THE RELATIONSHIP BETWEEN ORGANIZATIONAL CULTURE AND ADHERENCE TO REGULATORY REQUIREMENTS FOR ONLINE PROGRAMS

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University of Pittsburgh, 2013

"Culture is an abstraction, yet the forces that are created in social and organizational situations derived from culture are powerful. If we don't understand the operation of these forces we become victims to them" (Schein, 2010, p. 7). Higher education administrators are faced with unique combinations of organizational cultures that all coexist within the overall institution. Different sub-groups have developed different cultural norms to align with the tasks that need to be accomplished and the mission and values of the institution. Specifically, online learning is increasingly drawing attention due to continued enrollment growth and the activities of for-profit providers. This is illustrated by a recent article by EDUCAUSE Review (Grajek, 2013, p. 34) that lists this topic as one of higher education's top 10 IT concerns. Number seven on this list of 10 is the goal of "determining the role of online learning and developing a sustainable strategy for that role." The matter is complicated by the fact that federal regulators are seeking to enact additional controls and accrediting bodies are reviewing online programs with increasing levels of rigor. Clearly, the management of online programs is becoming an increasingly complex task. It is with these environmental factors in mind that this work was undertaken. Given the increasingly regulated environment for online program delivery, the goal of this study is to

determine if organizational culture has an influence on likelihood to comply with regulatory requirements for online programs.

A review of literature related to organizational culture revealed that structured organizational processes are often supported by structured organizational cultures (Burns & Stalker, 1961; Fayol, 1949). This finding was confirmed by both management and higher education scholars (Birnbaum, 1988; Cameron & Freeman, 1991; Campbell, 1977; Denison & Spreitzer, 1991; Fjortoft & Smart, 1994; Quinn & Rohrbaugh, 1981; Schein, 2010; Smart & St. John, 1996) who suggest that organizational culture and effectiveness are often linked. As the regulatory environment related to online programs may require structured processes to ensure compliance, this study is framed around the idea that regulation adherence may be linked to more structured organizational culture preferences within online program groups. Online education organizations may have adopted structured organizational cultures in order to be effective in an environment faced with complex regulatory challenges.

The first of two studies, Quantitative Study 1 found that the Collaborate and Compete cultures, are statistically significant related to regulation compliance, when compared to the Control culture. Organizational culture preferences are based on the culture classifications outlined in the competing values framework (Cameron & Quinn, 2011a). Additionally, this research found that institutional characteristics of experience with online education, regional location, and institutional size are also statistically significant, depending on the empirical model that is applied. An interesting finding emerged in comparing the results of the two quantitative studies. When using primary organizational preferences alone as a predictor organizational culture is not statistically significant (Quantitative Study 2); but, when secondary, tertiary and

quaternary organizational culture traits are included in the analysis, statistically significant relationships are revealed (Quantitative Study 1).

This study supports the work of previous scholars related to organizational culture preferences and behaviors but also reveals new relationships. Findings here suggest that a variety of different organizational cultures within higher education, both structured and flexible, can be effective. Cameron (1978) suggests that "no single profile is necessarily better than any other, since strategic constituencies, environmental domain, contextual factors, etc., help determine what combination is most appropriate for the institution" (p. 625). Additionally, informal phone interviews and electronic mail exchanges with research subjects suggest that future online program groups may have very different organizational culture preferences than those that were presently revealed. Higher education and organizational culture scholars suggest that knowledge of organizational culture is essential for effective leadership and this information will be valuable to future leaders of distance education programs as it provides not only insights into the current cultural preferences but also a benchmark for future organizational culture research related to online programs.

