AN ABSTRACT OF THE DISSERTATION OF

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Title: The Effect of Recession on Community College Innovation: A Historical Analysis 2006-2011

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Literature on U.S. higher education includes a historical and consistent debate over adequate funding in relation to the ever-increasing challenges which require U.S. colleges to embrace change as a constant. As change continues to challenge all aspects of our society scholars and organizational leaders recognize innovation as imperative in addressing the issues, opportunities, and demands of our global marketplace. U.S. community colleges represent an innovative concept originally introduced in 1901 for a variety of reasons, but, based on the literature review, community colleges experienced explosive growth to answer social and economic issues in the aftermath of WWII. Conclusions can be made that U.S. community colleges were born of innovation and will continue to innovate as demands are seldom met with adequate funding. U.S. community colleges embrace innovation to ensure their longevity, vitality, and possibly even their existence.

This research addressed U.S. community college innovative practices over a six-year period between 2006 and 2011. The timeline was divided between pre, post, and during the U.S. Great Recession which captured a unique and historically significant period of U.S. history. As one of the oldest and most significant organizations in the community college world the League for Innovation in the Community College was selected as the research site. Data collected from the League representing 304 U.S. community colleges provided a representative sample of U.S. community colleges. The purpose of this study was to explore the ways in which U.S. community colleges innovate, where they innovate, the results of those innovations, and to explore the effects the U.S. Great Recession may or may not have had on those organizational responses during this period. This analysis was designed to answer two primary questions:

- What effect did the U.S. Great Recession have on community college innovation?
- To what extent were the innovations effective in responding to the factors that inspired them?

Data were collected from a standardized League submission form and descriptions submitted by U.S. community colleges. Data were evaluated, analyzed, and interpreted to record historical significance and answer the research questions. This research sought first to perform quantitative analysis on the ordinal data, then to verify the ordinal data through qualitative analysis of submitted project descriptions.

The study findings revealed that the U.S. Great Recession had minimal impact on U.S. community college innovation. Despite the fiscal challenges throughout the researched timeline U.S. community colleges stayed focused on innovative practices

enhancing learning and teaching which consistently made up over 50% of the innovations reported. This was followed by innovative practices centered on student services. In these innovations the top two criteria consistently met were quality followed by creativity.

The innovation type classified as resource development decreased across the U.S. Great Recession. In the year preceding the recession research development made up 25% of the community college innovations reported. Throughout the recession resource development consistently made up less than 5% of the community college innovations submitted. In fact, the year following the recession there were no resource development innovations submitted.

Therefore, U.S. community colleges and their stakeholders faced the challenging times of the U.S. Great Recession with an unwavering commitment to teaching, learning, and student focused quality. This research also supports Terry O'Banion's hypothesis that community colleges were born of innovation and will continue to innovate as part of their very nature. U.S. community colleges and their stakeholders should continue to focus on what is important to them. Each community college is unique in that they each have specific funding streams and stakeholder expectations. Further research could explore the rationale which contributed to no resource development being reported in the year following the Great Recession. In addition, additional research could discover the discrepancy between the answers to structured questions and the narrative supplied to explain the results.

The Effect of Recession on Community College Innovation: A Historical Analysis 2006-2011

by
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APPROVED:

Major Professor, representing Education

Dean of the College of Education

Dean of the Graduate School

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Steven J. Hopf, Author

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To my wife and lifelong partner Samantha: I cannot adequately express my gratitude for simply having you in my life. Time and again, your love, wisdom, guidance, and example guide me and keep me grounded. I will love you always.

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Finally, I dedicate this dissertation to my father who showed by example the meaning of integrity and tolerance. Though I have mastered neither, I recognize the importance of striving to do so.

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Chapter 1

Focus and Significance

Cycles of financial crises create a common challenge to U.S. community colleges as they face reduced funding in conjunction with increased demand for services (Clagett, 1994; Lay, 2003; Lombardi, 1972; Smith, 1980). This research examines and analyses the phenomenon of community college innovation through a pre-and post-recession cycle. While all U.S. community colleges receive some state funding, there is no standard funding model. Each U. S. community college must develop funding streams in their own unique way. Within the balance of funding and operational demands each will also have a unique theme: (a) varying levels of fiscal contingency; (b) varying levels of resource commitments; (c) varying levels of stakeholder expectations; and (d) varying opportunities. There are few documented examples of a mandate to operate collectively. In fact, U.S. community colleges compete for funding by responding to opportunities issued by Federal, State, and Municipal governmental bodies.

U.S. community colleges were and are shining examples of innovation. Their very existence began in 1901 as an innovative way to provide general liberal arts to Americans. During the Depression of the 1930s U.S. community colleges began offering job-training programs. They experienced explosive growth in the United States in the years following the end of World War II. "Innovation is in the American community college DNA, a significant part of its heritage, character, distinction, and leadership for change" (O'Banion, Weidner, & Wilson. 2012, p. 4). America like every other nation, continually responds to challenges fermenting during global economic change. Since the birth of our nation in 1776 America has been known as a change agent and innovator. U.S. community colleges are a significant influence on America and its culture. In

speaking of U.S. community colleges in her keynote address Melinda Gates (2010) said "The task ahead of you is to innovate at the necessary scale, so that your innovations have an impact on the entire community college system of more than 1,000 institutions and 6 million students" (p. 1).

Studying the community college perspective as institutions responded to the fiscal crisis, and identifying practices that may lead to stainable new community college innovations adds new data to the field of community college leadership. There is very limited research on how recession cycles influence community college innovation. Analyzing League for Innovation in the Community College annual awards provides an opportunity to address this need. It was chosen as the primary data source for this study, because it is an autonomous system where U.S. community colleges independently choose membership. It also represents U.S. community colleges on a global scale. Due to the severity of the U.S. Great Recession and the factors within which U.S. community colleges operate, this research provided historical, scholarly, as well as practical significance and context.

Research Purpose

The purpose of this study explored the ways in which U.S. community colleges innovate, where they innovate, the results of those innovations, and to explore the effects the U.S. Great Recession may or may not have had on those organizational responses. To fulfill this purpose two research questions were addressed. These research questions, and the rationale for each of them, are described in the following section.

Research Questions

The following two research questions were addressed in this study: (a) What

effect did the U.S. Great Recession have on community college innovation? (b) To what extent were the innovations effective in responding to the factors that inspired them? The rationale for these research questions follows.

RQ 1. What affect did the U.S. Great Recession have on community college innovation? The rationale for this question focused on where within the institutions the innovations were deployed, what type of innovation was initiated, and who was involved in the innovation? Thus, research question one sought to assess the impact of the U.S. Great Recession on U.S. community college innovative practice.

RQ 2. To what extent were the innovations effective in responding to the factors that inspired them? The rationale for this question addressed the effectiveness of the innovations as perceived by their stakeholders in meeting the needs that inspired them.

Research Significance

The following section addresses the significance of this study by describing the innovative approaches implemented during a cycle of severe fiscal stress on U.S. community college operations.

It was felt that such as study would be significant because of the following underlying assumptions: (a) documenting the effect of replication of successful innovative practices during a recession of this magnitude has historic significance and adds rich data to the literature on the community college; (b) exploring the connections between innovation and operational funding realities had the potential to yield statistically significant data that supports process improvement; (c) it has the potential to add to the limited scholarly research and has practical significance to community college

leaders as they shape future policy initiatives in fiscally parsimonious times; and (d) it is of personal interest.

Documents dynamics of innovative practices implemented and replicated throughout a recession. The severity of the factors affecting U.S. community colleges leading up to and through the U.S. Great Recession created data that can be documented and analyzed to determine the impact of the severe recession on innovative practices as traditional practices may no longer apply during such a period of extreme fiscal and social stress. Institutions are constantly working to balance fiscal resources with academic operational demands, neither of which are constants. There will always be a greater number of well-intentioned initiatives than there are resources to support them. In good financial times institutions allocate resources to support physical facility and program growth. During times of fiscal stress institutions debate and implement reduction strategies. This cycle of available resources is always in a constant state of flux. Confronting the difficulties of a severe fiscal crisis is a significant contribution to a literature that frequently focuses on traditional reduction strategies and reasons for administrators to adopt them (Kenton, 2000).

Documents innovation initiative outcomes. Response to fiscal stress, legislative and public interest in organizational efficiency, and maintenance of services provided by U.S. community colleges result in a recurring theme for most colleges (Clagett, 1994; Lombardi, 1972; Selingo, 2008). The outcomes reviewed on the effectiveness of community college innovations support the link between greater fiscal constraints and increased interest in using data to improve efficiency and effectiveness of programs. However, expanding the data collection to include the effects of replication may help

determine the full effects innovative solutions have in addressing future fiscal stress on an expanded scale. Analyzing the historical documents following the initial innovative implementation may identify the perception of internal and external institutional stakeholders on the lasting effects of the innovative practices and add validity to previous research results (O'Banion, Weidner, & Wilson; 2012, Selingo, 2008; Smith, 1980). Community college leaders and policy makers will benefit from documenting emerging data to make future funding decisions that support process improvement and institutional sustainability.

Adds to limited literature on community college innovation and fiscal stress. Previous research has documented numerous recessions (Kenton, 2000, Lombardi, 1972, Pickens, 1995, Smith, 1980) however, the 2008 crisis was more complex and of a greater magnitude than previously experienced by U.S. community colleges. The 2008 crisis has historic significance and adds rich data for future study of community college innovation. Unlike previous studies, this study focused on the effect fiscal stress has on community college innovation. Further, unlike most research it did not survey perceptions of community college practitioners; rather, it will analyze historical records documenting community college innovation and its effectiveness.

Serves as a topic of personal interest. This topic is of personal interest as it enhanced skills and built upon 30 years of service as a finance manager for higher education and allowed this researcher to grow as an effective administrator and teacher. The last potential outcome for this research was the possible metric by which U.S. community colleges in the future can make more informed and innovative strategic initiatives during cycles of fiscal stress. This study identifies sound replicable practices

that should not wait for fiscal stress to address community college innovation and their effectiveness.

Summary of Purpose and Significance

The purpose of this investigation was to examine and analyze community college innovations from 2006 through 2011. During this time U.S. community colleges, which rely heavily on state and local funding, were affected by increased demand for services and reduction in funding caused by the U.S. Great Recession. This issue is important as it provides an opportunity to review the innovative initiatives U.S. community colleges used to respond to varying degrees of fiscal stress. Reviewing literature and research on community college innovation in respect to the recession cycle is an unprecedented contemporary phenomenon of significant scholarly and practical value. It fills a void in the existing literature on the topic and inform post-secondary education practice.

This investigation was both informed by, and informs, organizational responses to ever-changing demands and expectations. In addition, it serves to advance the academy's understanding of the challenges U.S. community colleges and their stakeholders face in responding to those challenges. An enhanced understanding of these areas through this investigation benefits practitioners and scholars alike as it informs further study and improves best practice.

