enrollment, affordability, preparation, finances, and transferability.
Historical information was also reviewed, including enrollment data,
financial data, and Ohio Board of Regents facilities information from 1966-
2006. On the federal level, the Spellings Report, the Higher Education Act
reauthorization, and the economic stimulus plan were reviewed. National
reports from the College Board, Kaiser Foundation, Noel-Levitz, New Media
Consortium and Educause, and the Society for College and University
Planning were reviewed in addition to Chronicle of Higher Education,
Washington Post, Toledo Blade, Bowling Green Sentinel Tribune, Columbus
Dispatch and New York Times articles. Additional information identified
during the research process was reviewed and incorporated if found to be
potentially pertinent to the study.
3.7 **Reduction of Bias**

The researcher has been an employee of Owens Community College during the past 14 years and has intimate knowledge of the institution. The researcher worked very diligently to reduce any bias and ensure that a fair and honest assessment of the information was conducted. Creswell (1998) has written that it is important to clarify and understand the researcher’s position and any biases the researcher may have that could impact the study. Ogden in the SAGE encyclopedia (Given, 2008) wrote, “Researchers manage bias by being self-aware of their values and assumptions, looking for contradictory data, and being open to alternative interpretations of their data. Although many of the social sciences aspire to objectivity, social scientists should acknowledge their own subjectivity in the research process” (p. 61).

The researcher followed strict protocol for data collection and analysis as outlined by Denscombe (2003), Merriam (2009), Yin (1989), and Patton (1990). Data was transcribed, and a coding system matrix was created to organize the data for analysis as recommended by Creswell (1994), Denscombe (2003), Yin (1989) and Merriam (1998). Triangulation was used to validate the themes identified in the participants’ interviews and through the review of extensive internal and external documents. By following all of the above protocols, the researcher minimized any biases that may have affected the study.
3.8 Summary

The researcher identified a qualitative intrinsic case study as an appropriate method for this study due to the rich, probing, descriptive nature of this method. The researcher used appropriate protocols identified by case study experts to conduct the study. These protocols included identification of key participants, development of an interview protocol, identification of appropriate interview settings, proper recording of participants’ responses, and strict adherence to ethical and legal requirements. Information attained in the interview process was analyzed using protocols recognized by case study experts. Triangulation was obtained through the review of numerous sources of data, adding validity to the study. Strict adherence to recognized methods and protocols in this chapter created a strong foundation for the development of the findings in Chapter 4.
Chapter 4

4.1 Findings

This chapter presents the findings of the political, economic, social, and technological (PEST) analysis according to each of the four influential factors under investigation (political, economic, social, and technological), identifies each of the themes used to substantiate the findings, and then presents documentation supporting the themes. More specifically, this chapter identifies political, economical, social, and technological factors that will influence the future educational delivery strategies, space needs, and design at Owens Community College.

Through the use of the PEST analysis, the researcher concluded that political, economic, social, and technological influences will impact the delivery of education, space needs, and design at Owens Community College to varying degrees during the next four to six years. After conducting the interviews, document analysis, and policy analysis, the researcher determined that technological factors represent the greatest influence on the college’s delivery of educational services and on its space needs, followed by political factors; economic factors; and, finally, social factors. This chapter provides a detailed analysis of how each of the four categories resulting from the PEST analysis will influence the college during the next four to six years.
4.2 Impact of Technology

The researcher found that during the next four to six years, technology will impact the college’s future educational delivery strategies, space needs, and design more than any other influence studied within the PEST model. During the analysis of the interview transcripts and the review of recent studies, publications, and articles, four major themes were identified within the technology category of PEST. The emergence of these four major themes suggests that among the four influences, technology will have the most influence on the delivery of education and space needs at Owens Community College. The four technological themes include the following:

1. Technology will play a major role in the future delivery of education and learning environments.
2. Faculty technological competency is vital to the success of using technology to deliver education.
3. Student technological competency will be a factor in the use of technology to deliver education.
4. Space needs and design will change due to the use of technology.

4.3 Impact of Technology on the Delivery of Education

After analyzing the interview transcripts, the college’s strategic plans, Washington Post and Chronicle of Higher Education newspaper articles, and Ohio Board of Regents reports, the researcher concluded that technology will influence the way classes are taught and the ways that educational products
are delivered at Owens Community College. During the interview process, it was stated that “who and what we teach, as well as how we teach will be influenced by technology.” Another participant stated that not many teachers “just stand up and teach anymore.” They use technology, and it is very important. Another participant indicated that technology is more prevalent in instruction than it has been in the past and will really “ramp up in the next 10 to 20 years.” Whereas the use of technology traditionally has been reserved primarily for distance education classes, it is now used in almost all classes.

According to data obtained from Ohio Board of Regents reports, in *Washington Post* and *Chronicle of Higher Education* newspaper articles, and during the interview process, higher education is in a period of transition, and the educational product will be delivered differently in the future due to the use of technology. A recent *Washington Post* article corroborated the finding that technology will significantly influence the delivery of education in the future. The author stated that “education is on the verge of radical reordering” (Teachout, 2009, p. 1). The author explained that due to the advent of the Internet, the “business model” that traditionally has governed private U.S. colleges is no longer sustainable. The author further stated that the market is forcing change, and online courses represent one component of a more cost-effective educational delivery method.
It was also evident from the information gathered in the interview process, as well as from a 2009 Ohio Board of Regent’s report, that a major contributor to successful learning environments is technological tools. It was stated in the report that computers and projectors are as important as chalkboards in classrooms (OBOR Second Report, 2009). Participants also stated that technology will allow faculty members to perform their jobs more effectively. It was stated in the interviews that with the introduction of distance learning, some educational delivery systems have become significantly different than the traditional method used during the last 200 years.

The idea that technology is an important part of the classroom experience is also shared by state government. The Ohio Board of Regents released a report in 2009 stating that classrooms need to be “retrofitted to new learning environments and technology” (OBOR Second Report, 2009, p. 8). The classrooms of the future will include technological devices such as a projector, screen, computer, and Internet accessibility to allow for a creative and interactive classroom experience (OBOR Second Report, 2009). Classrooms will need to be equipped with computers and “smart boards,” giving everyone in the classroom access to the Internet, according to one participant. In 2010, Owens Community College developed a plan to equip all classrooms at all its campuses with projectors and computers. It was continuously reiterated that technology will continue to move very fast and
that new technologies will allow students to experience subject matter through media other than books. One participant observed that it is now possible for faculty members to deliver lectures via the Internet while students view these lectures in their homes. According to this participant, students could email questions to faculty members, and webcams would ensure that students and faculty members are able to interact with one another.

Through the interview process, the researcher also identified that “mobility and access are most important” and that interaction with others across the globe is now more readily available. Participants reported that “distance is no longer a barrier” and that Owens Community College’s environment now extends to a “worldwide” community. Participants stated that Owens Community College will need to offer courses in a variety of mediums, such as “Second Life, streaming video, simulation, and virtual applications.” Because of these types of applications, Owens Community College will have access to potential students all over the world, and this global interaction will enhance the class experience.

Through the review of the college’s International Strategic Plan (2009), it was determined that this worldwide outreach has already begun to take place at Owens Community College. The college has begun to expand its international outreach programs and has developed relationships with foreign countries to provide educational opportunities to their students.
According to the college’s international strategic plan (2009), the goal is to increase the international student population to 2,000 students within the next 10 years. To help achieve this goal, the college has been working on an agreement with an educational institution in China to offer a 1+1+2 program. Students would take one year of classes at a Chinese educational institution, one year of classes at Owens Community College, and two years at the University of Toledo to obtain a bachelor’s degree. The program was expected to begin in 2010.

Through the review of the information obtained during interviews and the Chronicle of Higher Education, the researcher identified a new Federal Communications Commission initiative that will influence the delivery of education. The Federal Communications Commission in 2010 proposed that colleges and universities become part of a plan to connect the remaining 100 million individuals who are not connected to the Internet by 2020 (Parry, 2010). The plan did not outline who would fund the initiative, but according to experts, the benefits would be significant (Parry, 2010).

One participant asserted that providing broad bandwidth to students who have limited resources will be challenging but necessary. Another participant stated that European countries have been treating broad bandwidth like an electrical service and including it in their tax base. According to a report by the Organization for Economic Co-operation and Development, the United States ranks 15th worldwide in broadband
penetration. Germany, France, Greece, and the United Kingdom are among the top 10 in broadband penetration (OECD report, 2008).

Other technological tools, such as Smartphones, were identified by one participant as an innovation that will have an impact on delivery of education and the learning environment. Smartphones will enable students to download a textbook or lecture notes onto their phones, take them home, and load them into their computers. iPods, webcasting, wikis, blogs, and webinars will be infused into the educational setting, according to one participant, and these forms of technology are just the “tip of the iceberg” according to another. One participant even stated that some of these items have been used during the past four to five years and are now “almost passé.”

While it has been extremely difficult to determine what technological advances will occur next, Owens Community College has attempted to stimulate faculty interest in adding new classroom technology to enhance the delivery of education and remain on the cutting edge of educational delivery strategies. A 2010 Toledo Blade newspaper article reported that Owens Community College had funded a new grant program that would be awarded to teachers based on their proposals for new classroom technology (Gilbert-Cunningham, 2010). Owens Community College’s interim provost stated that this program would help introduce new technologies into the classroom and introduce many faculty members to the grant-writing process (Gilbert-Cunningham, 2010). This has also helped alleviate some of the technology
funding concerns that were stated by respondents by dedicating a pool of money for technology enhancements.