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CHAPTER 1 - INTRODUCTION

Organizational culture scholars suggest that more formal work tasks are often supported by formalized organizational cultures (Burns & Stalker, 1961; Cameron & Freeman, 1991; Fayol, 1949; Zummato & Krakower, 1991). In higher education, the expansion of online education has led to increasing attention from federal and state regulators in the form of regulatory requirements. Many of these requirements are highly detailed in nature, which may suggest that more structured organizational cultures may be needed in order to ensure regulation adherence. Prior scholarship related to the alignment of structured organizational cultures and structured tasks and processes (Burns & Stalker, 1961; Cameron & Freeman, 1991; Fayol, 1949; Zummato & Krakower, 1991) led to the idea that structured organizational cultures might be related to adherence to regulatory requirements. This study investigates likelihood to adhere to regulatory requirements based on organizational culture preferences.

As we investigate this topic, it is important to consider the factors that contributed to the current focus on regulation of online programs. One of the reasons for this additional federal scrutiny is that increasing levels of Federal Student Aid are being directed to online education, particularly at for-profit institutions, which have low repayment rates and allegedly engage in aggressive recruiting tactics. For-profit higher education providers typically have a much higher student loan default rate than public and private institutions. In 2011, the U.S. Government Accountability Office announced that "as the largest provider of financial aid for postsecondary

education, with about $134 billion provided to students during fiscal year 2010 under Title IV of the Higher Education Act of 1965, as amended (HEA), the U.S. Department of Education has a considerable interest in distance education" (U.S. Government Accountability Office, 2011, p. 1). High default rates and increasing concerns about quality are key contributors to the increasingly regulated environment. As a result, federal, state and accrediting agencies are seeking to enforce greater controls on use of federal dollars towards online programs, particularly at for-profit institutions. These regulations, by default, have consequences for all higher education institutions that support online programs.

While much of this attention is related to increased levels of Federal Student Aid, another contributing factor is that individual states are now seeking to protect their citizens from fraudulent practices. The Higher Education Reauthorization Act (2008) highlighted little known requirements about state-level approval requirements for distance programs and enacted the requirement that institutions much be in compliance with the state regulations in the states where they have students in order for the institution to be eligible for Federal Financial Aid. As a result, individual state requirements, related to delivery of online education by out-of-state entities, began to be enforced and institutions nation-wide began the process of investigating and applying to be authorized. State level regulations often require out-of-state institutions to register with the local regulatory body in order to enroll students from that state. Some also require payment of fees, some at the individual program or per course basis and extensive application processes.

To address the difficulties of this new requirement, in May 2012, the Commission on Regulation of Postsecondary Distance Education was implemented. The purpose of this commission was to "develop recommendations to address the regulatory costs and inefficiencies

faced by postsecondary institutions that must comply with multiple and often inconsistent state laws and regulations when providing educational opportunities in multiple state jurisdictions" (Association of Public and Land Grant Universities, 2012). This group and others continue to work on reciprocity agreements aimed at creating easier paths for state authorization but this issue is just one of increasing number of regulations for online programs. As the literature review will illustrate, structured tasks are often aligned with structured work flows (Burns & Stalker, 1961; Cameron & Freeman, 1991; Fayol, 1949; Zummato & Krakower, 1991) and this increased scrutiny may lead to the adoption of more structured organizational cultures within online program groups. This is the core idea behind this study.

It is well documented by management theorists that organizational culture and effectiveness are closely related (Cameron & Quinn, 2011a; Hartnell, Ou, & Kinicki, 2011; Quinn & Rohrbaugh, 1983). In higher education, culture takes many forms as institutions are comprised of a variety of sub-cultures. External influences often influence organizational culture and in the field of distance education, exponential growth and high Federal Student Aid default rates, within some online programs, has resulted in increased federal scrutiny. The ongoing expansion of online programs, coupled with increased attention from the Federal Government, has resulted in higher education administrators focusing greater attention on the methods used to manage online programs. Leaders are seeking efficient ways to manage online strategy while meeting the needs of regulatory bodies. An understanding of organizational culture can help leaders with the complex task of aligning culture and process (Schein, 2010).