Chapter 2

Literature Review

This literature review provided the context for analyzing the historical events and trends in U.S. community college funding and provides the context for analyzing the effect the U.S. Great Recession had on community college innovation from 2006 through 2011 by reviewing award-winning community college innovations documented and recognized by the League for Innovation in the Community College. This provides background to further research the phenomenon of how and to what extent community college innovation was affected across the U.S. Great Recession.

Approach to Review of Literature

The review of literature focused first on public education funding models to establish a common set of variables available to U.S. community colleges. Second, it also examined the League for Innovation in the Community College and its contributions to assist and encourage U.S. community colleges to continuous improvement through design, implementation, and replication of innovative practices. Finally, a sample of self-reporting data on community college innovative practices submitted to the League from 2006 through 2011 on quality, cost effectiveness, efficiency, and replication was reviewed to define the scope of the research. Due to the scope of this review, non-peer reviewed professional articles were excluded.

Numerous searches were executed on various databases, especially those that dealt with fiscal emergencies in higher education and community college innovation, such as ERIC, FirstSearch, ArticleFirst, and EBSCOhost using the key words. Additionally, authors were identified through each article's reference sections and their works retrieved. Emphasized from the literature were peer reviewed articles and

dissertations based on quantifiable data sources because those findings were deemed reliable and rigorous. Qualitative studies were included to review base funding models, financial reform efforts, and outcomes. While literature from all arenas of education, including k-12, attention was given to those that focused on U.S. community colleges.

Organization of Review of Literature

Three relevant themes emerged from this literature review as themes developed and framed this topic and its placement within community college leadership research: (a) historical funding models and patterns, (b) institutional response to fiscal stress, and (c) community college innovation. As each theme is discussed from the general field of education the literature review narrows to specific community college practice and the research focus of this study.

The term "innovation" is often associated with private sector organizations, which are often perceived as more agile, adaptable, and able to withstand change than government agencies and nonprofit organizations. But the reality is that, while they may not be as nimble, or may not have resource options, public and nonprofit organizations do innovate out of necessity and willingness to respond. These organizations must find ways to deal with shrinking resources effectively, improve their performance, and achieve desirable societal outcomes. Innovation in the public sector provides alternative frameworks for defining, categorizing, and studying innovation in government and in the nonprofit sector.

For the purposes of this study, innovation was defined as an idea or practice that is perceived as being new in each context (Rogers, 2003) and is exploratory and/or exploitative in nature. The timeline for the U.S. Great Recession was determined by the

National Bureau of Economic Research, which dated the beginning of the recession as December 2007, and June 2009 as the final month of the recession (Fernald, 2015; Hall, 2015).

Historical Funding Models and Patterns

This review examined research on funding models and institutional approaches to funding strategies during cycles of fiscal stress. Bunch and Straussman (1993) indicated that budgetary research fails to penetrate the "real world." They stated that improving financial position should "begin with a perspective on how organizations accurately behave rather than how we would like them to act" (p. 29).

K-12 systems. O'Toole and Stipak (2000) explored the effects of expenditure limitations placed on Oregon public schools utilizing qualitative and quantitative methods. In stage one they surveyed district superintendents; in stage two they used a variety of fiscal data, as well as information from detailed interviews with select district superintendents. Their research identified a direct positive correlation between the state's revenue control and the administrative use of advanced management tools to improve district operations. While the data produced summary statistics, their mixed-methods approach introducing case-study interviews provided meaningful context. Their study was quite effective as it delineated administrative intention and compared it with the expectations and responses of the practitioners because of specific initiatives. Differences and problems anticipated were elaborated using normative and descriptive frameworks which influenced future research.

Four-year colleges and universities. Kenton (2000) generated an analysis of budgetary reform within one Oregon University. The analysis identified a shift from

input-based funding (such as number of enrolled students) towards output-or performance-based budget models (such as number of graduating students). It also redefined the important link between academics and administration. The outcomes reviewed on the use of program analysis and budgeting supported the link between greater fiscal constraints and increased interest in using data to improve efficiency and effectiveness of programs. However, expanding the data collection to include the perception of internal and external institutional stakeholders, and including additional Oregon higher education institutions, would have added additional data and credibility to the research results.

Financial reform efforts have frequently fallen short of anticipated goals for a myriad of reasons. "Some failings are related to the multiplicity of actors and structures involved, others have challenged traditions that are deeply held, and still others failed for reasons that are less clear" (Kenton, 2000. p. 98). The goal is to understand the value adding-transformation that goes on within the process steps and the associated cause and effect relationships. "A good deal of organizational behavior can be understood only by knowing something about the organizations environment and the problems it creates for obtaining resources" (Pfeffer & Salancik, 1978, p. 3).

Within comprehensive higher education administrations; the importance, focus, and weight of academic criteria tend to determine resource allocation decisions which may or may not be consensually reached. For example,

> Many academics may not feel that having a customer focus and being market driven are appropriate roles for higher education. They also feel that higher education should not necessarily place excessive reliance on serving the economic needs of the state. (Kenton, 2000, p.100)

Bunch and Straussman (1993) indicated that budgetary research fails to penetrate the "real world." They stated that improving financial position should "begin with a perspective on how organizations accurately behave rather than how we would like them to act" (p. 29).

U.S. community colleges. A number of state community college funding models have been researched during multiple recessions. Kenton, Huba, Schuh, and Shelley (2004) examined the 12 common funding sources for U.S. community colleges in 10 Midwestern states between 1990 and 2000. They identified and evaluated four funding models (see Appendix). All four-generated revenue above the inflation index of the period.

Across the nation "18 of 28 states with community college funding formulas failed to fully finance their operations during the 2008 fiscal year" (Selingo, 2008, p.1). Each institution was an independent municipal corporation with its own governing board, and each responded to a common set of statewide legislative initiatives and funding streams. Every community college has a unique set of circumstances including: (a) varying levels of fiscal contingency; (b) resource commitments; (c) stakeholder expectations; and (d) opportunities.

Lombardi (1972) examined the community college fiscal crisis on a national scale. He defined economic trends that led and contributed to the financial crisis including; social services, corrections, fuel prices, and labor costs. He also highlighted the growing public concern over taxes and referendums, including many requested by community college districts. Growing public criticism challenged the role of education

and its contribution to economic development. He concluded by describing insolvency as a real threat to U.S. community colleges.

Smith (1980) examined six representative Southern California U.S. community colleges to review and analyze their responses to decreased funding incurred after implementation of Proposition 13, including the management strategies utilized to meet the fiscal challenges and the effectiveness of the funding models in use. He concluded that an evaluative institutional attitude superseded the question of whether leadership adopted an authoritarian or participatory approach to fiscal stressors. He also predicted significant change in the way U.S. community colleges operate suggesting; alternative course delivery methods; reductions in major support services; and significant reductions in course offerings.

Watkins (2000), for example, examined the revenues of 470 public U.S. community colleges following the economic recession of 1991. The results of that study found that, on average, state support for the colleges fell consistently over the period examined. Specifically, "state appropriations per student decreased by $99, whereas federal appropriations per student decreased by $10" (p. 102).

Lay (2003), for example, examined California State's $28 billion-dollar budget deficit and the Governor's 2003-04 budget proposals to reduce community college funding by $528 million dollars. Lay also documented a policy conflict. Specifically, he stated

> The Governor's budget acknowledges that the 118% fee increase, and reduced course sections will invariably reduce enrollment. The Governor seeks to ensure that the enrollment is lost by taking funding away for 96,000 full time equivalent students, foretelling their loss. (p. 3)

At the same time, that same Governor proposed enrollment growth funding for 31,000 new full-time students.

Kenton, Huba, Schuh, and Shelley (2004), for example, examined the 12 common funding sources for U.S. community colleges in 10 Midwestern states between 1990 and 2000. The study was designed to categorize funding models utilized by U.S. community colleges. In addition, they evaluated the funding models on their ability to generate stained or increased revenue. They identified and evaluated four funding models (see Table 2.1). All four-generated revenue above the inflation index of the period. Model 1's reliance on state appropriations generated the highest increase in funds revenue, while Model 4's balanced approach to rely equally on multiple revenue sources to ensure themselves against a drastic decline from a specific source generated the least in funds revenue.

By the close of the decade the significance of the recession could still be felt by U.S. community colleges. Financial hardships were compounded by historic enrollment increases, combined with sharp losses in per-student revenues from state appropriations and meager increases in net tuition revenue, resulted in significant cuts to academic spending per full-time equivalent (FTE) student. U.S. community colleges concluded the decade spending less per student than they had 10 years earlier.

Summary of historical funding models and patterns. "Evidence of changes in mechanisms of public finance must rely on qualitative indicators. There is evidence of a widespread, but not universal shift from input based funding towards output or performance based budgets" (Kenton, 2000, p. 66). As evidenced in much of the research there is also the question on whether the use of data is synonymous with

decision making in U.S. community colleges as documented in O'Banion, Weidner, and Wilson research (2012) which found "Business as usual in the community college, where faculty and staff continue to rely on anecdotal data despite the strong national push to create a culture of evidence in institutions of education" (p. 8). There is also evidence to question whether data integrity was maintained as funding and reduction strategies did not consider the difference in approaches taken when financial crisis was perceived as either short term and temporary or long term or permanent.

From the review of the literature, examination of funding models utilized in multiple states established a base of common practices for U.S. community colleges. Further study and analysis of community college innovations and what effect, if any, recession cycles have on them will contribute an additional perspective to the literature on innovative initiatives and organizational outcomes. It will also expand the various environmental situations U.S. community colleges operate in and help assess the course of community college innovation in performance outcomes.

Institutional Response to Fiscal Stress

There have been many documented funding cycles and frequent budget cuts to public institutions of education. In addition to reduction in funding, recession cycles often place increased demands specifically on community college workforce programs as people look to increase knowledge and job skills. It is in these times that U.S. community colleges are often asked to do more with less, even though in many cases they end up doing less with less. Evidence (Clagett, 1994; Lay, 2003; Lombardi, 1972; Phelan, 2016; Smith, 1980) clearly chronicled attempts to develop policies, programs, and practices that place learning at the heart of their educational enterprise, while

overhauling the traditional architecture of education. Unfortunately, it was more likely that doing less often resulted in: cutting course sections, laying off part time faculty, decreasing funds for professional development and travel, cutting student aid programs along with increases in tuition, reducing acquisition of technology and replacement rates, deferring maintenance, or eliminating or reducing outreach programs (Selingo, 2008). According to Pfeffer (1982), "Managers and administrators attempt to manage their external dependencies, both to ensure the survival of the organization and to acquire, if possible, more autonomy and freedom from external constraint" (p. 193).