4.4 Technological Competency of Faculty

The second major theme identified was the importance of the faculty’s technical competency in using technology to deliver educational products. A 2009 Ohio Board of Regents Report stated that “students have high expectations for technology, and preparing students and faculty to use technology for education is a challenge” (OBOR Second Report, 2009, p. 12). The challenge has been the magnitude of the issue. In a published 2008 Horizon Report, researchers sought to identify new technologies that are likely to impact the learning environment and conducted research on the introduction of new technologies in the learning environment (New Media, 2008). The report listed grassroots video, collaborative websites, collective intelligence, data mashups, mobile broadband, and social operating systems as six emerging technologies that will impact learning organizations and will be introduced into the academy in the near future. It was evident from the Horizon Report that many new technologies will be available for faculty to use and that students will expect these technologies to be part of the classroom experience (New Media, 2008). The New Media Horizon Report’s (2008) analysis of trends and challenges during a five-year period concluded that “the gap between students’ perception of technology and that of faculty continues to widen” (p. 7). The report stated that faculty had experienced
difficulty embracing new technologies and integrating them into their teaching methods (New Media, 2008), which also happened to describe the faculty environment at Owens Community College. Participants pointed out that the use of technology by faculty ranges from frequently to infrequently. Participants stated that it is easier for younger faculty members to incorporate technology into their classes than it is for the older “baby boomer” faculty members. Randy Bass, executive director of Georgetown University’s Center for New Designs in Learning and Scholarship concurs and stated that student demand is influencing the way education is delivered (Young, 2011). Bass also stated that a new generation of faculty are introducing new technologies into their teaching methods (Young, 2011). An example was given by a participant in which a younger faculty member was approached by an older faculty member and asked if he could sit in on the younger faculty member’s class on Monday nights to learn the new software program that he had been incorporating into his classroom teaching. When the younger faculty member asked why, the older faculty member responded that he was just assigned to teach another section of the same class, and he needed to learn the software from him on Monday so he could teach the class on Tuesday. The point made by the participant was that more seasoned faculty may need to undergo additional training both to deliver their educational message and to reach all generations present in their classrooms.
The researcher was unable to obtain any information from Owens Community College that describes or measures faculty technological aptitude, but the college did recognize the need to provide additional technological training to its faculty. In discussions with Owens Community College’s interim vice provost, it was apparent that faculty technological literacy has been identified as important. To help faculty members address this challenge, the college re-invented the Faculty Development Center in 2009. According to a college press release, the Faculty Development Center has developed programs that feature seminars, workshops, and programs that are focused on technology integration in the classroom as well as professional development in creative thinking, leadership, scholarly innovation, and teaching and learning strategies (Meyer, 2010). The center’s coordinator stated, “This new educational area will support and promote teaching and learning success at the highest level through an array of professional development opportunities that are focused on fostering innovation and academic excellence” (Meyer, 2010).

During an interview with an executive-level college administrator, the importance of faculty technical competency and the lack of mandatory faculty certification by the State of Ohio to teach at the college level were discussed. It was determined that college-level faculty are not required to be trained in teaching methods that would help them effectively teach in the classroom. The respondent stated that the State of Ohio requires K-12 teachers to be
trained and thought that college professors should have similar training. The researcher’s review of the college’s President’s Cabinet Meeting minutes found that Owens Community College’s E-learning department does conduct optional training on nationally recognized standards to help faculty members understand different learning styles, but no other training has been required at the state level (P. Jezak, personal communication, April 20, 2010).

4.5 Technological Competency of Students

The third key theme identified was that students’ technical abilities play a large role in the successful delivery of education. Interviewees stated that technology will be needed to meet current students’ needs and the needs of future generations. The results indicated that most traditional-age students entering college were familiar with technology due to the significant use of media during their K-12 years. The importance of this statement was reflected in a recent 2010 study by the Kaiser Family Foundation (2010). The study reported that 8 to 18 year olds have been increasing their daily use of technology. During the last five years, the amount of time members within this age group use media increased from 6 hours and 21 minutes per day to 7 hours and 38 minutes (Kaiser, 2010). More support was found in a fall 2009 presentation by Mark Milliron at Owens Community College, where he stated that the “NetGen” (born 1982-2001) spent an average of 12 hours per week online, which represented an increase of 28% compared to Generation X
(born 1961-1981) and an increase of 50% compared to the baby boomer generation (born 1946-1960) (Milliron, 2009).

The proliferation of new technology was also addressed in the Kaiser Family Foundation study. During the last five years, the number of cell phone owners in the age group of 8 to 18 has increased from 39% to 66%. The number of youth who own iPods and MP3 players also has increased from 18% to 76% within the same age group and timeframe (Kaiser, 2010). The New Media Horizons Report (2008), when discussing the impact of social operating systems, stated that “these tools will transform the academy in significant ways that we can only imagine” (p. 26).

Another point stressed during the interviews was that to fully understand future students, Owens Community College will need to understand the technology. By understanding the technology, Owens Community College will be better prepared to interact with its students. As an example, one participant reported that students do not read their college email account as often as they should. This participant suggested that administrators inquire among students regarding their preferred mode of correspondence. As a result, the college may discover that college email accounts are not the preferred method of communication.

While the majority of new students has more experience with technology, the college also must be ready to help those who do not have adequate college-level technological skills. The results already presented
suggest that many non-traditional students are not familiar with or adept at using technology that may be presented in the classroom. One idea that emerged during the study that could help combat technological illiteracy was that Owens Community College could test new students’ technology readiness and then provide remedial technological training, if necessary. This would bring the students who may be technologically deficient up to a level of competence that would help them succeed in college-level courses.

4.6 Technology’s Impact on Space Needs and Design

The fourth theme that emerged within the category of technological influences focused on the manner in which technology will affect space design and needs in the future. Through the study of information provided by interviews, Owens Community College examples, Ohio Board of Regents reports, and published journal articles, the researcher concluded that classroom space needs to be designed differently to allow for new technology to be introduced into the learning environment. A participant stated that the traditional ways of teaching do not excite “new” students. This is because younger students have been exposed to a variety of technological devices; as a result, teaching methods and the ways that educational facilities are designed will impact students’ abilities to reach their educational goals. Another participant stated that younger generations were “native” to technology and that faculty members were “migrants” to technology. Therefore, different types of technology and space design will need to be
created to satisfy everyone’s need for technology in the classroom. Another participant stated that technology will give the college an opportunity to see a “completely different approach to the design of classrooms, and Owens Community College will be on the forefront due to its ability to change quickly.” Other comments from participants indicated that society will see the most advances in a “1,000 years” and will use different methods to deliver education.

In support of this theme, an article by Jamieson, Monash, and Lippman (2005) reinforced the idea that educational institutions will need to change space to accommodate future students’ needs. Jamieson et al. made the point that colleges and universities have been teaching in a similar classroom layout for more than 100 years. Due to the changes in the learning styles of students and the demands of the job market, institutions will need to develop new designs to provide optimal learning environments. Respondents gave two examples of how classroom space needs have evolved at Owens Community College to provide a more suitable learning environment. The first example was the use of computers in traditional English classes. One participant expressed a serious desire to have all English classes taught in a computer lab setting due to the additional convenience that computers bring to the teaching process. The participant described the interaction between the students and faculty member in a class where corrections and additions to essays were accomplished in class as these
issues were discussed. According to the participant, this greatly enhanced the learning process in the classroom.

In support of the claim that Owens Community College’s learning environments have evolved, participants cited a second example, which was the need for adequate on-campus nurse training space that included the technologically advanced human patient simulator laboratory. They reported that the simulator adds a depth of realism to simulated training and helps prepare students for what they will experience in their future careers. The simulator allows students to practice on a life-like artificial patient that actually simulates human responses through the use of a computer program. The simulator walks students through the procedures of treating a patient undergoing cardiac arrest and other health issues to determine whether the proper steps were taken in response to the patient’s condition.

Changes to classroom design are often met with conflict. Jamieson (2003) made the point that it is difficult for people to move beyond how classroom environments have always been designed. Even the Ohio Board of Regents 2009 technology and facility report concluded that traditional classrooms serve as an adequate learning environment for many students (OBOR Second Report, 2009). Jamieson stated that maybe the terminology is part of the problem and that the term “classroom” should be replaced with “educational spaces.” This substitution might counteract the stigma and constraints that the term “classroom” has carried with it. Regardless of
nomenclature, the point still remains that to accommodate new technologies, educational space will need to be designed differently in the future.

A participant stated that space and technology go “hand in hand” and that technology will drive space. The participants generally agreed that more flexible space was needed to accommodate new technology, and they were unsure if Owens Community College’s current space could be modified. Examples given were the need to appeal to all learning styles through the use of technology, such as podcasting for auditory learners and the use of video games to increase critical thinking skills. The classrooms need to be modified to accommodate these learning styles and learning tools. One respondent stated that Owens Community College will need different perspectives to ensure that the right environment is created for the future.

In reviewing a college ad hoc committee report, the researcher found that Owens Community College has begun to address this issue by creating a Classroom of Tomorrow committee. The committee has been charged with making recommendations for adding current and future technology to classrooms. In spring of 2009, the committee, consisting of faculty and staff, submitted a recommendation to equip classrooms with document cameras, wireless networks, lighting control systems, close-captioning capabilities, student-response systems, and videoconferencing capabilities (T. Horrall, Classroom of Tomorrow Committee, personal communication, April 13, 2009). This process is not easily accomplished, nor is it inexpensive. The report also
suggested that to achieve these classroom technology goals, the college’s infrastructure may need to be upgraded to support the additional network and electrical load. The respondents stated that the technological enhancements were dependent on whether or not the college could afford all of the upgrades, which has been an area of concern for the college.

In reviewing a JDRM report on the college’s technology infrastructure, the researcher found that the college’s technology infrastructure has not kept pace with demand due to a lack of funding. The JDRM Company was commissioned by the college to create an appropriate plan of action to upgrade the college’s technology infrastructure. To remediate the deficiencies identified in the study, the college allocated nearly $1.3 million to begin the upgrade of the data center infrastructure. This included upgraded electrical services, new switches, new lightning protection, new uninterruptable power supplies, air conditioning, generators, and overall renovation of the data center (JDRM Report, personal communication, June, 20, 2008). The college’s administration plans to allocate additional money in fiscal years 2011 and 2012 toward future technology enhancements depending on the state’s financial health.

The researcher also studied whether Owens Community College would need additional space since advanced technology may allow the college to use its current space more efficiently. One point that was reiterated numerous times among participants was that technology cannot fully replace the need
for face-to-face social interaction. One participant commented that Owens Community College will “never replace classroom or traditional physical space—we will always need our space.” Another participant stated that space was still needed for classes to support social interaction. Participants also stated that to get the full college experience, one needs to interact with people.

While many of the participants strongly argued that space will be needed in the future, one participant stated that educational leaders in Ohio may have had a different plan. According to the participant, early in the chancellor’s tenure it appeared that technology would play a large role in achieving the chancellor’s goals of increasing the number of students in the education pipeline. The growth expected by the chancellor’s office would come in the form of students enrolling online, thus reducing the need for additional space at educational institutions. One participant stated that this expectation has not been realized, yet other participants reported that online education has helped reduce space issues at the college.

A March 2009 report by the Ohio Board of Regents on facilities and technology stated that in 2006, Ohio’s public and private institutions enrolled approximately 100,000 students in distance education courses, a 55% increase from the previous year (OBOR Second Report, 2009). The same report also stated that the rate of growth of Ohio’s online enrollment seems to be ahead of the national average. At Owens Community College, the growth
of online courses has been significant. The number of students taking at least one Web-based course has grown from approximately 1,100 students in 2003 to nearly 7,000 students in the fall 2009 semester and is expected to continue to increase (D. Rathke, personal communication, September 15, 2010).