This study will seek to explain the relationship between regulation adherence and the organizational culture preferences of online program groups. They key idea is that institutions with more formal cultures may be more likely to be compliant. An established management tool

- the competing values framework (Cameron & Quinn, 2011a) - provided the rubric for this research. The competing values framework is a way of mapping culture against a grid of competing priorities and approaches. The framework classifies institutions by dominant organizational traits and describes them in terms of their focus on process and people as Collaborate, Create, Compete or Control (Cameron & Quinn, 2011b). Control and Compete quadrants are more formal in managerial approach while Create and Collaborate quadrants are more flexible. Traditionally, most institutions have reported a primary preference for the Collaborate culture (Berquist & Pawlak, 2008; Berrio, 2003; Schein, 2010; Smart & Hamm, 1993; Zummato & Krakower, 1991) and this study confirms that finding.

The growing number of external influences may result in the application of more structured organizational cultures within online program groups. As requirements for online programs become more structured, institutions may evolve and move towards the more structured organizational cultures represented by the Compete and Control quadrants of the competing values framework (Cameron & Quinn, 2011a). However, organizational cultures especially in higher education environments do not change easily so we must ask the question, "Do structured organizational cultures lead to regulation adherence?" This study seeks to examine this issue and uses a quantitative approach to evaluate the relationship between online program organizational cultures and regulatory compliance.

1.1 PROBLEM STATEMENT

Online education has been in use for many years as a way to deliver educational experiences to students at a distance. As the field of online education matures, higher education administrators

must find new ways to manage faculty, student and institutional demands effectively, while also adhering to federal, state and accrediting requirements for online programs. This topic represents a new field of study within the overarching subject of distance education, as there is currently limited scholarly research in the area of federal and state regulations of online programs. Additionally, the organizational culture preference, of online program groups, has not previously been investigated and so this scholarship will provide benchmark data for future scholarship.

Distance education has been studied extensively in a variety of ways. Early studies, and even many recent inquiries, focused their attention on the effectiveness of distance education as compared to instruction in face-to-face environments. A number of meta-analyses have concluded that there is no significant difference in effectiveness between online and face-to-face formats (Allen, Seaman, Lederman & Jaschik, 2004; Bernard, Abrami, Lou, Borokhovski, Wade, Wozney, . . . & Huang, 2004; Machtimes & Asher, 2000; Means, Toyama, Murphy, & Jones. 2010; Ramage, 2002; Xu & Jaggers, 2013; Zhang, 2005). However, concerns about effectiveness persist among faculty members. A large number of studies related to distance education continue to be tied to the issue of effectiveness.

Very little research on the topic of federal and state regulations related to distance education is available. One of the most visible requirements in recent years has been state authorization. State authorization requires online programs to be in compliance with individual state guidelines for distance education. These requirements vary by state and range from no requirements to complex application processes. The WICHE Cooperative for Educational Technology (WCET) completed annual studies in 2011 and 2012 and found a variety of different approaches to adherence to requirements. In the most recent survey (WCET, 2012) WCET

found that 52% of institutions have applied to one or more states compared to 28% in 2011. Findings from WCET's studies are included as Figure 1.