The literature on fiscal stress contained examples of U.S. community colleges responding to various funding conditions through the adoption of financial and strategic planning (Clagett, 1994; Lay, 2003; Lombardi, 1972; Phelan, 2016; Smith, 1980). The opportunity to improve organizational bottom-line results was through a continuing flow of successfully completed improvement projects. Fiscal stress often and sometimes even drives opportunities to create significant systemic changes (Caton, & Mistriner, 2016). For example, fiscal contingency language was often found in collective bargaining agreements (Clagett, 1994; Lay, 2003). Fiscal limitations were also utilized to empower officials to do things they could not otherwise do (Clagett, 1994; Kenton, 2000; Kenton, et. al. 2004; Lay, 2003). U.S. community colleges, not politicians, should lead the charge in creating change and opportunity (Caton, & Mistriner, 2016; O'Banion, Weidner, & Wilson, 2012). Though there are always new improvement methods, some form will always be needed; bottom-line results never go out of style.

Response to fiscal stress, legislative and public interest in organizational efficiency, and maintenance of services provided by U.S. community colleges was a

recurring theme for most colleges (Clagett, 1994, Lombardi, 1972, Selingo, 2008). Within comprehensive community college administrations; the importance, focus, and weight of academic criteria tended to determine resource allocation decisions which may or may not be consensually reached. Table 2.2 illustrates the national community college response across an entire decade (2000-2010).

The literature on fiscal stress also contained examples of organizations that responded to budget reductions by adopting strategic planning and quality focused management programs (Clagett, 1994; Lay, 2003; Lombardi, 1972; Smith, 1980). Quality focused management programs are known by many names; Strategic Quality Management; Kaizen; Continuous Quality Improvement; LEAN Six Sigma; and Total Quality Management, defined in Appendix A. Any combination comprises a quality focused management program which is a philosophy, a set of tools, and a portfolio of models. The foundations of quality focused management are customer satisfaction, continuous improvement of quality, and consistency of purpose, which is defining the business of an organization and concentrating on it (Ali, & Zairi, 2005, Emiliani, 2004). This system has been entering higher education institutions and is influencing the administrators and leaders of these organizations by providing significant data on which to base goals, strategies, and objectives (Ali, & Zairi, 2005; Emiliani, 2004; Johnson & Smith, 1997).

Ali and Zairi (2005) reviewed successes that LEAN, and TQM applications had on health care and recommended their use in higher education. They described the common elements of TQM/LEAN implementation and provided examples for its application within higher education. They found that the opportunity to improve

organizational bottom-line results is through a continuing flow of successfully completed LEAN process evaluations.

Johnson and Smith (1997) implemented a process capability study to support continuous improvement of learning processes in a public school. The conclusions and recommendations supported the use of a customer-driven quality system that incorporated measurement of student on-task behavior, and the Plan, Do, Check, Act cycle in public education. Their findings quantified the usefulness of quality approaches to education. However, the concepts when introduced to higher education have found critics in faculty who resist the notion that teaching is a service that can be packaged, sold, and analyzed (Emiliani, 2004).

Fiscal stress may stimulate some strategies more than others. Productivity improvements, such as improving employee performance, interagency cooperation, and service reductions, especially personnel cutbacks and the limitation of nonessential services, were the utmost common strategic responses (Kenton, 2000; Lay, 2003). Efforts to increase revenues, usually through fee increases, were less common (Kenton, 2000). Use of the strategy of shifting services or "load shedding" did not seem to be as common, but it was taking place (Kenton, 2000; Lay, 2003; O'Toole & Stipak, 2000).

Watkins (2000) found that, though state support for colleges fell sharply, institutions received more revenue per student FTE by increasing tuition and implementing a series of student fees. Despite the increased revenue the average college was "faced with the unpleasant task of reducing or eliminating desirable programs or services because they lacked the flexibility to fund the programs or services" (p. 105). Collected data were analyzed to evaluate institutional budget balancing strategies and

their effect on academic programming. Practices and outcomes analyzed produced data elucidating successful and unsuccessful strategies for preserving quality while maximizing institutional efficiency, which may be useful in future economic events. Some examples of significant structural and systematic changes that emerged from that decade in the way U.S. community colleges responded included:

- Decreasing the proportional share of courses taught by full time faculty
- Offering community college baccalaureate degrees
- Providing open-entry, open-exit opportunities for developmental education, basic skills and workforce training that take on a case manager structure of management as opposed to the traditional faculty role
- Encouraging the growth of concurrent enrollment
- Creating agreements with four-year institutions for an automatic transfer to junior stat with an associate's degree, in lieu of transfer credits
- Developing distance learning
- Outsourcing services and operations.

Summary of institutional response to fiscal stress. The review of the literature suggests that within higher education U.S. community colleges have the flexibility to respond to changing dynamics and stakeholder expectations. U.S. community colleges are responsive and can adapt to inconsistent economic challenges within their respective states and communities. Within the larger context U.S. community colleges are most apt to help deliver what their states, communities, and stakeholders want.

Community College Innovation

U.S. community colleges are a crucible of innovation, perhaps illuminating the fact that the community college itself is one of the most inspiring innovations in American society (O'Banion, Weidner, & Wilson, 2012). Ongoing fluctuations on demand and funding necessitate the need for U.S. community colleges to seek continuous improvement opportunities for themselves and in a greater sense to support the international need for education in a global economy (Clagett, 1994; Kenton, 2000; Kenton, et. al. 2004; Lay, 2003). For innovations to endure and to increase impact they must be utilized by others within the college or adopted by other colleges. Continuity and use beyond the champions who implemented them is a testament to the value of the innovation.

The League for Innovation in the Community College is one of the oldest and most significant organizations in the community college world. "The League's success stems in part from its role as champion and advocate of the concept of innovation rather than of a specific discipline, educational program, or political purpose" (O'Banion, Weidner, & Wilson, 2012, p. 5). The League partners with more than 800 institutions from 11 different countries and territories. In addition, the League collaborates with more than 160 corporations and works with a host of organizations, foundations, and government agencies interested in improving U.S. community colleges through innovation, experimentation, and institutional transformation.

The League's projects and initiatives are categorized within 10 major focus areas:

- Basic Skills and Developmental Education
- Diversity, Equity, and Inclusion

- Leadership and Organization
- Learning and Teaching
- Open Educational Resources
- Research, Assessment, and Accountability
- Resource Development and Foundation Management
- Student Success
- Sustainability
- Workforce Preparation and Development

(Downloaded from www.league.org/league/about/initiatives.htm)

These focus areas engage and guide community college organizations to improve teaching and learning, student services, institutional management, and application of information technology.

In 1982 the Innovation of the Year award was created to recognize the most outstanding innovation of the year in each of the League's member institutions. Criteria for selecting the winner(s) were:

- *Quality*. Students and/or staff agree that the innovation increases quality in the course, program, office, or institution.
- *Efficiency*. The innovation contributes to more efficient processes.
- *Cost Effectiveness*. The innovation adds value to the institution while containing or reducing costs.
- *Replication*. The innovation is easy to replicate at other institutions.
- *Creativity*. The innovation is original and creative.
- *Timeliness*. The innovation is not more than five years old at the institution, allowing plenty of time for it to be tested

These criteria are provided by the League, and colleges are urged to add any criteria they think appropriate.

Summary of community college innovation. Reviewing the history of community college innovation provides critical information connected to this study. It is important to understand how the nature of innovation in the community college depends, in part, on the resources available in the college and the culture and climate created by leaders to encourage and support it.

From the review of the literature, it is evident that research on community college innovation continues to expand and inform practice. It is also evident that limited to no research exists on the effects cyclic recession cycles have on community college innovation.

Conclusion

The research reviewed the course of U.S. community colleges from their inception as innovative institutions, far different from four-year colleges and universities, through their growth in becoming crucibles of innovation opening doors to students that may not have considered college. It found limited research on the application of community college innovation as a response to cyclic funding challenges. There is also evidence of a renaissance of innovation in education and a resurgence of interest and experimentation as U.S. community colleges look to engage a challenging future. Though attempts have been made to document and fill in gaps in our knowledge about community college innovation, there are many questions and issues available for further study and analysis.

The review provided a broad analysis of information related to historical patterns of recession affecting educational institutions and their responses to them. The review

covered three specific themes within the literature regarding fiscal stresses and institutional responses.

1. Historical funding models and patterns.
2. Institutional response to fiscal stress.
3. Community college innovation.

The literature identified previous studies by Kenton (2000), Lay (2003) and O'Toole and Stipak (2000) contributed historical context from K12 and four-year colleges and universities as well as individual perspectives to education funding and cycles of fiscal stress responses. The research done by Kenton, Huba, Schuh, and Shelley (2004) from 1990 through 2000 defined and assessed multiple community college funding models. The decade of the 1990's included economic growth and recession, a short war (Desert Storm), and changes in administrations from Washington, DC to state legislatures and governors. While the efforts of U.S. community colleges deliberately attempted to accomplish specific goals and objectives with their institutional efforts, there were undoubtedly some unintended consequences and outcomes. Identification and classification of these unintended consequences will contribute to the literature of community college administration. However, some of the unintended consequences may not materialize until full implementation of the initiatives. Thus, any follow-up study should attempt to document other unintended consequences that may result. In addition, the post fiscal crisis period may reveal the emergence of successful outcomes revealing additional opportunities for further study.

The research indicated that there was no standard procedure for responding to fiscal stress. However, a common thread throughout this literature suggested that any

reduction within U.S. community colleges should relate to a community college's mission as a foundation for setting priorities of services or programs to be reduced or eliminated. Community college leaders did learn, and they did respond to the recession cycles of the 1990's by using the lessons of that recession to make dramatic, fundamental changes in the way U.S. community colleges do business.

Though it is difficult to predict the future, the prevailing view is that the Great Recession has ushered in a new era in higher education finance. Public support for higher education may not return to previous levels as states continue to face financial difficulties and other competing budgetary commitments (Desrochers & Kirshstein, 2012; Snyder & Dillow, 2012). But at the same time, strained financial resources have a way of shining the spotlight on spending priorities and may encourage colleges and universities to further organize their resources in ways that support better outcomes for students.

Table 2.1

Four Models of Current Funds Revenue Funding,

	Model 1	Model 2	Model 3	Model 4
State Appropriations	Very High	High	Moderate	Moderate
Tuition and Fees	Moderate	Moderate	Low	Moderate
Local Appropriations	Extremely Low	Very Low	High	Moderate

Very High	25% over budget projection
High	10-25% over budget projection
Moderate	within 10% of budget projection
Low	10-25% under budget projection
Very Low	25% under budget projection

Source: Kenton, Huba, and Shelley

Table 1.2

Community College Spending per FTE Student by Standard Expense Categories, Fiscal Year 2000–2010 (in 2010 dollars)

2000–2010	% Change
Instruction	Down 10.7%
Research	Up 9.7%
Student Services	Down 4.9%
Public Service	Down 22.7%
Academic Support	Down 13.6%
Institutional Support	Down 8.2%
Operational Maintenance	Down 7.9%

Source: IPEDS Analytics: Delta Cost Project Database, 1987–2010, 11–year matched set.