The researcher could not substantiate whether technology has had an effect on space needs at Owens Community College. The college did not have definitive data to show the effects of technology on space needs. The main reason for this is due to the complexity of the variables involved. Due to the college’s significant enrollment growth, the large increase in the number of students taking online courses, and the college’s renovation projects, which have increased the number of classrooms, it was very difficult to determine the influence technology has had on the need for classroom space.

4.7 Impact of Politics

The second most influential category to be studied as a result of the PEST analysis was the political influences that affect the college’s delivery of education, space needs, and design. The researcher determined through federal and state policy analysis, interviews, reviews of college budget information, Owens Community College cabinet minutes, a chancellor speech, and Ohio Board of Regents reports that the following political themes will affect the delivery of education, space needs, and design at Owens Community College during the next four to six years:
1. State and federal funding of college-wide initiatives
2. Political action
3. Changes to public policy and programs
4. The effects of political influences on the College’s space needs

4.8 Funding of College-wide Initiatives

Through the review of Ohio Board of Regents reports, the college’s financial documents, personal communications, Sentinel Tribune newspaper articles, and through the interview process, the researcher found that the funding issues that face Owens Community College begin with the State of Ohio’s ability to fund higher education institutions at levels that meet the demand of the population they serve. Participants indicated that the current state budget situation is dire, and Governor Strickland’s promise to spare higher education from recent budget cuts was not kept. This was evident by the reduction of the State Share of Instruction (SSI) funding allocated to each educational institution in fiscal year 2010. In July 2009, the projected SSI was $451,413,305 for Ohio’s community colleges, but the actual funding only reached $432,283,628 for fiscal year 2010 (J. Satkowski, personal communication, March 22, 2010). The current state funding levels of Ohio’s colleges and universities give Ohio a national ranking of 39th in spending per full-time equivalent student (Strategic Plan for Higher Education, 2008). In fiscal year 2009, the college received $39.7 million in funding in the form of SSI. The college’s SSI funding was reduced to $38.7 million during the 2010
fiscal year, and further cuts are expected in fiscal year 2011 (J. Satkowski, personal communication, March 22, 2010).

The researcher found that funding issues have caused Ohio colleges to constantly rethink their educational delivery strategies and business practices. The example of sharing the development of instruction at various institutions to gain efficiencies was discussed during the interview process. Another example given by a participant described the desire of the Ohio Board of Regents to better utilize resources and contain costs through the sharing or combining of programs. The participant described a scenario where purchasing departments could be consolidated to gain efficiencies as well as increase the buying power through quantity buying. These types of initiatives have been encouraged by the state of Ohio and are part of the University System of Ohio plan.

Chancellor Eric Fingerhut reiterated the need for collaboration in a speech at the State of the Region conference held at Bowling Green State University (Fouts, 2010). The expectations were also outlined in the Strategic Plan for Higher Education 2008-2017, which stated, “A continuous improvement system will be created to identify spending efficiencies and productivity improvements and implement them statewide” (p. 11). A Regents report stated that “greater collaboration among institutions... can result in greater cost effectiveness among institutions” (OBOR Second Report, 2009, p. 3).
Through the interview process, review of the college president’s cabinet meeting notes, and review of the college’s financial documents, the researcher also found that efficiencies and productivity, and their effect on the delivery of education, was also important. One participant commented that the state’s cut in higher education funding has caused institutions to try to do more with less money. At Owens Community College, the researcher found this to be the case.

The Owens Community College President’s Cabinet has instituted a number of new programs or procedures to reduce costs (P. Jezak, personal communication, May 12, 18, 2010 and April 30, 2010). The college’s administration, for a second year, did not offer any classes on Fridays, Saturdays, or Sundays during the 2010 summer to help reduce energy costs. In 2009, the College saved approximately $150,000 in operating costs by closing down for 10 weekends in May, June, and July (J. Satkowski, personal communication, June 6, 2010). According to the provost, the college’s academic leadership also planned to review all of its academic programs to determine their financial viability.

These changes come at a time when education has been seen as a way for many lower socio-economic individuals to rise out of poverty. As enrollments have increased, the issue has now become the lack of funding provided to higher education institutions to educate people during high-demand periods, according to participants. Owens Community College alone
saw a 14.8% increase in student headcount in the fall of 2009 (J. Satkowski, personal communication, June 6, 2009). Many other Ohio community colleges experienced even larger enrollment growth during the same time period. This impacted the college’s building infrastructure and caused the college’s operations staff to convert spaces into classrooms that originally had been designed for other purposes. The lack of additional space will come at a considerable cost, according to one participant. The participant stated that if capital funding does not increase, the college will be seen as the “Titanic waiting to happen.”

The research conducted in this study shows that the lack of funding for space can and will impede the college in delivering education in an optimal learning environment. In 2009, the Ohio Board of Regents issued a report stating that Ohio has not kept up with the maintenance and renovation of its academic buildings for many years and has an overall need of $5 billion in deferred maintenance (OBOR Second Report, 2009). The report also stated that Ohio should be spending $170 million each year to maintain and renovate higher education buildings. According to college documents, Owens Community College has been working on expanding and maintaining its building infrastructure. The college recently spent in excess of $13 million for property acquisition, renovation, and maintenance for fiscal years 2008 through 2010.
The college’s six-year capital plan also calls for an additional investment of $17 million of state funding through fiscal year 2016 in building renovations and additions (T. Horrall, personal communication, March 22, 2010). In 2011, the college has plans to add additional classrooms on the Toledo campus but is dependent on state money to complete the project. The problem is that the future of state capital allocations and building renovation funding is unknown, stated one participant. According to information recently obtained from the Ohio Board of Regents staff, the budget for basic renovations and the capital allocation for new buildings will not be determined until 2011. If capital money is not obtained from the state, the college will not have the funding to continue with its six-year capital plan.

In conducting this study, the researcher found that the uncertainty of money being available for renovation and capital projects did not stop at the state level. In a bill proposed by Congress in 2010, money was to be allocated to help educational institutions fund capital projects. The problem was in the uncertainty of how the federal stimulus money would be distributed to institutions of higher education and the criteria that institutions would need to meet to obtain these federal dollars. President Obama’s plan for community colleges proposed a $2.5 billion fund to stimulate $10 billion in facility investments at community colleges (J. Fehrnrich, personal communication, July 15, 2009). The plan was intended to help colleges meet
future needs of students and employers by providing adequate learning facilities.

4.9 Impact of Political Action

In reviewing the interview documentation, the researcher identified one important political action theme that was addressed by only two of the college’s senior leaders due to its sensitive nature. The issue related to the leadership changes that Owens Community College will undergo in 2011 and 2012. The most immediate change mentioned was the potential replacement of a large number of board of trustees members in 2011. It is possible that more than 40% of the board’s membership will change by early 2011, and that number could increase to 66% by late 2011. This is due in part to two current board members’ decision not to seek reappointment to the board and the political uncertainty of reappointment of other board members.

In late 2010, Governor Strickland’s recommendations to fill vacancies on boards of trustees at all Ohio two-year colleges were rejected by the legislature. It will be newly elected Governor Kasich’s responsibility to make the appointments. Participants stated that this change will impact the delivery of education in the future due to the expectations of new board of trustees members and their ability to set policy. The effect of these changes will not be known until the new members have been appointed by the governor and a working knowledge of the new board members’ expectations is determined.
Through the review of the Strategic Plan for Higher Education 2008-2017, the researcher also found, in addition to the membership changes in the board of trustees, other political action at the state level that will influence the delivery of education at Owens Community College. One participant stated that the chancellor has made numerous changes that impact how education is and will be delivered in the future and that many more changes were planned. These planned changes were outlined in the Strategic Plan for Higher Education 2008-2017. The chancellor’s plan, in conjunction with the governor, called for a more unified university system within Ohio.

The sustainability of the plans put forth by the chancellor could be challenged if the incumbent governor is not reelected, stated one participant. The participants also stated that further stressors will be added to the implementation of the new University System of Ohio because the chancellor’s position is politically appointed by the governor’s office. This organizational change occurred when the current governor appointed Chancellor Fingerhut in 2007. Governor Strickland stripped the responsibility of the appointment of the chancellor from the Ohio Board of Regents and made the chancellor a cabinet-level position reporting directly to the governor. One participant stated that Owens Community College will not know the direction that higher education will take until the 2010
gubernatorial election has been completed and the chancellor appointment has been made.

4.10 Impact of Changes to Public Policy

The theme of changes to public policy and programs was identified through review of the Ohio Board of Regents Strategic Plan and President Obama’s Federal Stimulus Plan, the American with Disabilities Act, the Higher Education Opportunity Act, and the interview transcripts. The researcher concluded that the chancellor’s plan to increase enrollment by 230,000 students by 2017 would rely heavily on a variety of programs, such as dual enrollment, the seniors-to-sophomores program, and the post-secondary options program.

These programs are part of the state’s strategic higher education plan 2008-2017 but seem to be implemented inconsistently. Participants suggested that these types of programs were worthwhile but may need clarification regarding their implementation. Owens Community College administration is currently seeking the guidance of the Ohio Board of Regents regarding the proper method of implementing a dual-enrollment program. The researcher also attended an Ohio Association of Community Colleges (OACC) Fiscal Officers meeting in Columbus on November 12, 2010, in which the dual-enrollment program was discussed. At the meeting, the president of the OACC, Ron Abrams, stated that a committee was being formed to review how dual enrollment should be implemented at Ohio’s
colleges and universities. He also stated that recommendations would be forthcoming from the committee in the near future.

Once the implementation methodology has been determined, Owens Community College plans to partner with many local high schools to offer college credit to high school students. One participant, who is a product of the post-secondary options program, indicated support for these types of programs. Participants also stated that completing courses while in high school helps students get through the educational pipeline quicker, which adds to Ohio’s goal of increasing the number of college graduates by 20% by 2017 (OBOR Strategic Plan, 2008).