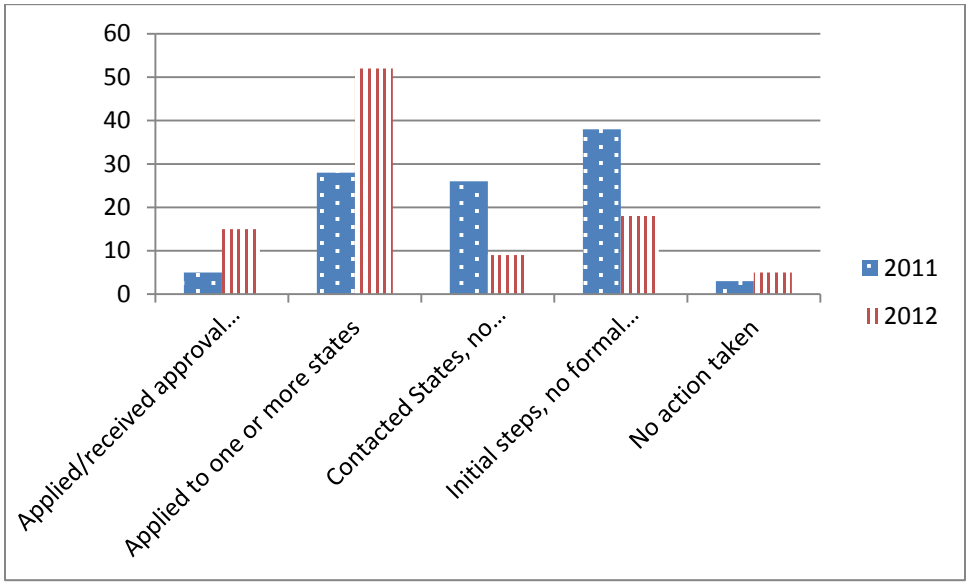


Figure 1. WCET Findings Related to Compliance with State Authorization 2011 & 2012

These studies, completed in 2011 and 2012, suggested that increased staffing, limiting enrollment from certain states and outsourcing of online program management components were common approaches (WCET, 2011 & WCET, 2013). WCET's study suggests that state authorization specifically is of concern to higher education administrators. Recently, a number of groups have been working on the creation of reciprocity agreements that would allow institutions to apply for approval in a group of states rather than each state individually. This work is ongoing and has not yet been finalized.

The other topic where scholarly research has been completed is compliance with the Americans with Disabilities Act (ADA). Research in this area is mostly related to compliance with ADA requirements within university websites and online courses (Bradbard, Peters & Caneva, 2010; Erickson, Trerise, VanLooy, Lee, C. & Bruye`re, 2009; Hackett & Parmanto, 2005; Harper, 2008; Roberts, 2011). No studies related to organizational culture supporting

compliance to ADA requirements exist. Additionally, no literature related to online program culture or to regulatory requirements outside of ADA requirements is available. This may be due to the fact that regulations are newly established and currently evolving.

Figure 2. Competing Values Framework (Cameron & Quinn, 2011b)

To help explain the relationship between organizational culture and regulation adherence, this study will utilize the competing values framework (Cameron & Quinn, 2011a) to identify the current culture organizational culture preference of online program groups in relation to their level of adherence. The competing values framework is way to classify organizational culture based on a grid that plots focused versus flexible managerial approaches and internal or external organizational focus. Figure 2 illustrates Cameron and Quinn's (2011b) organizational culture quadrants, which are mapped as focused (Control and Compete) and flexible (Collaborate and Create) managerial approaches via the vertical axis. The continuum of internal versus external focus is mapped on the horizontal axis. The key idea of this study is that institutions with a preference for the Control and Compete quadrants, which are more structured in nature, may be more likely to be in compliance with rigid regulatory requirements.

Of course a number of factors likely contribute to an institution's compliance approach. Additional organizational factors such as experience with online delivery, regional location, type of institution, and institutional size may also contribute to organizational culture and therefore will also be studied. The goal of this work is to provide online program administrators with benchmark information and organizational culture insights that can help them to make decisions

about how to address organizational culture within their institutions. As organizational culture change can be time consuming and not always successful, it is important to understand if organizational culture and regulation adherence are related. The goal of this study will be to understand if organizational culture preferences have an influence on regulation adherence within online program groups.

1.2 RESEARCH QUESTIONS

The overarching research questions for this study related to the relationships between organizational culture, institutional attributes and regulation adherence. The research questions are:

a. *Is there a relationship between adherence to regulatory requirements and the organizational culture of online program groups within institutions of higher education?*
b. *Based on the competing values framework, does primary organizational culture type explain regulation adherence?*
c. *Do the institutional characteristics of experience with online delivery, regional location, type of institution, or institutional size explain regulation adherence?*

The results of this study provide online program managers with information about how organizational culture may influence compliance. Additionally, as this study represents a new area of inquiry findings will provide benchmark data for future scholarship.