Chapter 3

Methods

This section outlines the philosophical approach, methodology and methods, and research procedures for this study. The research design for the study also addresses: (a) data needs, (b) data collection techniques, (c) site and participant selection, (d) assumptions, (e) data analysis, (f) strategies to ensure soundness. Through a postpositivist epistemology, this study employed a research design incorporating the collection of data to answer the research questions presented.

This study is of both scholarly and practical significance for three reasons. First, the findings of this study enhance our understanding of the ways in which U.S. community colleges employed innovative responses to challenges faced across a historically significant period of U.S. history. Second, exploring the connections between innovation and operational funding realities may yield statistically significant data that supports process improvement. And, third, although there has been robust discussion at the federal, state, and local levels among legislators and community college stakeholders on U.S. community college expectations and outcomes, often heated discussions focus on the method to adequately fund the colleges to meet expectations and this study sheds some light on the connection/non-connection between innovation and operational funding realities. Often, there is seldom adequate funding to address all the demands which require community colleges to look for innovative ways to bridge the gap or improve results. Since little is known about the ways U.S. community colleges reacted across a significant fiscally challenging timeline this study will add to the limited scholarly research and have practical significance to community college leaders as they shape future policy initiatives in fiscally parsimonious times.

This study focused on self-reported U.S. community college innovations submitted to the League for Innovation in the Community College for the years pre- and post-recession. Pre-recession years were determined to be the years 2006-2007 and post-recession years were determined to be the years 2010-2011. Ordinal data from structured forms and text describing the innovative practices were collected and analyzed.

Research Questions

The research questions were:

RQ 1. What affect did the U.S. Great Recession have on community college innovation?

RQ 2. To what extent were the innovations effective in responding to the factors that inspired them?

In the following paragraphs, the positionality, philosophical approach, guiding theoretical perspectives, data sources, analyses, and limitations are presented.

Positionality

As a higher education finance administrator with over three decades of experience I am acutely aware of the recession cycles affecting higher education funding models. My familiarity with the social, political, and economic forces at play and the institutional responses by organizational leaders and trustees increases my sensitivity to the plight college's face to maintain their fiscal integrity. In addition, in my administrative role I work directly with all internal and external stakeholders. Daily I am confronted with the impact of limited resources. Opportunities to innovate come in a wide variety of forms, most of which involve all aspects of the organization. My professional familiarity with the financial realities of current practice and my daily interaction with all stakeholders

helped shape my interpretations of the findings. Efforts were made to guard against this potential bias to protect the integrity of the data. The specific steps taken to ensure validity and reliability are discussed in greater depth in a later section of this chapter.

Philosophical Approach

Drawing from previous education, professional training, and 30 years of work experience in higher education finance, this researcher is well aligned with a positivist epistemology favoring quantitative data and analytical decision making. This researcher was also heavily influenced by *Conjectures and Refutations*, a masterfully written work by Karl R. Popper in 1962. His basic thesis that we can learn from our mistakes is a core assumption for this research. Popper's title described his theory that "knowledge advances by means of conjectures (imaginative shots in the dark attempting to solve a given problem) and refutations of the conjectures by critical tests" (p. vii). However, with knowledge provided by the CCLP program this researcher discovered he was a constructivist. Through this discovery this researcher finds his values and worldview defined by a postpositivist epistemology. The remainder of this subsection discusses the positivist and postpositivist epistemologies to provide an understanding of the selected approach for this study.

Guiding Theoretical Perspectives

Two theoretical perspectives guided this study. The first is Positivism as defined by Lichtman (2010) is "A philosophical doctrine in which science deals only with observable entities and objective reality. It involves belief in one truth and was originally associated with Comte" (p. 245). In its broadest sense, positivism is a rejection of metaphysics. It is a position that holds that the goal of knowledge is simply to describe

the phenomena that we experience. For the positivist researcher the primary purpose of science is simply to observe and measure without bias. A pure positivist would find it impossible to believe any knowledge exists beyond that. In a positivist view of the world, science is the path to identify truth and to understand the world well enough so that we might predict and control it. Positivists were realists that began to experience error within such a tight construct of what was real, especially when the study of human behavior was included. Post-positivist critical realist began to emerge as they recognized that all observation is fallible, includes error, and discovered that most theory is revisable.

A second theoretical perspective, postpositivism, also served to guide the research questions and methods employed in this study. Postpositivism was defined by Schutt (2004) as: "The belief that there is an empirical reality, but that our understanding of it is limited by its complexity and by the biases and other limitations of the researcher" (p. 73). Postpositivism considers the changeable nature of humans and tries to soften the hard line attributed to the positivist approach of a scientific method used to handle social science issues (Neuman, 2000; Popper 1962). Because all measurement is fallible, post-positivists emphasize the importance of multiple measures and observations, each of which may possess different types of error. They also recommend the need to utilize triangulation across these multiple sources in the effort to attain the most accurate truth for each question researched. Though absolute truth is likely unattainable, research methods continue to seek it.

The postpositivist perspective is a converted version of positivism that addresses criticisms made by various schools of thought but preserves the basic assumptions of positivism. A postpositivist approach to truth, realism, and experimental method is a

common approach in the social sciences for both practical and conceptual reasons (Creswell, 2012). Practically, it is often impossible to use the kind of carefully controlled laboratory studies characteristic of natural science for social science situations and human interactions. Post-positivism represented a modified dualism, since post-positivists believed that reality is constructed, and that research is influenced by the values of investigators. However, at the same time, they believed that some lawful, reasonably stable relationships among social phenomena prevail. Proponents of this school of thought tended to emphasize deductive logic. Like positivists, postpositivists seek generalizations to explain behavior of humans. However, postpositivists are also interested in explaining how and why individual differences between humans occur (Schulze, 2003). The underlying assumption of postpositivism is that physical laws operate according to strict and logical reasoning.

Researchers, with a positivistic orientation, strive for objectivity. While conceding that true objectivity is difficult to achieve, postpositivists contend that one can approach the goal of objective research through careful attention to research methods and techniques (Creswell, 2012). Postpositivists admit that researchers are necessarily influenced by their own subjective natures within their research. Conclusions about reality, therefore, reflect the viewpoints of both the investigator and the investigated. In many cases, postpositivist researchers admit their own biases to provide more objectively to their research (Schulze, 2003). From a postpositivist researcher perspective, a research study exhibits validity if the research: "(a) generates or tests theory; (b) is based on empirical, logical evidence; (c) produces results that can be generalized to other contexts,

and (d) acknowledges the influence of the researcher or the research methods on the results" (Schulze, 2003, p. 8).

Theories can be derived from logic, deductive thought, and casual relationships. People, although not always predictable, tend to be self-interested and manage personal affairs in a rational manner (Neuman, 2000). About the criteria for truth, postpositivism asserts that science can be essentially value-free and logically connected to truth. Valid evidence is based on precise observations that are repeatable. Postpositivists believe that reality can be portrayed by means of linguistic, mathematical, and graphic descriptions that can be generalized to similar groups (Schulze, 2003). In addition, the researcher does not claim complete objectivity but acknowledges personal biases in the selection of places and people to study (Trochim, 2006). Based on the post-positivist philosophical approach to the present research, a quantitative non-experimental research method utilizing additional qualitative case study research was, through triangulation, be used to measure the impact of community college innovation across a historically significant period.

Data Sources and Description of Data

The data source for this study was 304 self-reported innovation award proposals submitted from 2006 thru 2011 to the League for Community College Innovation. From a positivist perspective the ordinal data required to be submitted with each award application represented quantifiable data to be analyzed. The data were categorized into two distinct sets. The first was innovation type which included; Learning and Teaching, Resource Development, Student Services and Activities, Other, Workforce Preparation and Development, Research Assessment and Accountability, Leadership and

Organization, and Basic Skills. The second was criteria that each innovative project met which included: Quality, Efficiency, Cost Effectiveness, Creativity, Timeliness, Replication, and Other. In addition to these ordinal data, each application contained a narrative description of the innovative practice and outcome.

The selection of the League for Innovation in the Community College. The League for Innovation in the Community College is one of the oldest and most significant organizations in the community college world. The League partners with more than 800 institutions from 11 different countries and territories. In addition, the League collaborates with more than 160 corporations and works with a host of organizations, foundations, and government agencies interested in improving U.S. community colleges through innovation, experimentation, and institutional transformation. The League has a rich history engaging and guiding community college organizations to improve teaching and learning, student services, institutional management and in the application of information technology. For this reason, the League for Innovation in the Community College was chosen to provide a representative sample of U.S. community colleges. Only U.S. Community College innovations were reviewed within the timeline of this research.

The selection of the U.S. Great Recession. The U.S. Great Recession is often described as the severest recession since the Great Depression. It was selected as a historically significant event in U.S. history. Its severity and impact on American life represented an opportunity to research innovative practices employed by U.S. community colleges. The timeline for the U.S. Great Recession was determined by the National

Bureau of Economic Research, which dates the beginning of the recession as December 2007, and June 2009 as the final month of the recession (Fernald, 2015; Hall, 2015).

Assumptions

The following assumptions were made for this study:

1. Participating U.S. colleges were representative of all U.S. community colleges.
2. U.S. community colleges participated willingly and provided truthful responses.
3. The cases selected for this study and the research questions were appropriate, valid, and reliable.

Data Analysis

Quantitative data derived from structured questions within the 304 self-reported innovation award proposals submitted by US Community Colleges were systematically analyzed. A series of *Z* tests of two proportions was employed to find whether there was a statistical significant difference in the proportion of innovation types between the years of 2006 to 2011. These data allowed for a statistically descriptive comparison of community college innovation across the research period.

Strategies to Ensure Soundness

The researcher used qualitative data from the descriptive portion of self-reported proposals to verify the presence or absence of criteria submitted and analyzed from the structured questions. Comparison of the findings from both quantitative and qualitative data reported is the primary method of triangulating the validity of this study.

Human Subjects Protection

This research examined an existing database focused on programs and community colleges. It did not involve human subjects in any way in the research.

Limitations

Although the study illuminated our understanding and knowledge of the ways in which U.S. community colleges responded to internal and external issues through innovative solutions, several limitations exist. As is often the case with representative sampling the study is limited due to the relatively small sample size. Furthermore, gathering the data from within an organization comprised of member institutions that presumably have a significant interest in innovation limits perspectives and data from nonmember institutions. Finally, the researcher, grounded within a positivist research perspective formed by decades of data driven administrative work within higher education introduces the risk of researcher bias.