The study also found through the interview process that President Obama’s emphasis on education was welcomed and especially important to community colleges. Participants discussed competitive grants that are available in 2010 due to the federal stimulus package. These grants allow the college to compete for federal dollars. Other programs, such as grants from the Economic Development Administration, were also suggested as possible ways for Owens Community College to fund additional projects and to help create jobs using federal dollars. The researcher found that Obama’s federal programs have the potential to significantly affect Owens Community College’s delivery of education during the next four to six years through the creation and funding of new programs. Obama’s plan, which includes the Community College Initiative, is geared toward making the United States’
college graduation rate the highest in the world through the creation of new programs (J. Fehnrich, personal communication, July 15, 2010). The first new program is the Community College Challenge Fund, which would provide competitive grants that community colleges and states can apply for to provide support services, expand program offerings, create and expand innovative reforms, and improve remedial and adult education. The fund will consist of $9 billion over a 10-year period (J. Fehnrich, personal communication, July 15, 2010). The second new program is the College Access and Completion Fund, which consists of $2.5 billion over a five-year period that would be used to increase graduation rates and narrow achievement gaps at community colleges (J. Fehnrich, personal communication, July 15, 2010). A New Online Skills Laboratory is the third new program and would be funded at $500 million over 10 years. This is a grant program that will help create more open access to online courses. The Departments of Defense, Education, and Labor would be involved, as well as a few community colleges. The academic credit would be awarded on achievement rather than class hours. Obama’s plan is to increase the number of Americans earning a college degree in the next 10 years by five million (J. Fehnrich, personal communication, July 15, 2010).

While it may take time to evaluate the success of the aforementioned programs, it is evident that some of Obama’s initiatives have already made an impact on the delivery of education at Owens Community College. In
2009, the college benefited from a $1.9 million federal stimulus grant to provide training in the areas of green energy, nurse aid training, and HVAC training to unemployed workers. This infusion of dollars allowed Owens Community College to create new program offerings, such as the green energy program, and expand the current nurse aid training program.

The researcher found, through the review of federal programs such as the Higher Education Opportunity Act and the American with Disabilities Act, as well as the interview process, that these federal programs have had an effect on the delivery of education. The Higher Education Opportunity Act (HEOA), which was passed in August 2008, impacted the delivery of education in terms of distance education policies, and it further clarified verification and identification procedures for students taking distance education courses. The changes to the Act defined distance education for the purpose of meeting established eligibility requirements for Title IV financial aid programs. The Act includes items such as broadband, fiber optics, satellite, and wireless communication devices as methods of delivering distance education (Middle States, 2010). This has provided the college more flexibility in the ways it delivers its educational products and allows students to remain eligible to receive Title IV financial aid assistance.

In addition, blended format courses were no longer considered online courses according to the modifications in the Higher Education Opportunity Act. Additions to HEOA also have provided institutions of higher education
guidance in verifying online students’ identities by establishing a systematic approach that uses secure logins and passwords (Middle States, 2010). The new regulations have allowed the college to keep pace with the new technologies that companies are using to conduct business. Items such as electronic signatures and verification of online identities serve as examples of the technologies that colleges would be able to better utilize under the new rules. These changes to HEOA must be instituted at Owens Community College by the appropriate deadlines for the college to remain eligible to receive federal financial aid dollars.

In addition to the programs already mentioned, the interview process and the review of the federal financial aid programs revealed that federal financial aid initiatives are an important factor in assisting students in obtaining an education. One participant stated that financial aid would be easier to obtain in the future, especially for underserved, part-time students. This may be true because the application for federal financial aid was revised and made easier to complete. Also, the Obama administration plans to invest $40 billion to increase the Pell grant maximum to $5,550 in 2010 and to $6,900 by 2019 (S. Franz, personal communication, August 3, 2009). This increase would assist low-income students in paying their college costs using grant dollars instead of student loans. The Obama administration’s plan also has mandated low interest rates on subsidized student-loan programs, which
will make it easier for students to repay their loans once they have graduated.

Another participant stressed the important role that financial aid has played in bringing students into educational institutions and the role of the federal government in funding financial aid programs. At Owens Community College, more than 65% of the student body receives some type of financial assistance. The amount of aid dispersed at the college has increased from approximately $23 million in 2001 to more than $110 million in 2009. The majority of the growth has been from federal aid programs and is expected to continue to increase in the future, according to college officials (B. Johnson, personal communication, March 24, 2010).

Another federal program that was discussed during the interview process, and found to potentially impact the educational delivery strategies at Owens Community College, was the American with Disabilities Act (ADA), which now allows the definition of “disability” to be interpreted on a broader basis. This will, in fact, make it easier for an individual seeking protection under ADA to make his or her case (EEOC, 2009). One interviewee stated that these changes, which may expand the types of disabilities the college will need to accommodate, will definitively have an impact on delivery of education at Owens Community College. A participant gave two specific examples, one of which was the size of individuals due to the rise in the number of people who are obese, and the other was the level of learning
disabilities. The participant stated that classrooms may have to be designed differently to accommodate the size of individuals as well as to accommodate different delivery methods to provide a proper learning environment for those with learning disabilities. The college has not experienced an increase in the number of requests for accommodations, but it is aware of the potential impact due to the changes in the Americans with Disabilities Act.

4.11 Political Impact on Space Needs

The researcher also identified the theme that political influences at the state level will impact Owens Community College’s space needs during the next four to six years. Through the analysis of the State of Ohio’s Strategic Plan for Education 2008-2017, meeting minutes of college meetings, and comments obtained through the interview process, the chancellor’s desire to increase the number of college graduates in Ohio by 230,000 by 2017 was found to be important by the researcher.

The participants stated that the chancellor was not interested in expanding institutions to achieve his goal due to his belief that Ohio colleges are land rich. The participants stated that the chancellor’s goal could be met through programs such as post-secondary enrollment options or dual-enrollment programs. These programs may not require additional classroom space because in many cases classes have been held at high schools.

It is difficult to substantiate the participant’s claim regarding the chancellor’s opinions on space at community colleges. Rather, what was
substantiated through reviewing the state’s strategic plan for higher education was the fact that there is a development plan in place for community colleges over the next several years. The plan stated that the “vast majority of the new students who will enter the University System of Ohio in the coming years, particularly those 230,000 who will represent the bulk of the increased enrollment that Governor Strickland has called for, will come through the community colleges” (Strategic Plan for Higher Education, 2008, p. 51).

The researcher found that enrollment trends have been increasing at Ohio’s community colleges in recent years and are expected to continue to increase. In a recent report to the Ohio Board of Regents on anticipated future enrollments, some Ohio community colleges reported expected enrollment increases as high as 40% to 85% by 2014 (OBOR, 2010). To reach enrollment goals, the Ohio Board of Regents Strategic Plan for Higher Education (2008) outlined five key strategies that were imperative to the overall success of the University System of Ohio plan, three of which will have an impact on Owens Community College space needs.

The first strategy was to create an integrated course and program network that would allow institutions to offer programs developed at other community colleges. The creation of an integrated course and program network would allow the college to expand its program offerings through the use of programs at other institutions. While it is currently unclear how these
programs would be delivered, the positive effect of expanded offerings will be significant to the students the college serves. With the delivery method unknown, the impact on the college’s space needs remains undetermined.

The second strategy was to allow students to be dually admitted to a community college and a university. The college will be able to advise students in ways that allow for maximum credit transfer as well as reap the benefits of potentially higher student completion rates. While the college was unable to identify whether any current students were dually admitted, the potential of the program is great, and the college will need to prepare for the additional enrollment increases by providing adequate learning environments.

The third strategy was to suggest that certain degrees at community colleges should be fully transferable to Ohio’s public four-year institutions and that anyone with a high school diploma or a GED would have access to a community college education. Through this program, students are allowed to obtain a cost-effective two-year degree at the college while on a pathway to obtaining a four-year degree. This program also has the ability to increase the college’s enrollment.

The researcher, through this study, has provided evidence that funding, political action, and public policy and programs will play a role in determining how the college will structure its delivery of education as well as its space needs to achieve its goals.
4.12 Impact of Economics

The economic influences on the delivery of education and space design at Owens Community College during the next four to six years were also studied. The study identified the connections among the cost of education, delivery of education, and space needs. For Owens Community College, the cost of education is vitally important to the students it serves. Without adequate future funding, the college will be unable to provide optimal learning environments or cost-effective solutions. Without adequate funding, students will be unable to afford college, thus reducing the need for the college’s services. As a result of conducting interviews, reviewing documents generated by the board of trustees, conducting research through personal communications, and reviewing news articles and state agency information, the study found that four main economic effects will influence the delivery of education and space needs and design at the college during the next four to six years.

They are as follows:

1. The impact of tuition, state funding, and federal funding on the college’s ability to delivery education
2. The ability of the college to fund the delivery of quality education through small class size and class offerings
3. The effect of economic influences on the delivery of education by affecting the methods by which classes are offered

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4. The effect of economic influences on space design and needs of the college

4.13 Impact of Funding on the Delivery of Education

The researcher found that the funding of education is the most important economic issue that faces the staff and students at Owens Community College and will impact the college’s ability to deliver education in the near future. There were three major funding streams identified in the data analysis: tuition, state funding, and federal funding.

Through a review of national studies, State Higher Education Executive Officers Association documents, personal communications, *Chronicle of Higher Education* news articles, Ohio Board of Regents information, and a speech by President Obama, the researcher concluded that tuition costs are a primary concern nationwide and even have the attention of politicians in Washington, D.C. In April 2009 during a nationally televised speech, President Obama castigated colleges over tuition increases (Field, 2009). The president was quoted as saying, “Colleges and universities have a responsibility to control spiraling costs” (Field, 2009, p. 2). The researcher found that the increase in the cost of education has been dramatic during the last 25 years. According to the National Center for Public Policy and Higher Education, tuition and fees have increased more than 440% in the last 25 years, which is more than four times the rate of inflation (Cronin & Horton, 2009).
For Ohio, limiting tuition increases was much easier two years ago. Governor Strickland pledged to provide state funding in lieu of colleges and universities raising tuition. For a two-year period, tuition freezes existed at public two- and four-year institutions in Ohio. In 2009, that pledge for financial support ended, and public institutions were allowed to raise tuition 3.5% each of the next two years. Owens Community College raised tuition in the spring of 2010 and again in the summer of 2010 (J. Satkowski, personal communication, March 20, 2010). While participants praised Owens Community College for ranking sixth in the state for low tuition costs, the participants did voice their displeasure in passing the rising cost of education on to the students each time there was a state budget cut or the need for additional funding. This sentiment also has been shared by the college’s board of trustees. Board members have voiced concerns during finance committee meetings in which tuition increases were proposed but stated that there are not many ways to increase revenue when the only other major source of funding, besides tuition, is state subsidy (OCC BOT, 2009). Extensive conversations relating to funding and revenues have also occurred at the president’s cabinet level. The study found that the college will need to determine the appropriate funding balance between state revenue sources and tuition revenues. This will help ensure the delivery of education to all citizens who desire a college education.
The desire for a college education definitely has increased among students attending Ohio’s community colleges. The researcher found that Owens Community College and other colleges and universities in Ohio have experienced a surge in the number of students who are interested in higher education. Ohio’s community colleges’ preliminary enrollment growth for fall of 2009 ranged from a 38% increase at Cuyahoga Community College’s Metro campus to a 3.6% increase at Lakeland Community College (Regents, 2009). Owens Community College experienced a 23.1% increase in the number of students attending its Findlay campus and an 8.9% increase in the number of students attending its Toledo location. This resulted in an additional 2,310 students attending college during the fall of 2008. A review of personal communications, Chronicle of Higher Education newspaper articles, and state reports revealed that the issue has now become one of state and federal funding of higher education institutions and the ability of these institutions to deliver education to their ever-increasing numbers of students. Lingenfelter stated, “The big story is that demand for higher education is outstripping the ability of states to finance it” (as cited in Kelderman, 2010 p. 1).