1.3 EPISTEMOLOGY, THEORETICAL PERSPECTIVE AND CONCEPTUAL FRAMEWORK

1.3.1 Epistemological Approach and Theoretical Perspective

Any inquiry should start with an understanding of the appropriate epistemological approach - the study of knowledge and what is believed (Greene, 1994; Ludlin, 1998; Mertens, 2010; Schommer, 1994; Stroud, 2011). The epistemology should inform the theoretical perspective, which, in turn, supports the research methodology (Crotty, 1998, p. 6). The definition of epistemological beliefs takes on different meanings depending on the field being studied and the personal characteristics of the researcher. One should also consider personal epistemologies that relate to the researcher's point of view in relation to the field of inquiry.

Increasingly, online programs operate in ways that are similar to traditional businesses. This would suggest that an organizational epistemology would also be relevant. Organizational epistemology is "the epistemological dimension of organized human activity" (Cook & Brown, 1999, p. 398), which means that like individuals, organizations have ways of learning. Moore and Kearsley (2012) refer to online education as a system and suggest that a "systems approach is the secret to successful practice" (p. 9). This research relates to organizational knowing because it seeks to understand organizational culture as a way to explain an institution's likelihood to adhere with regulatory requirements.

Hofer (2001) suggests that epistemological views can be categorized as absolutist, multiplist, or evaluativist (p. 359) in that: a) truth is absolute with "a single exclusive way of knowing" (Greene, 1994, p. 245); b) there are multiple truths; or c) truth can be evaluated. The approach will be post-positivist; however, this study in some ways includes elements of the

constructivist approach in that multiple realities may exist or may change based on a multitude of external factors. This is consistent with a post-positivist view since post-positivists "have moved a little in the direction of the naturalists to argue that . . . there may not always be a single reality that is acknowledge by and shared by all" (Rubin & Rubin, 2012, p. 19). The reality presented in this inquiry may change as new factors, such as additional regulations, are introduced. However, at the specific time of this study, the researcher is a proponent of the views of post-positivists and seeks to determine the current state of online program organizational culture related to regulatory adherence.

This study must also consider the epistemology of the researcher, as an "individual's ideas about knowledge and knowing" (Hofer, 2001 p. 361) influence a research approach. My epistemology aligns with the concepts of post-positivism in that knowledge can be defined and I value the numerical evidence presented by quantitative approaches. However, I also appreciate constructivism because I find knowledge creation to be related to all types of life experiences such as experiential, scholarly and professional learning (Hofer, 2001, p. 362). The creation of knowledge in this case is a matter of evaluating and selecting the best fit in terms of approach, delivery and development, which for this study is a post-positivist, quantitative approach. Of the four theoretical perspectives described by Mertens (2010), the post-positive paradigm matches most closely with the research goals for this study. Post-positivists "hold a deterministic philosophy in which causes probably determine effects" (Creswell, 2009, p. 7). This view is in alignment with the epistemological beliefs of the researcher and will support the methodological approach described in Chapters 3, 4 and 5.

1.3.2 Conceptual Framework

The final element is a conceptual framework that links the approach to creation of knowledge with the subject matter. The conceptual framework for this study was a well-established management theory, the competing values framework (Cameron & Quinn, 2011a; Quinn & Rohrbaugh, 1983). This framework supports a post-positive perspective because it provides statistical evidence related to organizational culture preferences and is based on a numerical ranking system. This framework has been used to evaluate higher education culture (Berrio, 2003; Cameron, 1978; Cameron & Freeman, 1991; Fjortoft & Smart, 1994; Hassan, Shah, Ikramullah, Zaman & Khan, 2011; Hofstede, Neuijen, Ohayv & Sander, 1990; Kezar & Eckel, 2002; Smart & St. John, 1996; Smart, 2003; Trivellas & Dargenidou, 2009), and can help to illustrate the strategies used by higher education institutions to understand organizational cultural preferences at a specific moment in time.