Summary of Design of the Study

The methods employed in this study provided sound data collection, analysis, and interpretation to explore the ways in which U.S. community colleges deployed innovative responses to organizational challenges across a defined timeline across the U.S. Great Recession. The study's design sought to answer two research questions: (a) what effect did the U.S. Great Recession have on U.S. community college innovation? (b) to what extent were the innovations effective in responding to the factors that inspired them? The design of this mixed study was guided by positivism and postpositivism. The data collection site was the League for Innovation in the Community College. It was chosen for the study as a representative sample of U.S. community colleges. Following a

carefully employed quantitative process, data was analyzed for emergent concepts, categories, and themes. Then a qualitative analysis was employed to verify the quantitative data. The findings are reported in a narrative discussion in the next section. Guided by past research and theorizing, my interpretation of the findings then follows.

Chapter 4

Results

The purpose of this research study was to study the strategies that community colleges implemented as well as their impact. An analysis of the innovative approaches implemented during a cycle of severe fiscal stress on community college operations was deemed significant for several reasons. The reasons were: (a) documenting the effect of replication of successful innovative practices during a recession of this magnitude has historic significance and adds rich data to the literature on the community college; (b) exploring the connections between innovations and operational funding realities may yield statistically significant data that supports process improvement; and (c) analyzing the innovative approaches implemented during a cycle of sever fiscal stress on community colleges add to the limited scholarly research and have practical significance to the community college leaders as they shape future policy initiatives in fiscally parsimonious times. This research study focused on the quantitative data and utilized the qualitative content analysis to verify the self-reported innovation criteria each community college filled out. This research study was guided by two central research questions:

RQ.1. What effect did the U.S. Great Recession have on U.S. community college innovation?

Null Hypothesis: there will be no significant differences in U.S. community college innovation.

Alternative Hypothesis: there will be significant differences in U.S. community college innovation.

RQ.2. To what extent were the innovations effective in responding to the factors that inspired them?

The researcher will describe data collection procedures prior to discussing how data analysis unfolded for both the quantitative and qualitative portions. Since the quantitative results provided the bulk of the answer to the research question, the research first addressed the data analysis procedures and results before moving onto the qualitative data analysis and results. Following is a summary that utilizes the qualitative results to support the quantitative findings.

Data Sources and Description of Data

To establish a representative sample of U.S. community colleges, data were collected from community college innovation proposals submitted to the League for Innovation in the Community College from 2006 to 2011. This six-year time of data spanned the U.S. Great Recession. There was a total of 304 proposals submitted by U.S. community colleges during this time. These data included college departments submitting the innovation, classifying the types of innovation, self-reporting metrics on quality, cost effectiveness, efficiency, and replication, and descriptions of the innovation and its implications. These data allowed for a statistically descriptive comparison of community college innovation across the research period.

Data Analysis

The researcher began the process of cleaning the data by generating an Excel spreadsheet with sheets that corresponded to each year under investigation. For the quantitative portion of the data analysis, the researcher was most interested in generating the frequencies and percentages of innovation type and innovation criteria. This was done so that the researcher could conduct a series of *Z* tests of two proportions to find whether there was a statistical significant difference in the proportion of innovation types

between the years of 2006 to 2011. For the qualitative portion, the researcher was interested in verifying and supporting the quantitative data. To address the two research questions the qualitative data focused on the years pre- and post-recession. Pre-recession years were determined to be the years 2006-2007 and post-recession years were determined to be the years 2010-2011. The researcher decided to focus on these years since the research questions asked about the effect the 2008 US Recession had on community college innovation and the extent those innovations were effective in responding to the factors that inspired them. As a result, the researcher recognized the importance of focusing the qualitative verification of innovations to the years pre- and post-recession.

Once the researcher created the sheets associated with the pre- and post-recession years, the researcher labeled columns according to the self-reported innovation criteria (i.e. Quality, Efficiency, Cost Effectiveness, Creativity, Timeliness, Replication, and Other). Each row corresponded with a community college's name. Innovation type was also noted in a separately labeled column. Table 4.1 provides a brief example using capital letters in place of community college names to outline what the Excel spreadsheet looked like. The researcher utilized the number one (1) to indicate self-reported status of the criteria and the number zero (0) to indicate no self-reported status of the criteria.

The researcher went through each school and tabulated the presence or absence of the self-reported criteria for each year of the pre- and post-recession. Once this was completed, the researcher labeled additional columns with the innovation criteria once again. This separate list of criteria was used during the verification process, which the researcher determined through the community colleges' self-written descriptions of the

innovations. Table 4.2 shows how the verification columns looked in the Excel spreadsheets.

The researcher compiled a list of synonyms to each criterion and used those to verify the existence or absence of the criterion. Whenever community colleges used the exact words as the criteria, the researcher noted those as indicative of the presence of the criteria. Table 4.2 was filled out in a similar manner as Table 4.1, with the number one indicating presence and the number zero indicating absence of the criteria. Table 4.3 presents the list of synonyms used for each criterion.

This process occurred for each community college description within each of the pre- and post-recession years. This resulted in four years of verified innovations to substantiate the quantitative findings. The results from this verification appear in the form of a table. The researcher included excerpts from community colleges indicating how criteria was verified.

Results

These findings serve to inform our understanding of why U.S. community colleges continue to rely on innovative responses to varying and complex issues and demands. Quantitative design was applied as a primarily source of data gathering and data analysis. Qualitative data were employed to authenticate the data and add richness to the information related to innovation in community colleges.

Quantitative Results

In 2006, there were a total of 39 college innovations examined. The most common innovation type was learning and teaching (30.77%), while 25.64% colleges reported innovations in resource development, 15.38% were related to student services

and activities, 12.82% were classified as “other,” 7.69% were related to workforce preparation and development, 5.13% were related to research, assessment, and accountability, and 2.56% were related to leadership and organization. Of these innovations, 82.05% met criteria for quality, 51.28% met criteria for efficiency, 41.03% met criteria for cost effectiveness, 87.18% met criteria for creativity, 48.72% for timeliness, 51.28% for replication, and 5.13% for other. See Tables 4.4 and 4.5 for the frequencies and percentages of types of innovations and innovation criteria met.

In 2007, there was a total of 44 colleges examined. Of these colleges, the most common innovation type was in learning and teaching (52.27%). Of the remaining innovations, 4.55% in resource development, 9.09% in student services and activities, 11.36% in workforce preparation and development, 6.82% in research, assessment, and accountability, 4.55% in leadership and organization, and 11.36% in basic skills and developmental education. Of these innovations, quality criteria were met for 93.18%, efficiency criteria were met for 63.64%, cost effectiveness criteria were met for 70.45%, creativity criteria were met for 77.27%, timeliness criteria were met for 59.09%, and replication criteria were met for 63.64. A further 9.09% met other criteria. See Tables 4.6 and 4.7 for the frequencies and percentages of these innovations. Since the focus of the research involves a comparison of the results from 2006 – 2007 with 2010 – 2011, the results from 2008, and 2009 are presented in Appendix B.

In 2010, a total of 51 colleges were examined. Results of the analysis appear in Tables 4.8 and 4.9. Of these colleges, 56.86% reported innovations related to learning and teaching, 3.92% were related to resource development, 11.76% were related to student services and activities, 3.92% had other innovations, 9.80% were related to

workforce preparation and development, 5.88% were related to research, assessment, and accountability, a further 5.88% were related to leadership and organization, and 1.96% were related to basic skills. Of these innovations, all met the quality criteria. There were 54.90% which met the efficiency criteria, 64.71% which met the cost effectiveness criteria, 82.35% which met the creativity criteria, 62.75% which met the timeliness criteria, 64.71% which met the replication criteria, and 5.88% which met other criteria.

In 2011, there were a total of 54 colleges sampled. Results of the analysis appear in Tables 4.10 and 4.11. Of the innovations reported by these colleges, 46.43% were related to learning and teaching, 21.43% were related to student services and activities, 14.29% were related to workforce preparation and development, 7.14% were related to other types, 5.36% were related to leadership and organization, 3.57% were related to research, assessment, and accountability, and 1.79% were related to basic skills and developmental education. Of these innovations, 94.44% were innovations that met criteria for quality, 55.56% for efficiency, 62.96% for cost effectiveness, 90.74% for creativity, 61.11% for timeliness, 64.81% for replication, and 3.70% for other criteria.

To compare the frequencies of innovation types and criteria met before and after the 2008 recession, a series of *Z*-tests of two proportions were performed between the sums of 2006-2007 and 2010-2011 innovation types and criteria. The only significant *Z*-test in innovation type was for resource development, $Z = 3.88$, $p < .001$. This suggests that there is a significant difference in the proportion of resource development innovations that were performed prior to, and after the 2008 recession. In 2006-2007, there were 15 resource development innovations out of 83 total innovations, a proportion of 0.18. In 2010-2011, this decreased to two out of 107 total innovations, a proportion of

0.02. There was not a significant change in the proportions of other innovation types. Table 4.12 presents the full results of these *Z*-tests.

In criteria met, the only significant *Z*-test was for quality, $Z = -2.47$, $p = .014$, indicating that there is a significant difference in the proportion of innovations that met quality criteria performed prior to, and after the recession. In 2006-2007, there were 73 out of 83 innovations that met quality criteria, a proportion of 0.88. This number increased to 102 out of 105 in 2010-2011, a proportion of 0.97. There was not a significant change in the proportion of other criteria met. Table 4.13 presents the full results of these *Z*-tests.

Qualitative Results

The qualitative analysis was undertaken to verify the qualitative results. The researcher verified the presence or absence of criteria in the written project descriptions and compared the resulting totals and percentages to the self-reported data. For the pre-recession year of 2006 a total of 32 community colleges self-reported to meet the criterion of *Quality*, resulting in an 82.05% presence. When the researcher conducted the verification process for the criterion, there were only a total of 26 community colleges that were verified to meet the criterion of *Quality*, resulting in 66.67%. The removal of six community colleges from those whose *Quality* criteria were verified resulted in a difference of 15.38% between self-reported innovation criterion met and verified innovation criterion met. A total of 20 community colleges self-reported to meet the criterion of *Efficiency*, resulting in 51.28% presence. This was compared to the 19 community colleges that were verified to meet the criterion of *Efficiency*, a 48.72% presence. The difference of one community college made a 2.56% difference between

self-reported innovation criterion met and verified innovation criterion met. Table 4.14 summarizes the data between self-reported and verified innovation criteria for the pre-recession year of 2006.

An example of some language that was analyzed using qualitative content analysis and verified for one community college is provided. The researcher bolded words that were included in the list of synonyms from the excerpt.

> The group has **designed**, **developed**, and implemented programs and systems which have improved the overall **quality**, **efficiency** and **productivity** of the Distance Learning Department and as well as the overall student experience in Distance Learning classes. This team has **created** two programs, LearnBB and C&CR.

Since there were synonyms used that verified the innovation criteria of *Quality*, *Efficiency*, and *Creativity* the researcher noted those criteria with a 1 for that instance. There were many instances where schools self-reported innovation criteria that were not verified. Another example of language analyzed using the qualitative content analysis follows. The researcher has bolded words that were included in Table 4.3 as synonyms of innovation criteria.