For Owens Community College, the reduction of state funding to higher education institutions has been a major concern. The college receives approximately 45% of its funding in the form of State Share of Instruction (SSI). SSI has been based on the number of full-time equivalent (FTE)
students who enroll at the college and the amount of money the state allocates to each FTE. For Owens Community College, the level of state funding based on the number of FTE students has fluctuated dramatically during the last decade. In 2001, the college received $4,327 per full-time equivalent student, which was reduced to $2,960 in 2004 and then increased to $3,830 in 2009 (T. Reed, personal communication, March 3, 2010). Owens Community College officials expect the SSI amount to again decrease with the current state of the economy, which would potentially impact the college’s ability to deliver educational programs.

College officials also have stated that the seriousness of the next state biennium budget will not be known until fiscal year 2012. This sentiment was also expressed by economist Michael Strauss. Strauss has stated that income tax revenues will continue to decline through 2010, causing many states to continue reducing their budgets (Ajula, 2009). This phenomenon has been prevalent across many states, according to a recent analysis conducted by the State Higher Education Executive Officers Association (State Finance, 2010). The analysis concluded that even after the recession is over, states will experience difficulty restoring funding to higher education (State Finance, 2010). In a 2009 Chronicle of Higher Education survey of chief financial officers at four-year institutions, 62% felt that their institutions had not yet experienced the worst of the financial crisis (Blumenstyk, 2009).
For Ohio, part of the problem stems from the fact that stimulus money was used to offset the state of Ohio’s budget deficit. This funding consisted of one-time federal dollars and will not be available in the 2012 budget cycle. For Owens Community College, this will amount to a loss of $6.5 million in state funding. The researcher concluded that the potential loss of stimulus monies would have a serious impact on the state’s ability to fund higher education as well as fund capital projects. According to some participants, without adequate funding, the college will have a difficult time hiring faculty and staff at competitive wage rates, paying reasonable benefit packages that include strong health care programs, and funding building renovation projects. It was evident from the financial information reviewed that financial challenges will be significant in the next several budget cycles, and these challenges will impact the college’s ability to deliver its educational products.

The researcher also concluded after reviewing state and federal program funding that reduced funding of state and federal financial aid programs also has been an area of concern for Owens Community College students. The results of the study indicate a need for adequate funding of aid programs to ensure students have access to higher education. Funding is a problem both on federal and state levels. On the federal level, the Pell Grant may be one of the only federal financial aid programs to receive additional funding. The Federal Work-Study program and the Supplemental
Educational Opportunity Grant are slated to provide only the same amount of funding for the college as in previous years. An absence of additional funding for these programs and an increase in the number of students vying for this financial aid means more students will be unfunded.

On the state level, the Internship and Cooperative Program was cut by approximately $100 million to help offset the state’s budget deficit. Changes to the Ohio College Opportunity Grant also affected student aid recipients at Owens Community College. With the recent changes to the eligibility criteria, students at the college no longer qualify for this program. It was estimated that Owens Community College students lost more than $5 million in state aid, which will affect the ability of many students to attend college. Equally important, the researcher identified the need to help students with the amount of debt that they incur while attending college. According to a policy brief by the College Board, the median loan debt was $19,999, up from $18,973 (Lewin, 2009 b). Asher, the president of the project on student debt, stated that students have been asked to shoulder more of the costs of higher education by taking on debt because state funding, financial aid programs, or families’ ability to pay have not kept pace with the cost of higher education (Lewin, 2009 b). This will impact students’ ability to attend college and ultimately affect the college’s ability to deliver education.

Interviewees stated that the college should look for additional revenue streams, such as targeted research grants, and the incubation of businesses.
For Owens Community College, the increase in grant funding has been substantial during the last five years. According to the Owens Community College grants accountant, the college received approximately $1.4 million in grant dollars in 2003, compared to $3.1 million in 2008 (P. Smith, personal communication, March 29, 2010). College officials have continued to make the process of applying for grants a high priority. In addition one participant discussed outsourcing as a potential idea to reduce costs and increase revenues. The participant cautioned that outsourcing is not always in the best interest of the college and that college officials will need to seriously explore what will provide the best services to the students it serves.

4.14 Impact of Funding on the Quality of Education

The college’s ability to deliver quality education was identified as the second major theme contributing to the economic finding. The quality concerns identified relate to the college’s ability to maintain small class sizes and offer a wide variety of classes using fewer resources.

It was identified as a concern by the participants that quality may suffer if the small class sizes at Owens Community College cannot be maintained because of the increases in enrollment that the college has experienced. In addition, the college may not be able to offer the same number or variety of classes due to economic issues. These same limitations recently affected Miami Dade College. In the fall of 2009, more than 30,000 students were unable to register for the classes they desired because funds
were insufficient to hire instructors and advisors (Blumenstyk, 2009). The same situation may occur in California. If cuts to the budget are enacted, then an enrollment decline of 250,000 students is expected due to the need to eliminate courses and lay off thousands of staff and faculty members in an effort to help balance the budget (Keller, 2009). This would be especially problematic for Owens Community College because the college has been creating new classes to train students in emerging career fields, such as alternative energy. One participant stated that the “bottom line is that there is economic benefit to pursuing new technologies, and the economy drives what we teach more than anything else.” Through the interviews, review of newspaper articles, and federal and state program reviews, the researcher concluded that the economy will impact the college’s ability to fund upgrades to current programs, which may impact how education is delivered as well as the quality of the programs offered. These issues will ultimately impact the college’s ability to attract and retain students.

4.15 Impact of Funding on How Classes are Offered

The third theme, identified through interviews, review of college meeting notes, and research by higher education researchers, showed how economic issues will impact the delivery of education by influencing how classes are offered. One participant stated that Owens Community College will need to offer a more flexible delivery method, such as an open-entry, open-exit model, which will allow students to take smaller chunks of classes
at a time. More online classes will need to be offered because students will have a difficult time enrolling in on-site classes during these difficult economic times, in part due to the cost of transportation. According to one participant, with an increase in the number of classes offered online, the college will also have to increase its support services in order to help students succeed. The director of the Cornell Higher Education Research Institute agreed that institutions that are expanding online program offerings must increase the support services that are vital to the success of students (The Editors, 2010).

The problem with this type of thinking, according to Blumenstyk (2009), is that this financial upheaval has caused institutions to delay spending money on new initiatives and to reduce costs where possible. For Ohio institutions, the chancellor also has an expectation to reduce costs through the University System of Ohio. These cost-saving expectations may also have an impact on delivery of education in Ohio. According to one participant who holds a leadership position at the college, the Ohio Board of Regents would like Owens Community College to become a leader in northwest Ohio. This may lead to partnerships with area educational institutions and increase Owens Community College’s class offerings in the region. This would give the college the opportunity to deliver its educational product to a larger population base in a cost-effective manner. There has also been some discussion with area institutions about their ability to collaborate
on “back room” operations, such as purchasing services and information technology services, which would allow the college to benefit from economies of scale and reduce costs. Talks between representatives of local higher education institutions have occurred as recently as February 2010. Meetings were held between Northwest State Community College, Terra Community College, the University of Toledo, Bowling Green State University, and Owens Community College to discuss ways to collaborate to gain efficiencies. Additional meetings are expected to be held in the near future.

4.16 Impact of Funding on Space Needs and Design

The fourth theme that contributed to the formulation of the economic finding was how economic influences affect space needs and design at Owens Community College. The most significant factor was centered on the State’s funding of capital projects and its impact on the college when it is reduced. One participant stated that Owens Community College will not be able to fund future buildings and renovations due to state capital budget constraints. The need for additional space for the downtown campus was the example that was used to illustrate the point. In reviewing Owens Community College’s six-year capital plan, the researcher found no additional capital funding request to build a new campus downtown, even though enrollment has increased to more than 800 students during the last three years (T. Horrall, personal communication, March 22, 2010). If additional space cannot be
obtained, the college will have no choice other than to limit the number of students who can be served at the downtown Source Learning Center.

The researcher found that Owens Community College will need to continue to be prudent in its current use of space as well as in the design of future classroom space. The acquisition of the Penta buildings was determined to be a positive move and will serve the Owens Community College Perrysburg Township campus for many years. The college has also strategically planned its use of space in the future, which has been identified in the college’s six-year capital plan. The capital plan calls for the creation of 35 state-of-the-art classrooms and laboratories, renovation of numerous other academic areas, and an addition of classroom space on the college’s Findlay campus. If the college is not successful in obtaining state capital monies to complete these projects, the delivery of education will be impeded by the college’s lack of space.

Future financial prospects have been bleak, and financial officers at many colleges predict that more economic hard times are ahead (Blumenstyk, 2009). At Owens Community College, numerous meetings have taken place in the Business Affairs office to plan for further cuts in funding to higher education. The college has been working to create tighter budgets for fiscal years 2010 and 2011 to allow for end-of-year general fund surpluses. These surpluses will be utilized to offset the anticipated funding cuts in fiscal year 2012 (J. Satkowski, personal communication, May 3, 2010). The college has
scrutinized and will continue to scrutinize all program additions and expansions to determine which initiatives will best utilize the college’s resources.

4.17 Impact of Social Influences

The next section focuses on the social influences of the PEST model and its impact on the delivery of education at Owens Community College during the next several years. The research findings suggest that social influences will play a major role in delivering education and in designing optimal learning environments. Four significant themes contributed to the finding:

1. The impact of student capabilities and generational differences on the delivery of education and space design
2. The impact of social issues on program offerings
3. The impact of students’ needs and social issues on the delivery of education
4. The impact of students’ expectations on space design

4.18 Impact of Generational Differences on the Delivery of Education

It was clear from the information obtained from interviews, the Kaiser Family Foundation, and an ACT national data release that students attending college today are very different from students who attended two decades ago. One participant stated that the younger students are “wired
differently because they have multi-tasking brain development, and this will continue to change and increase from generation to generation.” In the Kaiser Family Foundation study (2010), researchers found that current young people, in fact, do things differently than previous generations. The study reported that almost 30% of the time young people were using more than one media at a time. The study also showed that 31% of the young people surveyed stated that while doing homework, they were also either watching TV, texting, or listening to music (Kaiser, 2010).