This research uses a post-positivist epistemological approach that aligns with the personal views and study goals of the researcher, both of which are in agreement with the post-positivist paradigm. Additionally, this approach is appropriate for the subject matter as the topic of distance education has been researched extensively using quantitative methods (Allen & Seaman, 2002, 2010, 2011, 2013; Means, et al., 2010; Simonson, Schlosser & Orellana, 2011). The competing values framework supports this approach as knowledge is created through the input of survey participants and is analyzed using binomial probit regression models. Qualitative informal interviews will be included as supplemental data. Additional details about the selection of the competing values framework as a conceptual approach for this study, is provided in Section 2.4.

1.4 THESIS STATEMENT

Based on my professional experience, and literature review findings (EDUCAUSE Listserv; Inside Higher Ed; The Chronicle of Higher Education & WCET State Authorization Network), I believe that online program groups with more formal organizational cultures may be more likely to adhere to regulatory requirements. What this means is that organizations with a preference for the Control or Compete cultures will be more likely to adhere to regulatory requirements due to their more formal cultural attributes. As an emerging field of study there is no empirical research to support this thesis; however, informal industry communications (WCET Listserve, EDUCAUSE DistanceEd Listserv) and recent publications (Bichsel, 2013; Moore & Kearsley, 2012) signal that this issue is of growing importance. Administrators are looking for ways to efficiently comply with regulatory requirements but also to effectively offer online programs and an understanding of the influence of organizational culture can help to achieve this goal.

This study seeks to determine if there are similarities between the organizational cultures of schools that comply with regulations and if those in compliance have a preference for the Control and Compete quadrants within the competing values framework (Cameron & Quinn, 2011a). My projected thesis statement is:

> *There is a relationship between the organizational culture of an online program group/division and its approach to regulatory adherence. Based on the culture types outlined by the competing values framework (Cameron & Quinn, 2011a) Compete and Control organizational cultures may be shown to be more likely to adhere with federal and state requirements for online programs in the United States. Additionally, adherence may be*

impacted by institutional characteristics related to experience with online delivery, regional location, type of institution, and institutional size.

To support this conclusion, the methodology and findings for quantitative analysis and for supporting qualitative inputs will be presented in Chapters 3, 4 and 5. Chapter 3 will present the first of two binomial probit regression analyses. Chapter 4 will provide a robustness test through an additional regression analysis. Chapter 5 will build upon quantitative findings and provide additional context through the inclusion of informal qualitative data. Finally, Chapter 6 will provide discussion, implications and future research sections of this document.

1.5 SIGNIFICANCE

This study is valuable because it represents a new field of study and one of increasing visibility and concern for higher education administrators. As regulations related to online education increase in scope and complexity, online program organizations may need to have a broad understanding of the environmental landscape. For example, established online programs, like Penn State World Campus, operate more as a traditional business and "increasing regulations and the emerging focus on outcomes" will require a more structured approach (C. Weidemann, personal communication, October 19, 2012). This approach was also shared in two recent publications related to the state of online learning. The EDUCAUSE Center for Educational Research (ECAR) found that more mature distance programs tend to be supported by centralized structures (Bischel, 2013). Additionally, Moore and Kearsley (2012) refer to effective distance

education delivery as a systems approach. These findings support the idea that more structured online program groups may be more likely to comply with complex regulatory requirements.