> The committee developed a "Disaster Recovery" Web site that provides information and resources for the citizens of Southeast Iowa and other areas impacted by disasters. SCC faculty, staff and student interns worked with the Emergency Management Coordinators from each of the four counties in the region to design the site.

This community college self-reported that they meet the innovation criteria of *Quality, Cost Effectiveness, Creativity,* and *Timeliness.* In all actuality, they only met the criterion of *Creativity*.

For the pre-recession year of 2007 a total of 41 community colleges self-reported themselves to meet the innovation criterion *Quality*. This resulted in a 93.18% presence

of Quality innovations. During the content analysis, the researcher verified 23 community colleges for the presence of the innovation criterion *Quality*, a total of 52.27% presence of the innovation criterion. There was a difference of 18 unverified community colleges, resulting in a 40.91% difference between the self-reported and verified criterion.

During the same year, the researcher found that there was a total of 28 community colleges that self-reported the innovation criterion *Efficiency*. This was calculated to be 63.64% for the self-reported criteria. When analyzing the data, the researcher verified a total of 18 community colleges for the presence of the innovation criterion *Efficiency.* This was calculated to be 40.91% of the verified criterion examples. There was a difference of ten community colleges and a difference of 22.73% between self-reported innovation criteria and verified innovation criteria. Table 4.15 presents the self-reported data and verified data for the pre-recession year of 2007.

There were community colleges that fit all the criteria that they self-reported to meet, however it was rare to find. An example of such was one community college in 2007 that utilized the same language as the criteria themselves.

> Future activities include an in-service for public school's teachers, a curriculum guide for student activities, and an archaeology summer camp. The project is of high **quality** with regional archaeology experts as speakers; it is **cost effective** in that it is part of a class offering; it can be **replicated** in any region of the United States; and it is **creative** in that it brings experts, students and interested community members together.

This community college was verified to meet the same criteria that was self-reported, the criteria of *Quality*, *Cost Effectiveness*, *Creativity*, and *Replication*. There were instances where community colleges described innovation criteria that they did not self-report to have met. Following is an example of this.

> [Two professors] identified the need for and established a learning community between the Automotive Fundamentals course and a required general education course. The goal was to tailor the College Success Strategies course to meet the needs of the automotive students and support their professional goals. Newly created classroom projects related directly to the students' interest in the automotive industry. This cooperative effort promotes excellence in student learning by helping the automotive students apply the principles of success strategies immediately in their area of major study, thereby reinforcing what they learn and improving retention in both courses.

The community college that wrote this description only self-reported the criteria *Quality* and *Creativity*. During data analysis, the researcher verified two additional criteria; *Efficiency* and *Timeliness* in addition to the two self-reported criteria.

For the post-recession year of 2010, 100%, or 51, of community colleges self-reported to meet the criterion of *Quality*. After data analysis, only 38 community colleges were verified to meet the criterion of *Quality*, calculated to be 74.51% of community colleges. There was a difference of 13 community colleges, which equaled a 25.49% difference between self-reported and verified innovation criteria. A total of 28 community colleges self-reported to meet the criterion for *Efficiency*, totaling 54.90% of all community colleges. Despite that, there were a total of 30 community colleges, or 58.82% of all community colleges, that were verified for the innovation criterion of *Efficiency*. Through the verification process the researcher uncovered instances where community colleges did not report the criterion *Efficiency* accurately. However, this was found during each year the qualitative content analysis was conducted. Table 4.16 highlights the self-reported and verified data for the post-recession year 2010.

One overwhelming findings was that community colleges over reported and under reported meeting criteria. This was one reason why verifying the innovations was critical

to understanding the dataset. An example of language used by community colleges includes:

> The team consists of curriculum consultants, instructional **designers**, formatters, media specialists, audio-visual techs, an instructional technology manager, plus admin support. During the last year, EET led several initiatives that continue to positively impact teaching and learning. Using a collaborative and responsive approach, the team led the **transition** to a new learning management system within a 6-month time frame, supported and facilitated the development of six programs for online delivery, and **designed** and **developed efficient** video conference processes that have increased **reliability** and **quality**. The result is that more flexible learning opportunities have been created for both on and off campus students.

The community college that described their innovation above was verified to meet the criteria *Quality*, *Efficiency*, *Creativity*, and *Replication.* This community college was an example of underreported criteria, as the community college only reported meeting the innovation criteria of *Quality*, *Efficiency*, and *Creativity*. Another community college under self-reported the criteria they met:

> A collaborative effort with the WV Division of Highways (WVDOH), this degree was **created** and implemented in response to a state agency's workforce training **needs**. Approved March 2009, 197 employees have enrolled in these Bridgemont courses. As program coordinator, [A faculty member] **developed** unique courses for on-line delivery, reviewed applications and evaluated transcripts of all students, conducted orientation sessions in WVDOH districts across the state, and **efficiently** advised and registered all students for the Fall 2009 start-up. [A faculty member] has received praise from WVDOH leaders as well as participants for her attention to **quality**, detail and continuous communication, a testimony to her **creativity** and dedication to **excellence**.

This community college self-reported to meet the criteria of *Quality*, *Efficiency*, and *Creativity*. The research verified the existence of *Timeliness* as an additional criterion that was missed by the community college.

For the post-recession year of 2011, 51, or 94.44% of, community colleges self-reported to meet the criterion of *Quality*. However, during the qualitative content

analysis the researcher verified only 34 community colleges as having met the *Quality* criterion, about 63%. There was a difference of 17 community colleges, which equaled a 31.48% difference between the self-reported and verified innovation criterion for *Quality*.

A total of 30 community colleges self-reported to meet the criterion *Efficiency*, a total of 55.56% of community colleges that reported in the post-recession year of 2011. During data analysis, there were only 19 community colleges verified to meet the criterion of *Efficiency*, a total of 35.19%. There was a difference of 11 community colleges, which resulted in a 20.37% difference between self-reported and verified innovation criterion. Table 4.17 outlined the data for each innovation criterion, self-reported and verified along with difference between.

The researcher ran across several community colleges that self-reported meeting the criterion of *Other*, a vague term that was not specified or easily identified. Once such example is a community college that described their innovation as:

> The [community college's] Bridge to Success program represents a comprehensive approach to serving new entering students, built upon national promising practices. This college-wide student **success** initiative draws on proven practices emerging from the Achieving the Dream project, and involves seven primary components: 1) Mandatory new student orientation, 2) New Student Seminar, 3) First Year Experience Workshops, 4) Intrusive faculty advising, 5) Learning communities, 6) Supplemental instruction through Tutors-linked-to-classes, and 7) The **development** and implementation of micro-level program, department, and unit-specific student **success** action plans. In addition to improving student success, this program is transforming the college and its culture, moving us forward to become an institution focused on improving student **success** through the continuous review of our practices and resulting student **success** data.

The researcher was only able to verify the criteria of *Efficiency* and *Creativity*. Since there was no clear indication what exactly the *Other* criterion was meant to be, the researcher could not verify the existence of that criterion. There were instances where

the researcher read through the description and could not verify a single criterion. An example of this was:

> The Kansas Studies Institute at [community college] promotes research and teaching on the culture, history, economics, and natural environment of Kansas. "This is an initiative to more firmly establish [community college] as part of the Kansas community," said [the director of the] Kansas Studies Institute, and associate professor, history. "JCCC is noticeable, visible, and big, but perhaps we've been too self-contained. The Kansas Studies Institute is an official effort to change that."

Even though the community college self-reported that it met the criteria of *Quality*, *Creativity*, and *Replication* there were no keywords or synonyms used in the description that could verify the existence of the criteria. As a result, there were no criteria verified for the specific community college.

Summary

The researcher reviewed the data collection procedures prior to discussing the data analysis. The researcher conducted a qualitative content analysis to verify the existence of criteria and compare those numbers to the self-reported criteria. The research conducted a series of Z tests of two proportions to determine the significance differences in innovations between the years 2006 – 2011. The results were presented, and significant results were discussed in the quantitative results. There were distinct procedures enacted during the qualitative data analysis that included the use of an Excel spreadsheet and a list of compiled synonyms for each criterion. The researcher presented the qualitative results and illustrated for each year how the verification occurred with two examples. Chapter 5 will further discuss the implications of the research study's findings and connect the findings to the extant literature.

Table 4.1

Example of Excel Spreadsheet Organization

School Name	Innovation Type	Quality	Efficiency	Cost Effectiveness	Creativity	Timeliness	Replication	Other
A	Learning and Teaching	1	0	0	1	0	0	0
B	Other	1	0	0	1	0	1	0

Table 2.2

Example of Verification Column Organization

Verified	Quality	Efficiency	Cost Effectiveness	Creativity	Timeliness	Replication	Other
School A							
School B							

Table 4.3

Criteria and the Corresponding Synonyms

Quality	Efficiency	Cost Effectiveness	Creativity	Timeliness	Replication	Other
Standard	Order	Profitable	Unique	Appropriate	Reproduce	Not fitting into the other categories.
Caliber	Coherence	Worthwhile	Inventiveness	Need	Duplicate	
Excellence	Productivity	Economical	Imagination	Apt	Model	
Superiority	Capability	Lucrative	Originality	Convenience	Mirror	
Merit	Ability	Gainful	Create	Opportunity	Parallel	
Worth	Proficiency	Money-making	Develop	Suitability	Replica	
Value	Expertise		Design	Advantage	Similar	
Eminence	Success				Transition	
Distinction	Reliability					
Skill						
Superior						
Valuable						
Distinctive						

Table 4.4

Frequencies and Percentages of Innovation Types (2006)

Type of Innovation	*n*	%
Learning and Teaching	12	30.77
Resource Development	10	25.64
Student Services and Activities	6	15.38
Other	5	12.82
Workforce Preparation and Development	3	7.69
Research, Assessment, and Accountability	2	5.13
Leadership and Organization	1	2.56
Basic Skills	0	0.00

Table 4.5

Frequencies and Percentages of Innovation Criteria (2006)

Innovation Criteria	*n*	%
Quality	32	82.05
Efficiency	20	51.28
Cost Effectiveness	16	41.03
Creativity	34	87.18
Timeliness	19	48.72
Replication	20	51.28
Other	2	5.13

Table 4.6

Frequencies and Percentages of Innovation Types (2007)

Type of Innovation	*n*	%
Learning and Teaching	23	52.27
Resource Development	2	4.55
Student Services and Activities	4	9.09
Other	0	0.00
Workforce Preparation and Development	5	11.36
Research, Assessment, and Accountability	3	6.82
Leadership and Organization	2	4.55
Basic Skills	5	11.36

Table 4.7

Frequencies and Percentages of Innovation Criteria (2007)