The interviews and national ACT information revealed that generational differences in the classroom also played a role in how education was delivered. Respondents stated that it was “challenging” to teach to all age groups of students and that “generational differences are huge and affect the delivery of education.” One participant stated that there were lost generations who were not competent in math, science, critical thinking, and writing. In a national data release from ACT in 2004, the respondents’ fears were proven justified. ACT test scores indicated that many students may not be ready for college-level math or science classes. The data showed that about 26% of 2004 graduates obtained a score of 24 or higher in science, and just 4 in 10 earned a score of 22 or higher in math (ACT, 2004). These benchmark scores played a key role in predicting whether or not students were successful in passing college-level courses. In the area of writing, one-third of the test takers scored lower than 18, which indicated a potential problem in passing a
college writing course (ACT, 2004). Students who did not meet the minimum college-ready benchmark scores were less likely to be successful in college (ACT, 2004).

At Owens Community College, approximately 57% of students took a remedial course in one or more subjects during the 2009-2010 academic year (A. Fulkerson, personal communication, August 26, 2010). The challenge for the college will be to find a way to deliver education to meet the different needs of students. It was evident from the data analysis that Owens Community College will continue to be overwhelmed by people who need an education but are not prepared to attend college. The college recognized the need to provide additional support for underprepared students and has been piloting a program that addresses the remediation of students who are not ready to attend college. The Summer Bridge to Success Program has been working with students who were in need of assistance to prepare for college and provided them with assistance during the summer semester. The program introduced students to the language and culture of college as well as provided students with a success mentor. Students participated in workshops that focused on the development of proper study skills and life skills (OCC Success Plan, 2010). As the need for assistance continues to rise, Owens Community College must provide adequate resources to expand the Summer Bridge to Success Program to meet the student demand.
Other generational differences also added support to the social finding. The point was made by a participant that many younger students have “helicopter parents.” The participant explained during the interview process that these students’ parents retard their son or daughter’s social development by constantly intervening on the student’s behalf in any situation that arises. In a 2008 *Chronicle of Higher Education* article, half of the admission officials surveyed stated that the number of helicopter parents had increased significantly (Hoover, 2008). One example that was shared in the interviews was that parents frequently called the Owens Community College help desk demanding access to their son or daughter’s college email account to “see what they are doing.” In a survey by Noel-Levitz and the National Resource Center for College & University Admissions, it was found that more than 25% of the parents surveyed stated that they have or would consider posing as a student to complete college paperwork (Noel-Levitz, 2008). To proactively address these types of issues, the respondent suggested that Owens Community College start by offering a class for parents to help them make the psychological transition from having a child in high school to having a child in college.

### 4.19 Impact of Social Issues on Program Offerings

The study found that to meet the demands of job markets, embrace new technologies, and account for generational differences, modification to program offerings will be required. It is important for the college to be aware
of emerging technologies and the need for a skilled workforce in these new industries and add programs accordingly. One example was the emerging field of green energy and the fact that Northwest Ohio is quickly becoming a leader in photovoltaics. In Governor Bob Taft’s State of the State address in 2006, he stated, “The U.S. Bureau of Labor Statistics reports that 40 of the top 50 fastest-growing occupations in the nation now require at least some education after high school” (Taft State of State, 2006, p. 1). Taft went on to say that by 2012, 40% of manufacturing jobs will require some college education (Taft State of State, 2006).

When adding new programs, Owens Community College must also consider the state of Ohio’s desire to promote partnerships and reduce duplication of programs. In the State’s strategic plan for higher education, it was written that the “The University System of Ohio will end the counterproductive competition among institutions” (Strategic Plan for Higher Education, 2008). The Ohio Board of Regents Strategic Plan for Higher Education reiterates the need to create an integrated course and program network for all of Ohio’s community colleges. This program will help institutions address issues associated with the sharing of courses and programs (Strategic Plan for Higher Education, 2008). It will also give students access to programs that their local institutions do not offer, thus expanding students’ choices of programs of study.
4.20 Impact of Student Expectations on the Delivery of Education

Another theme that contributed to the social finding was students’ expectations in delivering education. It was stated that students have a need for immediate gratification and want to “get in and get out” of class because they have other obligations. Interviewees stated that convenience and flexibility were key components to the success of students. The example was provided that all student emails should be answered within 24 to 48 hours. The researcher found that class times should be convenient and based on students’ needs and that 24 hours a day seven days a week availability of services will be expected in higher education.

While the time frame for answering emails may be a contractual issue, the extended offering of classes may be an option for Owens Community College to explore. The practice of offering classes later in the evening into early morning is taking place at other colleges. Bunker Hill Community College conducts some classes from 11:45 p.m. to 2:30 a.m., and Clackamas Community College holds welding classes until 2 a.m. (Goodnough, 2009). While these colleges added the classes due to enrollment increases and space constraints, many students do not seem to mind. One student even quipped that there is plenty of parking at that time of night (Goodnough, 2009).

Through analysis of the interview transcripts, the researcher also identified a trend of entitlement that seemed to be emerging when working with students. Lalonde, who works in admissions at the University of
Virginia, concurred that an entitlement generation has been entering college (as cited in Hoover, 2009). She has found that younger college students want problems to be solved for them and do not want to be bothered with challenges (as cited in Hoover, 2009). The respondents added that they were seeing more and more cases in which students believe that because they pay for classes, they are entitled to an “A” grade regardless of whether they earn it. One respondent stated that younger students do not always see what faculty members are trying to do, and “if the class is easy, it won’t help you [the student] in the future.” A participant stated it best when he said that it must not be forgotten that faculty are experts and have the right to pass or fail students.

4.21 Impact of Student Expectations on Space Design

The last theme that contributed to the social finding was student expectations and needs in the design of educational space for the future. Open and flexible space was identified as an important aspect in the study. In the interviews, participants stated that during the next five to six years, open environments will affect how space will be designed at Owens Community College. It was also stated that space should be designed for the optimal learning environment, which included flexible seating.

As new spaces are constructed or older spaces are renovated, the researcher found that flexibility must be built into the classroom to encourage a more collaborative and comfortable learning environment. A
participant stated that classrooms will evolve from the traditional table-and-chair setting to more of a “lounge-type setting.” Another comment was that a “more relaxed environment will help the learning process.” This point was supported in a 2009 webcast presented by the Society for College and University Planning (SCUP). The presenters in the webcast stated that “re-invented” classrooms consist of “comfortable, flexible, highly functional, integrated infrastructure and creative space” (SCUP, 2009). This means that “learning studios” (in contrast to “classrooms”) will consist of ergonomic furnishings that can be easily reconfigured. In addition, the space can promote active, collaborative, and social learning in a mediated environment (SCUP, 2009). These types of flexible environments will allow the college to use these spaces for a variety of classes, which will help alleviate space challenges.

After reviewing the interview information and the college’s internal processes, the researcher also concluded that Owens Community College must have enough space to keep the class sizes small and that facilities must be pleasing to the students. One participant stated that the younger students of today want a less formal setting, and this is partially the result of differences in their preferred styles of social networking. During the interviews, it was pointed out that “gathering spaces” were important and may need to be designed to meet the needs of the different generations. The example cited was that Bowling Green State University has a “commuter
lounge,” and this same concept could be used to provide a friendly and comfortable place for people to gather in between classes.

It was also stated that younger students expect Owens Community College to look more like a “real” college by providing a student union environment. In a recent renovation of Owens Community College’s Founders Hall, the college addressed some of the comments made by participants. The college’s planning department worked with architects to design space that was different from any other space at Owens Community College. Founders Hall was designed to promote interaction between students and faculty and also between students and students. The building has multiple rooms that are designed for group study as well as space for social interaction. The architects stated that they designed the building for multiple purposes in mind, which included classroom space, study space for groups and individuals, and space for social interaction. While the classroom space in Founders Hall has not been developed with a lounge atmosphere in mind, college officials have been developing a plan to address the recommendations of the Classroom of Tomorrow Committee. The college has been reviewing the recommendations and will use this information as it begins to build additional classroom space in Heritage Hall.

4.22 Summary

Based on the data collected, it was clear to the researcher that Owens Community College’s delivery of education and space needs will be impacted
by technology, politics, economics, and social issues during the next four to six years. The researcher has concluded that technology will have the largest impact on the college as a result of adopting new technological tools that will transform the way education will be delivered. With the introduction of these new technologies, faculty and students will need to develop skills to be able to utilize these new tools. These tools will also change the way classrooms are designed and used.

The study also identified a number of political themes that led to the overall finding that politics will influence the delivery of education, space needs, and design at Owens Community College. These themes included the lack of state and federal funding for the college as well as political actions that will affect the college’s governance structure. Additionally, political policy and program changes added to the influences that are affecting the college’s ability to educate students.

Economic influences also played a role in the college’s ability to deliver its educational product in an optimal learning environment. Funding and quality issues were a major concern for the college as well as how funding will impact how classes are offered. The college will need to monitor the funding situation closely in the next five years to determine an appropriate financial strategy.

All of the above findings will be complicated by the social needs and desires of students. The study also found that social issues will impact the
college during the next four to six years. The college will need to develop a strategy to embrace generational differences that will impact the delivery of education, program offerings, and space design.

All of the findings, as well as the identified key themes, can be used by the college in the development of its long-term strategic plan. The information can also be used at the departmental level to assist chairs, deans, and faculty in the development of departmental goals. Overall, the information can be used by the college as a road map to increase student success, provide students and faculty with optimal learning environments, and identify budget priorities.
Chapter 5

5.1 Conclusion

The purpose of this study was to investigate the influence that political, economic, social, and technological factors will have on future educational delivery strategies, space needs, and design at Owens Community College.

It was evident from the information collected through the interview process and from the extensive document review that all of these factors—political, economic, social, and technological—will play a role in the future development of Owens Community College. The researcher determined that political, economic, and social issues will influence the delivery of education during the next four to six years but to a lesser extent than will technology. The political influences that the college will face will be of importance, but the results of this study suggest that the college is well positioned to react to changes in the political environment. Political action and public policy changes will indeed require the college to adapt its programs and strategies as new federal and state programs and mandates are introduced. For example, the elimination or reduction of student financial aid funding or structural changes to the Higher Education Opportunity Act or the American with Disabilities Act are policy changes that will impact the college in the future. Another example is the disruptive political environment that currently exists in the appointment of Ohio’s chancellor and the Owens
Community College Board of Trustees members. Due to the election of a new governor and appointment of a new chancellor, significant uncertainty exists in the continuation of the 10 year higher education plan outlined by the former chancellor Fingerhut. The college has already formulated plans to contribute to the state’s 10 year higher education plan but may have to alter their course of action dependent on the strategic vision of the new chancellor. Equally important is the appointment of a majority of new trustees to the college’s board of trustees. The appointment of new board of trustee members is an important aspect to the strategic development of the college and may cause the college’s strategic direction to be revised.

Even with the uncertainty and challenges outlined above, based on document analysis, personal communications, federal and state policy review, and interviews, the researcher is confident that the college’s senior management staff has a comprehensive understanding of the challenges and influences facing the college. The researcher is also confident that the college’s administrators are prepared to continuously monitor changes to the political landscape at the state and federal levels and will react to any changes that may occur. The researcher has determined that the college’s administration is poised to implement any mandatory state or federal policy changes that may arise during the next four to six years.

Social issues will also influence the college’s delivery of education. Student expectations and generational differences will influence the way the
college interacts with the students it serves. The researcher determined that services and programs will need to be adjusted and developed to ensure the college meets students’ needs and expectations. The researcher determined that the college’s leadership has emphasized the need to increase support services and react to generational differences. The researcher also determined that the Summer Bridge to Success Program is an excellent example of the college’s commitment to addressing the social differences and needs that exist in the student population the college serves. The researcher is confident that the college’s leadership is developing a plan to ensure social needs and demands are met during the next four to six years.

The researcher has also determined that economics will play a large role in the ability of college administrators to deliver the college’s educational product. With significant budget decreases anticipated in fiscal years 2013 and 2014, the college’s senior staff has been preparing numerous budget scenarios that address the projected budget cuts. The college’s administrators have held numerous meetings to seek input from faculty and staff from all college departments. The staff has worked with the budget advisory council to look for areas of potential savings and ways to increase revenues. Tuition increases have been discussed on all levels, including the board of trustees finance committee.

Impacts of grants and other revenues have been reviewed. The researcher reviewed the possibility of increasing revenues through the
addition of a tax levy. The prospect of a levy was discussed at the college in 2002-2003 but no action was taken by the college administration or the board of trustees at that time. The current president of Owens community College has shown an interest in exploring the prospect of conducting a levy campaign and is in discussions with the board of trustees. The researcher also reviewed the possibility of increasing fees to support the funding of college wide initiatives such as technology upgrades. The researcher determined that any fee that is assessed to all students is considered as a part of the tuition cap and would not generate any extra funding according to information obtained from the college’s chief financial officer.

Through document analysis and the interview process, the researcher is confident that the college’s administrators will successfully lead the college through the immediate financial budget cuts. The researcher has determined that the college’s administration has procedures in place to analyze and address any financial situation the college will be faced with during the next four to six years regarding the normal operating budget of the college.

In conducting this study, the researcher identified the expanded use of technology and the economic implications of introducing new technology into the educational environment as the most influential factors that will impact the delivery of education at Owens Community College during the next four to six years. By reviewing internal and external reports, documents, and news articles, and by conducting interviews with college stakeholders, the
researcher determined that Owens Community College is not prepared to utilize the educational technology that will be available in the next four to six years. In addition, the college does not have a comprehensive plan to adequately address all the technology issues identified in the study. The researcher has determined that of all of the influences studied, technology will impact the college’s delivery of education more than any other. It is the researcher’s opinion that the college will need to address these issues to meet the future needs and expectations of students and faculty members.

The researcher concluded that even if the college had a desire to add additional technologies to classrooms, the college’s infrastructure may not be able to absorb the additional load. Many major components of the network, such as switches, were near end of life or considered obsolete. The researcher discovered through the document analysis process a recent initiative to begin addressing technology issues through the replacement of the college’s aging network infrastructure. The college developed a strategy to replace a portion of the aging infrastructure through an investment of approximately $1.3 million in fiscal years 2010 and 2011. This equipment replacement was determined to be critical to the stability of the college’s network systems, which serve as a conduit to communicate and access information. While the replacement of this equipment increased the college’s potential for additional capabilities, the college has not identified a plan to add any new equipment or software to enhance the delivery of education.
The researcher concluded that the college lacks a current technology plan that identifies new software, programs, system upgrades, or classroom technology upgrades that would enhance the educational delivery system. The researcher determined that the college does not have any plans to incorporate new technologies into its educational delivery system, such as grassroots video, collaborative webs, collective intelligence, data mashups, mobile broadband, and social operating systems, even though these were identified as emerging technologies that would soon be introduced to the academy (New Media, 2008). The college also has no formal plans to upgrade the technology of all classrooms beyond their current features of overhead projectors, computers, and Internet access.

A classroom-of-tomorrow committee was convened in 2009 to develop a plan that would outline technologies that would be necessary in a classroom of the future. The committee stated that equipment such as document cameras, wireless networks, lighting control systems, close-captioning capabilities, student response systems, and videoconferencing capabilities were important to enhance the learning process. Only as newer classrooms were built would additional capabilities be considered, such as smartboards, student response systems, lighting controls, and videoconferencing. Any classroom technology upgrades to the classrooms has been at the direction of the Owens Community College facility planning staff at the time of the remodel and not as part of a formalized technology enhancement plan. As a
result, the researcher concluded that there is no formal procedure, person, or committee responsible for the oversight of the specific technologies that should be made available in classrooms.

The researcher has also determined that the college does not have any formalized training program to assist faculty in using new technologies in the classroom setting. It is clear from the research findings that faculty members are not as technologically adept as many of the students they instruct. This is substantiated in the New Media Horizon Report’s (2008) analysis, which concluded that “the gap between students’ perception of technology and that of faculty continues to widen” (p. 7). The report also determined that faculty members have experienced difficulty embracing new technologies and integrating them into their teaching methods (New Media, 2008).

The researcher concluded that no formal training program exists to assess faculty technology competency, nor does any training program exist for faculty to learn new technologies that could be used to enhance the learning process. The researcher found that any training that faculty members receive was usually initiated by the faculty member and in most cases not conducted by the college. A few exceptions exist in the distance learning department, which has conducted regular training on how to teach in a distance-education environment. The researcher has determined that at Owens Community College, there is no program in place to assess the technological capabilities of the faculty members, nor is there a formal training program for faculty to
learn new technologies that can be used to enhance the learning environment.

The researcher also determined that student technological competency is also a concern. As stated in Chapter 4, many Owens Community College students do have a strong understanding of many of today’s technologies. The issue of concern is the variation of technological competencies that exists among the student population. For example, one class may be comprised of students who are technologically advanced as well as students who do not know how to attach a Microsoft Word document to an email. The researcher determined that the college does not assess students’ technological capabilities before they begin attending classes. Due to an increased use of technology in the classroom, it has become increasingly difficult for students with limited technological capabilities to be successful in their educational pursuits.

The researcher has also determined, due to the lack of a formal plan, that the college currently does not have a strategy to fund any future classroom technology initiatives. The financial impact on the college of installing new technologies is unclear due to the rapid pace at which technology is evolving. The researcher determined the financial impact of two current technologies if they were fully implemented on the college’s campuses. The introduction of smartboards to the college’s 292 classrooms would cost the college in excess of $1 million. Installing video conferencing
and student response systems would cost approximately $10,000 and $1,500, respectively for each classroom. By reviewing the college’s budgets, the researcher was unable to identify any sources of money allocated to upgrade technology in the classrooms.

5.2 Recommendations

The college’s faculty, staff, and administrators will need to prepare for a significant paradigm shift in how it thinks about technology. No longer is technology an option or an add-on; rather, it is a necessity, and the college’s leadership will need to make technology initiatives a priority. The researcher has concluded that the college should focus its attention on the implementation and financing of four technology-centered initiatives during the next four to six years:

1. Assess how new technologies will impact the learning environment.
   
   Recommendation: Create a technology review and implementation process.

2. Determine a method to assess and enhance the technical competency of Owens Community College faculty.
   
   Recommendation: Create a technological assessment and training program for faculty.

3. Determine a method to assess and remediate the technological competency of Owens Community College students.
Recommendation: Create a technological assessment and training program for students.

4. Identify a method of funding for technology upgrades.

Recommendation: Develop a funding plan that identifies technology as a college priority.

5.3 Create a Technology Review Process

The results of this study indicate that there are four primary aspects of technological influences that should be considered by the college. The first technology theme the college will need to address is how technology will impact the learning environment. The technological challenges that will occur in the next several years are in many ways unpredictable. Because of rapid technological advancements, the classroom of today will most likely not be the classroom of the future.

It is the researcher’s recommendation that the college create a process where technologies are researched and evaluated on a periodic basis. Based on the results of this research and evaluation, potential technologies would be recommended to the college’s senior leadership, who would then determine whether the college should adopt these technologies. The technology review process would not be static; therefore, new technologies would constantly be evaluated to ensure that the students remain engaged learners through the creation of the optimal learning environment. The review team would include evaluators from various areas of the college, including academic
departments, information technology services, and business affairs. The process would be incorporated into the college’s quality improvement process to ensure sustainability and support.

The effects of the new technologies on the space needs and design would also need to be determined based on the type of technology that is chosen. It is not clear whether more or less space will be needed in the future due to advances in technology, but it is evident based on the responses of the stakeholders surveyed and the documents that were reviewed that classroom space overall will remain an integral part of the learning process.

The effect of technology on classroom needs is important to the college because one of the college’s largest expenses and assets is its physical plant. If not closely monitored, the college’s overall facility master plan will not be coordinated with the future instructional needs of the college, which could therefore result in unnecessary expenditures. An example that illustrates the importance of connecting the facility master plan to the instructional technology plan is the creation of classes that consist of an online component as well as a bricks-and-mortar component. If the college adopted this strategy for the majority of its classes, potentially 50% more classroom space would be available than is currently available. This would drastically change the college’s six-year capital plan to create additional classroom space in Heritage Hall.
It is the recommendation of the researcher that as part of the technology review process, the impact of new technologies on space needs and design be assessed through the college’s space management staff. This process will provide direction for the college in allocating its assets to best meet the needs of its students.

### 5.4 Create a Technology Assessment and Training Program for Faculty

With the introduction of new technologies into the learning environment comes the need to provide training for those using the new technologies. This specifically relates to the faculty members who will be utilizing the new technology. As highlighted in the study, faculty technical competency is the second issue that must be addressed in the near future.