Innovation Criteria	*n*	%
Quality	41	93.18
Efficiency	28	63.64
Cost Effectiveness	31	70.45
Creativity	34	77.27
Timeliness	26	59.09
Replication	28	63.64
Other	4	9.09

Table 4.8

Frequencies and Percentages of Innovation Types (2010)

Type of Innovation	*n*	%
Learning and Teaching	29	56.86
Resource Development	2	3.92
Student Services and Activities	6	11.76
Other	2	3.92
Workforce Preparation and Development	5	9.80
Research, Assessment, and Accountability	3	5.88
Leadership and Organization	3	5.88
Basic Skills	1	1.96

Table 4.9

Frequencies and Percentages of Innovation Criteria (2010)

Innovation Criteria	*n*	%
Quality	51	100
Efficiency	28	54.90
Cost Effectiveness	33	64.71
Creativity	42	82.35
Timeliness	32	62.75
Replication	33	64.71
Other	3	5.88

Table 4.10

Frequencies and Percentages of Innovation Types (2011)

Type of Innovation	*n*	%
Learning and Teaching	26	46.43
Resource Development	0	0.00
Student Services and Activities	12	21.43
Other	4	7.14
Workforce Preparation and Development	8	14.29
Research, Assessment, and Accountability	2	3.57
Leadership and Organization	3	5.36
Basic Skills	1	1.79

Table 4.11

Frequencies and Percentages of Innovation Criteria (2011)

Innovation Criteria	*n*	%
Quality	51	94.44
Efficiency	30	55.56
Cost Effectiveness	34	62.96
Creativity	49	90.74
Timeliness	33	61.11
Replication	35	64.81
Other	2	3.70

Table 4.12

Results of the Z-Tests of Two Proportions Between Innovation Types of 2006–2007 and 2010–2011

Type of Innovation	*Z*	*P*
Learning and Teaching	1.34	.180
Resource Development	3.88	< .001
Student Services and Activities	-0.68	.497
Other	1.33	.184
Workforce Preparation and Development	-1.12	. 263
Research, Assessment, and Accountability	0.05	.960
Leadership and Organization	-0.64	.522
Basic Skills	1.25	.211

Table 4.13

Results of the Z-Tests of Two Proportions Between Innovation Criteria of 2006–2007 and 2010–2011

Innovation Criteria	*Z*	*P*
Quality	-2.47	.014
Efficiency	0.36	.719
Cost Effectiveness	-1.00	.317
Creativity	-0.89	.373
Timeliness	-1.06	.289
Replication	-0.97	.332
Other	0.72	.471

Table 4.14
Self-Reported and Verified Innovation Results (2006)

Innovation Criteria	Self-reported *n*	Self-reported %	Verified *n*	Verified %	Difference *n*	Difference %
Quality	32	82.05	26	66.67	6	15.38
Efficiency	20	51.28	19	48.72	1	2.56
Cost Effectiveness	16	41.03	10	25.64	6	15.38
Creativity	34	87.18	20	51.28	14	35.90
Timeliness	19	48.72	18	46.15	1	2.56
Replication	20	51.28	3	7.69	17	43.59
Other	2	5.13	0	0.00	2	5.13

Note. Difference *n* and % are calculated from (self-reported *n* – verified *n*) and (self-reported % - verified %).

Table 4.15

Self-Reported and Verified Innovation Results (2007

Innovation Criteria	Self-reported *n*	Self-reported %	Verified *n*	Verified %	Difference *n*	Difference %
Quality	41	93.18	23	52.27	18	40.91
Efficiency	28	63.64	18	40.91	10	22.73
Cost Effectiveness	31	70.45	11	25.00	20	45.45
Creativity	34	77.27	22	50.00	12	27.27
Timeliness	26	59.09	16	36.36	10	22.73
Replication	28	63.64	8	18.18	20	45.45
Other	4	9.09	0	0.00	4	9.09

Note. Difference *n* and % are calculated from (self-reported *n* – verified *n*) and (self-reported % - verified %).

Table 4.16
Self-Reported and Verified Innovations Results (2010)

Innovation Criteria	Self-reported *n*	Self-reported %	Verified *n*	Verified %	Difference *n*	Difference %
Quality	51	100.00	38	74.51	13	25.49
Efficiency	28	54.90	30	58.82	-2	-3.92
Cost Effectiveness	33	64.71	11	21.57	22	43.14
Creativity	42	82.35	37	72.55	5	9.80
Timeliness	32	62.75	20	39.22	12	23.53
Replication	33	64.71	8	15.69	25	49.02
Other	3	5.88	0	0.00	3	5.88

Note. Difference *n* and % are calculated from (self-reported *n* – verified *n*) and (self-reported % - verified %).

Table 4.17

Self-Reported and Verified Results (2011)

Innovation Criteria	Self-reported *n*	Self-reported %	Verified *n*	Verified %	Difference *n*	Difference %
Quality	51	94.44	34	62.96	17	31.48
Efficiency	30	55.56	19	35.19	11	20.37
Cost Effectiveness	34	62.96	10	18.52	24	44.44
Creativity	49	90.74	29	53.70	20	37.04
Timeliness	33	61.11	20	37.04	13	24.07
Replication	35	64.81	7	12.96	28	51.85
Other	2	3.70	0	0.00	2	3.70

Note. Difference *n* and % are calculated from (self-reported *n* – verified *n*) and (self-reported % - verified %).

Chapter 5

Summary, Discussion, and Implications

The purpose of this research was to study the types of innovation instituted by U.S. community colleges as well as their reported effectiveness despite the reality of limited resources and the stress caused by a severe recession. An analysis of the innovative approaches implemented during a cycle of severe fiscal stress on community college operations was deemed significant as noted in chapter 3. Those reasons were: (a) documenting award winning innovation types across a timeline spanning the U.S. Great Recession would have historic significance and add rich data to the literature on U.S. community college innovation; (b) evaluating the self-reported descriptions on the effectiveness of the innovations pre and post-recession may yield statistically significant data that supports process improvement; and (c) it will add to the limited scholarly research and have practical significance to the community college leaders as they shape future policy initiatives in fiscally parsimonious times. This research study focused more on the quantitative data and utilized the qualitative content analysis to verify the self-reported descriptive innovation criteria presented by each community college. This study focused on U.S. community college innovation across the U.S. Great Recession. Its scope included the types of innovations initiated as well as their self-reported effectiveness across a defined significantly historic period.

The preceding chapters presented the purpose and significance of the study, the literature review, the design of the study, and the results of the analysis. This chapter presents a summary of the study in relation to the literature and the ways in which the findings are in agreement with or contrast to the results in the literature review, a

discussion of the major findings, the limitations of the study, recommendations for future scholarly investigations, and implications for practice.

Summary of the Study

This section discusses the findings of the research questions in relation to the literature review in Chapter Two and other relevant literature. The foundational research questions for this study were:

1. What affect did the U.S. Great Recession have on community college innovation?
2. To what extent were the innovations effective in responding to the factors that inspired them?

This study took place during a time of extraordinary economic upheaval due to a severe recession that caused unemployment in the United States to rise significantly. During this period, community colleges were faced with severe funding challenges while they were also expected accommodate increasing numbers of students seeking education and training to gain or improve skills to enter or maintain limited opportunity in the workforce. The findings of the study supported portions of the literature review while challenging others. It also supported the need for further research targeted at community college innovation and operational practice.

A positivist philosophical approach was utilized in this study employing quantitative data analysis of ordinal data, followed by a qualitative analysis of descriptive data to verify results. The League for Innovation in the Community College was selected as a representative sample of U.S. community colleges. Data were gathered from U.S. community college award submissions across the research timeline. I commented about

aspects of the study that resonated personally based on my academic and professional business experience.

Discussion of the Major Findings

In the following section the findings for each of the research questions is presented and discussed. The discussion is based on the current literature and theorizing presented in the preceding sections. As such, the discussion serves to deepen and advance the current body of knowledge regarding community college innovation across the Great Recession.

Research Question 1: What affect did the U.S. Great Recession have on U.S. Community College Innovation?

Rooted in the rich history of U.S. community college fiscal and operational responses to an ever-changing set of funding proportions and community expectations, Research Question 1 sought to assess the degree to which institutions innovated across the U.S. Great Recession. Research Question 1 asked: What affect did the U.S. Great Recession have on community college innovation? While this question employed a positivist epistemology favoring quantitative data, the current literature in the field also served to guide this question. The findings from this investigation serve to answer it.

The literature reviewed in chapter 2 and other relevant literature indicated that community colleges can adapt to non-standardized and ever-changing fiscal realities. The findings demonstrated that the U.S. Great Recession had relatively little effect on organizational response to the fiscal stresses across the research period, which supports the premise that U.S. community colleges can adapt to the fiscal realities of the current environment. Though the U.S. Great Recession represented severe fiscal reality U.S. community colleges, as evidenced by their continued innovations, remained resolute in

keeping their focus on learning and teaching. Throughout the entire research period, learning and teaching represented approximately half of all U.S. community college innovation reported.

Emerging data from the analysis included an increase in the number of U.S. community college innovation proposals submitted. The Z-test performed to compare the frequency of innovation types determined that resource development proposals decreased at the onset of the recession and remained low throughout the research period. There was not a significant change in the proportions of other innovation types.

Research Question 2: Effectiveness of U.S. Community College Innovation

Research Question 2 asked: To what extent were the innovations effective in responding to the factors that inspired them? This question was also guided by a positivist epistemology favoring quantitative data and analytical decision-making. It sought to document the effectiveness of the innovations implemented. As such, the findings from this investigation served to answer to research question 2.

The literature reviewed in chapter 2 and other relevant literature indicated that community colleges have the flexibility to respond effectively to changing dynamics and stakeholder expectations. The findings demonstrated that U.S community colleges indicated their innovation proposals met criteria objectives. The Z-test performed to compare the frequency of innovation criteria met determined only one significant difference, which was in the proportion of innovations that met quality criteria performed prior to, and after the recession. The proportion went from 0.88 in 2006-2007 to 0.97 in 2010-2011.

While the original research design utilized qualitative data to verify the self-reported quantitative data submitted, they also produced results. As evidenced in the quantitative data community colleges attempted to accurately detail all the innovation criteria that they self-reported, the qualitative data suggests a relatively small number of community colleges accomplished their goal. The qualitative data revealed that most community colleges in the study either over reported and or under reported meeting innovation criteria and provided additional data not captured within the structured questions of the self-reported data. As a result, utilizing qualitative data to verify the self-reported quantitative data was essential to understanding the data set.

Summary of Findings

Although U.S. community colleges were the focus of this investigation, the findings advance our understanding of their innovative initiatives executed across the U.S. Great Recession. Two unexpected themes emerged that were not a part of the initial study and were not addressed in the literature review. They were that resource development declined during this period of major fiscal stress, and learning and teaching maintained its primary status representing consistently over 50% of the innovation type reported.

This study found that during a time of severe recession U.S. community college innovation proposals citing resource development declined. In 2006 resource development represented 25.64% of reported U.S. community college innovation type trailing second to learning and teaching representing 30.77%. During the remaining term of the study and under the effects of the recession, the percentage of U.S. community

college innovation proposals fell to 4.55% in 2007 and by the end of the study in 2011 represented 0% of submitted proposals.

This study also found that during the same time learning and teaching proposals increased. In 2006 learning and teaching represented one third of U.S. community college innovation proposals at 30.77%. Learning and teaching proposals crested in the height of the U.S. Great Recession with a 2009 percentage of 65.57%. By the end of the study learning and teaching continued to lead innovation types but had fallen to 46.43% of innovations proposals. Also noteworthy was the continued focus on student services, which from 2009 to 2011 remained as the second most proposed innovation type.

The qualitative data originally employed to triangulate and validate the quantitative data provided a richness to the projects not found in ordinal data. It additionally produced new data identifying discrepancies between many college's submitted forms and respective descriptions of their innovations. In many cases college's over reported and under reported the information contained in the submittal forms.

Limitations of the Study

The intent of this study was to explore the ways in which U.S. community colleges met challenges through innovative responses. The League for Innovation in the Community College was selected to use as a representative sample of U.S. community colleges. The League's award criteria and classifications were used to frame the scope of the research. The literature was reviewed, and community college award proposals were analyzed across a defined term. While analyzing the data, the research study focused more on the quantitative data and utilized the qualitative content analysis to verify the self-reported innovation criteria presented by each community college. However, as with

all scholarly investigations, this research study is limited in several ways. These limitations are addressed in the following sections.

Limited Sample

Although the conclusions speak to our broader understanding of community college innovative response to challenges, the data were collected via 304 community college submissions from within an association of member colleges that shared interest in innovative practice. These conditions are associated with limitation by using these member colleges as a representative sample instead of surveying all U.S. community colleges.

Limitations of the Instrument

The data for this study were collected from the League for Innovation in the Community College award submission form. In use of the term *Other* utilized in both the innovation type and criteria met ordinal data, its use in this study was a limitation in that it was a vague term that was not specified or easily identified.

Recommendations for Future Scholarly Investment

This study revealed several themes associated with U.S. community college innovation across the Great Recession. Many of the limitations of the investigation are associated with the sample, and could be overcome through additional studies focused on U.S. community colleges not associated with the League. Replicating the study at non-member U.S. community colleges will serve to verify or challenge the results of this study. In addition, replicating the study focusing on U.S. public universities could add contrast and possibly deliver different outcomes. Such an investigation would give

credence to the assumption that the findings of the community college study are indicative of all public higher education systems.

Another limitation that emerged from this study centers on the reporting aspects of the innovation award criteria. As an award construct is in place, it was noted that no peer review took place on the submitted proposals. Also, only successful innovations were reported which left out the possibility of reviewing disruptive or unsuccessful innovation attempts. Innovation by its very nature has elements of risk, and information on unsuccessful attempts could add value to the literature. To overcome this limitation this study could be replicated using U.S. community college Title III proposals and awards. Title III grants utilize similar pre-and post-award timelines and tend to center on innovative proposals. Of primary interest to this study would be the reporting requirements of Title III grants as unsuccessful aspects are required to be reported as well.

Implications for Practice

The purpose of this study was to assess and describe the effects of a major fiscal event on U.S. community college operations and outcomes. The quantitative and qualitative findings of this investigation provided a statistically descriptive comparison of community college innovation across the research period. The results hold practical significance for stakeholders in U.S. community college settings. Their immediate value lies in our enhanced understanding of the important role innovation plays in community college practice and effectiveness. In addition, these findings inform our understanding of the nature of community college innovation.

The magnitude of the Great Recession affected every sector of the U.S. economy. The findings indicated that over half of all innovations in U.S. community colleges were undertaken by faculty. As this research implies, there is no question that faculty members and their organizational stakeholders never lost sight of their primary mission of teaching and learning.

While slight differences were documented between individual community college reporting strategies, the findings of this study are useful in providing insights and practical recommendations that can be applied by U. S. community colleges. When this research was initiated, the goal was to identify the impact a significant fiscal event had on U.S. community college operations. The focus on innovation emerged during searches into literature on U. S. community college operations and response to the effects of the Great Recession. The documentation of this study revealed the use of and importance of innovation as a valid response to fiscal stress.

Summary of the Discussion

This chapter presented a discussion of the major findings, the limitations of the study, recommendations for future investigations, and implications for practice. The major findings were addressed considering current research and theorizing. Limitation of the study included the sampling method and the instrument used to extract the data. Recommendations for future research suggested replication at nonmember community colleges or other public entities outside higher education. Implications for practice focused on stakeholders at U.S. community colleges adopting a new understanding of the role innovation plays in organizational transformations designed to secure their role and importance in meeting future expectations or economic realities. In this new

understanding, institutional stakeholders and the communities that support them have a broader understanding of the innovative nature inherent in U.S. community colleges.

Personal Reflections and Insights

The following section describes my personal reflections and insights regarding this investigation. I have six insights that stand-out in particular: (a) This inquiry employed a review and analysis of events recorded by U.S, community colleges with membership in the League for Innovation in the Community College. Even though League members represent a long standing and influential group within U.S. community colleges, I am now curious if the findings would have been different if I had examined the phenomenon through personal reflections by way of a survey instrument. That is, if data had been gathered from faculty, administrators, support staff, students, or institutional stakeholders would the findings be different? Furthermore, how would the findings from these various groups compare with the findings from my study? Though these groups were represented within the data collected, were their responses confined by the structure of the application and its process? (b) The findings of this investigation have heightened my awareness and sensitivity concerning the underappreciated value of intellectual property associated with U.S. community college innovation. (c) The findings of this investigation confirmed my belief that quality and creativity are embedded inherently within the community college agenda. (d) The overwhelming finding that U.S. community colleges both over-reported and underreported meeting criteria was disappointing. When celebrating successful solutions, innovative or not, leaders should take the time to adequately express their claims. The fact that many colleges self-reported that they met a given criteria met the criteria there were no

keywords or synonyms used in the description that could verify the existence of the criteria. This is simply not something I expected to see. (e) Throughout the course of this study this researcher framed the emerging data within the context of three decades of experience working within university and community college systems. This resulted in a personal conclusion that warrants further study, primarily a perceived gap between the two systems on their use of intellectual property. This researcher hypothesizes the existence of higher standards and expectations regarding the citation of original intellectual property and derivative works. (f) Perhaps most importantly, I realize upon reflection that this investigation, both its process and its findings, have influenced the ways in which I now enact my role as a higher education leader.

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APPENDICES

Appendix A

Definition of Key Terms

The key terms for this study should be familiar to most community college practitioners. They are defined here to establish a common frame of reference and provide readers with a description to clarify their e in this proposed study.

Auxiliary enterprise funds – Revenue generated by operations that exist to provide services to students, faculty, and staff.

Comprehensive community college – A community college that has academic, career and technical, pre-college and community programs.

Customer orientation – The extent to which the organization takes the views of its customers seriously and actively responds to such views.

Federal appropriations – Amounts received through acts of federal legislation.

Federal grants – Amounts received from federal agencies for specific research or projects.

LEAN – A program to review and analyze operational processes to create efficiency and reduce waste.

Local appropriations – Amounts received through acts of local legislation.

Organization integration – The degree to which organizational units are encouraged to operate effectively towards the achievement of organizational objectives.

Process capability study – determines the extent to which a process can meet expectations.

Stakeholders – A person, group, organization, or system that affects or can be affected by an organization's actions.

State appropriations – Amounts received through acts of state legislation.

State grants – Amounts received from state agencies for specific research or projects.

Total Quality Management (TQM) – Is an institutional culture and attitude that encourages management and employees to value continuo improvement and teamwork.

Tuition and fees – Fees assessed against students for educational purposes.

Six Sigma– Is a quality management philosophy and methodology for improving processes and services through data based decision making.

Definitions were compiled from (Kenton, 2000; Lay, 2003; Lombardi, 1972; Pickens, 1995; Smith, 1980).

Appendix B

Results from Analyses of 2008-2009

In 2008, a total of 55 college innovations were assessed. The results appear in Table B.1 and Table B.2. The most common innovation type was learning and teaching (54.55%). Of the remaining innovations, 3.64% were in resource development, 14.55% were in student services and activities, 5.45% were in other categories, 10.91% were in workforce preparation and development, 1.82% were in research, assessment, and accountability, 5.45% were in leadership and organization, and a final 3.64% were in basic skills and developmental education. Of these innovations, 94.55% met criteria for quality, 67.27% for efficiency, 63.64% for cost effectiveness, 87.27% for creativity, 72.73% for timeliness, 63.64% for replication, and 20.00% met other criteria.

In 2009, there were 61 colleges reporting innovations. The results appear in Table B.3 and Table B.4. The most common innovation type was learning and teaching (65.57%). The remaining innovations were 4.92% resource development, 11.48% student services and activities, 3.28% other, 1.64% workforce preparation and development, 1.64% in research, assessment, and accountability, 6.56% in leadership and organization, and 4.92% in basic skills. Almost every innovation met quality criteria (98.36%), while 75.41% met criteria for efficiency, 54.46% for cost-effectiveness, 80.33% for creativity, 55.74% for timeliness, 55.74% for replication, and 9.84% for other criteria.

Table B.1

Frequencies and Percentages of Innovation Types (2008)

Type of Innovation	*n*	%
Learning and Teaching	30	54.55
Resource Development	2	3.64
Student Services and Activities	8	14.55
Other	3	5.45
Workforce Preparation and Development	6	10.91
Research, Assessment, and Accountability	1	1.82
Leadership and Organization	3	5.45
Basic Skills	2	3.64

Table B.2

Frequencies and Percentages of Innovation Criteria (2008)

Innovation Criteria	*n*	%
Quality	52	94.55
Efficiency	37	67.27
Cost Effectiveness	35	63.64
Creativity	48	87.27
Timeliness	40	72.73
Replication	35	63.64
Other	11	20.00

Table B.3

Frequencies and Percentages of Innovation Types (2009)

Type of Innovation	*n*	%
Learning and Teaching	40	65.57
Resource Development	3	4.92
Student Services and Activities	7	11.48
Other	2	3.28
Workforce Preparation and Development	1	1.64
Research, Assessment, and Accountability	1	1.64
Leadership and Organization	4	6.56
Basic Skills	3	4.92

Table B.4

Frequencies and Percentages of Innovation Criteria (2009)

Innovation Criteria	*n*	%
Quality	60	98.36
Efficiency	46	75.41
Cost Effectiveness	32	52.46
Creativity	49	80.33
Timeliness	34	55.74
Replication	34	55.74
Other	6	9.84