Again, it is important to note that many of the traditional-aged students entering the college are more adept with the current technologies than are the faculty members who teach their classes. This poses a problem for faculty members because they struggle to keep students attentive and engaged during the learning process. The studies reviewed confirmed that younger students have a far greater ability to multitask with technologies (Kaiser, 2010). It is the recommendation of the researcher that the college add resources to the college’s Teaching and Learning Center to develop extensive programs to train faculty on the technologies recommended in the process listed above. These programs would provide the faculty with
resources to enhance their technology skill set if needed or desired. The college would also need to establish technological standards that would be used in the classroom. It is the recommendation of the researcher that faculty from all areas of the college be consulted in what types of technology would be useful in the classroom. While it must be noted that academic freedom must be preserved, an expectation would be established that faculty would use the technology available in the classroom and any barriers prohibiting the use of the technology would need to be addressed by the college’s administration. In addition, all future faculty hires would possess the minimum technological skill set to ensure that their teaching approach creates an optimal learning environment. A college quality team should be established to determine the minimum technology skill sets that an applicant would need to be hired as a faculty member and periodically review these minimum technology skill sets as the technology changes.

This process would integrate with the technology review process, allowing the college to continuously review new technologies, make recommendations to the college leadership, and implement and train the faculty appropriately. Other departments, such as the information technology services department and the information systems department, could assist in the development of this process. Faculty and staff members employed in these areas could be resources for providing instruction on the related subject
matter. If a content expert is unavailable or is not a faculty or staff member, then a third-party resource should be hired to conduct the training.

5.5 Create a Technology Assessment and Training Program for Students

The third aspect of technological influences on the learning process at Owens Community College is the technological competency of the students. The researcher has established the fact that many younger students are more technologically proficient than their instructors. While the studies reviewed substantiate this claim, it was also determined by the researcher that a number of students at Owens Community College do not possess the technical competency to be successful in college.

While the average Owens Community College student is in his or her mid-to-late twenties, many of these students were not exposed to technology in their formative years, unlike many of the 18 to 24 year olds. This does pose a problem for faculty members as they begin to use technologies that are and will be available to them in the future. The college does offer computer courses to introduce students to basic computing skills but does not offer training in the software applications beyond the basic fundamental functions and operations of a computer.

It is the recommendation of the researcher that the college establish a process to assess the technological competency of students entering the institution. Just as the college provides remedial math and writing courses,
opportunities to strengthen students’ technical skills should also be provided. This would include establishing a quality team to identify minimum standards or core competencies required to be successful, developing a testing mechanism, and finally providing opportunities for remediating those students who do not meet the minimum standards. This process could follow the already established procedures that are in place to remediate students who do not meet the minimum scores to be placed in entry-level English or math. By establishing competencies and remediating to meet those minimum competencies, the faculty could begin to use technologies that would greatly enhance the learning process and environment.

5.6 Develop a Funding Plan for Technology

The fourth technological recommendation is to fund the technology initiatives the college determines to be beneficial to the learning environment. The state of Ohio’s funding of higher education has been unpredictable and recently has been reduced. The financial outlook is bleak, and the college will need to prepare for additional funding cuts in fiscal years 2012 and 2013. The state of Ohio faces a significant deficit in fiscal year 2012, which may be as high as $8 billion, and is calling for up to a 20% reduction of State Share of Instruction to the community college sector. It is unknown how Ohio will begin to make up the deficit, but it would be prudent for the college to begin planning for cuts in fiscal year 2012. The college already has established a budget plan that would result in a surplus in fiscal year 2010
and 2011. The chief financial officer (CFO) is also analyzing budget reductions, which include reduction of overtime, temporary staff, student worker hours, and travel. The CFO is also determining the amount of tuition increase that would be needed to ensure the financial stability of the college. If implemented, these measures would begin to insulate the college from any major cuts the state of Ohio would make in State Share of Instruction funding.

While the researcher determined this is a necessary plan, it does not fully account for the additional needs the college will experience in the area of critical technology upgrades. For the researcher, the technology upgrades are extremely important due to the research findings presented in Chapter 4. It is imperative that the college develop a comprehensive financial plan to prioritize the technology upgrades recommended through the process identified earlier in recommendation number one of this chapter.

In the past, the college has continuously battled to keep technologies current that enhance the learning process. To stay competitive, the college will need to seek out new technologies, review these technologies, and implement technologies that enhance the learning environment. With looming financial constraints, it will be important for the leadership of the college to identify a funding mechanism that allows the college to stay on the cutting edge of technology. It is also important for the college leadership to place a high priority on funding technology initiatives—for example, the
infrastructure upgrades, the latest classroom technologies, or other
technologies that can be used to deliver the college’s educational product. The
researcher recommends using the college’s quality team initiative and the
college’s Budget Advisory Council to establish procedures that help fund
technology funding priorities as they are identified through the technology
review process. This emphasis on funding will ensure that the technology
needs of the college are considered when new budgets are prepared.

5.7 Topics for Future Study

During the implementation of this study, many interesting themes
emerged. These themes add to the complexity of the issues facing Owens
Community College, but in the researcher’s professional opinion, they are not
the most pressing issues facing the college. Below is a list of three such
themes followed by several reasons why the subject matter will be important
at some point in the future. It is the researcher’s opinion that many of the
identified themes would be worthy of further study in the future.

1. The success of the State of Ohio’s Strategic Plan to increase
enrollment at Ohio’s two- and four-year institutions.

2. The effects of public policy, such as the creation of stimulus monies
and new federal programs, on the delivery of education.

3. How generational and social expectations continue to change and
their impact on the delivery of higher education.
On the state level, the governor and chancellor's strategic plan will change the way Owens Community College conducts business. If the majority of the plan is implemented, the college may be part of a more integrated university system. Colleges and universities will share resources and may even share students. At a minimum, colleges will eventually adopt a system of transferability that is superior to the current system.

It is too early to tell how the new programs initiated by the Obama administration will influence the delivery of education at Owens Community College during the next several years. Major changes to financial aid programs as well as the introduction of programs utilizing stimulus monies will need to be carefully monitored by the college to ensure it is positioned to best utilize the dollars that may become available through those programs.

The generational differences facing colleges will be a significant challenge. Colleges first need to understand the differences and develop plans to provide the optimal learning environment. This will require educating faculty, staff, and administrators about generational differences as well as the expectations of the different generations attending the college. Once the differences are understood, training programs to help faculty, staff, and administrators develop programs and curriculum that will provide the appropriate learning environment will be necessary.
5.8 Summary

Based on the results of this study, the researcher has concluded that the use of technology will impact how the classroom will look and function in the future. New technologies will be introduced that will change the way education is delivered as well as the design of the classroom. It is difficult to fully determine how these technologies will affect teaching space requirements, but the researcher is confident that the delivery of education will be different and that the college will need to develop a plan to ensure that appropriate technologies are identified and installed.

Due to the introduction of new technologies, faculty and staff members will need to have a mechanism that will assess their knowledge of new classroom technologies. Training both for the faculty and students will need to occur if their skill sets do not meet the minimum standards. This will include the college identifying appropriate resources to provide the training.

In addition, the college will need to identify and secure adequate fiscal support to purchase the technologies used to enhance the delivery of education. If this is accomplished, it is the opinion of the researcher that Owens Community College will become a prominent leader in providing faculty with the opportunity to teach and students the opportunity to learn in a premier and unprecedented learning environment.
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Appendix A

Structured Interview Guide

Opening Question

1. In your opinion, what is going to impact Owens Community College the most in meeting the educational needs of students six years from now?

Political

1. In your opinion, what federal or state political action, public policies, or legislation will impact Owens Community College in formulating educational delivery strategies in the next four to six years?

Potential follow-up topics:

   a. Chancellor’s Strategic Plan for enrollment growth by 2017
   b. Spellings Report
   c. President Obama’s emphasis on education
   d. Changes in educational delivery methods
      i. Seniors to sophomore program/dual enrollment
      ii. Post-secondary options program

2. In your opinion, how will the political topics we discussed influence or affect the space needs and designs at Owens Community College?
1. In your opinion, what are the greatest economic issues facing faculty, staff, and students at Owens Community College in the next four to six years?

Potential follow-up topics:

a. State funding model
b. Rising tuition costs
c. Financial aid availability
d. Economic stimulus plan
e. Institutional reserves/debt
f. Higher standards of education required for employment
g. General economic conditions
   i. Unemployment
   ii. Health care availability

2. How do you think these economic issues will impact the delivery of education at Owens Community College over the next four to six years?

3. In your opinion, how will the economic issues we discussed today influence or affect the space needs and designs at Owens Community College?
1. In your opinion, what, if any, are the changes in societal expectations and perceptions that will have an impact on the college's delivery of education in the next four to six years?

Potential follow-up topics:
   a. Immediate gratification
   b. 24x7 access to services
   c. Generational differences

2. In your opinion, what generational differences will have an impact on the college’s delivery of education in the next four to six years?

Potential follow up topics:
   a. Access to information (www)
   b. Diversity of faculty/staff
   c. Retirement of Baby Boomers/second careers
   d. Relational connection to students (interaction)

3. In your opinion, how will the societal and generational issues we discussed today influence or affect the space needs and designs at Owens Community College?
Technology

1. In your opinion, how do you think technology will impact the delivery of education at Owens Community College in the next four to six years?

Potential follow-up topics:
   a. Course management software
   b. Web-based classes/hybrid courses
   c. Partnerships, such as dual enrollment at high schools
   d. Social networking/Second Life applications
   e. Price of service (ISP)
   f. Speed of service
   g. Streaming video

2. What technological innovations will impact the instructional process at Owens Community College in the next four to six years?

Potential follow-up topics:
   a. iPods,
   b. Webcasting
   c. Podcasting
   d. Webinars
   e. Second Life
f. Course survey technology (clickers)

g. Social networking sites

h. Research on the effectiveness of online versus land-based classes (no significant difference in success rates)

i. Support applications (online tutoring)

j. Smartphones

k. Other

3. In your opinion, how will the technological issues we discussed today influence or affect the space needs and designs at Owens Community College?

Space

1. In your opinion, of all of the items that we have discussed, what issue will most impact the space needs of the College and the designs of classroom space in the next four to six years?

Potential follow-up topics:

   a. Learning environment design

   b. Instructional technology

   c. Design flexibility

   d. Less/more space needed

   e. Interaction space for faculty and staff

   f. Additional locations
g. Space sharing with other entities

h. Virtual space

i. Community and gathering space