Online education has experienced exponential growth and has increasingly become strategically important in higher education. ECAR (Bischel, 2013) found that nearly all institutions of higher education have an interest in distance education and 80% offer at minimum individual online courses (p. 3). This is also highlighted in the Sloan Consortium's annual report, which over time has shown that administrators are increasing focused on distance education strategy (Allen & Seaman, 2013, p. 3). These environmental changes influence higher education leaders who are now struggling to determine the role of online education within their overall institutions. Distance education will most likely play a role in higher education but the question is what role should it play and how can it best be implemented to support high quality scholarship? Scholars suggest that "there is an established relationship between distance learning . . . within the framework of higher education institutions that creases a new educational leadership paradigm incorporating traditional leadership practices with those considered to be unique to distance learning" (Stumpf, 2011, p. 333). As an important strategic area, higher education administrators would benefit from increased understanding of the influence of organizational culture.

This topic is personally significant to me as I have held roles as the administrator of online programs at two large research universities. Through my work as the Director of Online Programs at the University of Pittsburgh (Pitt) and Virginia Commonwealth University (VCU), I have been personally affected by federal regulations, such as the state authorization requirement, which resulted in an investment of time and financial resources to ensure that the University is in compliance. Additionally, at Pitt, a more formal organizational culture was implemented to

enable ongoing adherence with these complex regulatory guidelines and more efficient production of online courses. Pitt now has formal processes in place to ensure on-going adherence with federal requirements such as ADA compliance and state authorization. During this activity, I encountered program administrators at other institutions who were opting not to comply, citing the lack of available resources or perhaps an inability to adapt. At Pitt, compliance was not optional and I wondered if different organizational cultures were the cause of this difference in approach. This experience has caused me to consider the impact of organizational culture on the management of online programs and if culture and compliance were related.

2.0 CHAPTER 2 - LITERATURE REVIEW

> "E-learning, as an innovation, has been associated with radical change, but many of the accepted organisational strategies for managing such change have failed to deliver the expected benefits and advantages. There is a pressing requirement to understand better the nature of e-learning, as an educational innovation, and to evolve contextually derived frameworks for change which align with organizational culture and practice" (Rossiter, 2007, p. 93).

The ongoing expansion of online programs, coupled with increased attention from the Federal Government, has resulted in higher education administrators focusing greater attention on the delivery of online programs. Based on responses from 2,500 institutions of higher education in 2011, the Sloan-Consortium found that online learning was a critical part of long-term strategic planning for 65 percent of all reporting institutions (Allen & Seaman, 2011, p. 4). Findings from the Sloan-C annual report suggested that online education continues to outpace growth of traditional face-to-face programs in higher education, further intensifying its visibility to higher education administrators. In confirmation of this finding ECAR's 2013 report on the state of online learning (Bischel, 2013) found that nearly all institutions of higher education are interested in distance education and as many as 80% support at a minimum, individual online courses (p. 3).

These findings are perhaps indicators that online education may play a role in the future of higher education. This work is challenged by the requirements from regulatory bodies that task online program leaders with adherence to complex rules and requirements. The question for higher education administrators is how should distance education be supported within the overall institution? To understand the landscape of scholarship related to these topics, several key areas will be reviewed. This literature review will investigate current and historical research subjects related to distance education but also delve into management and organizational culture theories. As this work relates to the topic of regulatory requirements, Chapter 2 will also provide a summary of research related to high visibility federal regulations related specifically to online programs in higher education. In this way, the literature review was developed to provide context for the research study and findings.

2.1 DISTANCE EDUCATION

Distance education has evolved from correspondence methods to online delivery and continues to change, with the emergence of Massively Open Online Courses (MOOCs) as the most recent example. MOOCs seemingly appeared overnight with great attention and fanfare and in some ways their emergence highlighted the idea that a constant within the field of online education is change (Moore & Kearsley, 2012). Higher education administrators can benefit from an understanding of current organizational culture in relation to this changing environment (Schein, 2010). As institutions of higher education become more focused on online delivery as a way to reach additional markets and support the needs of current students, they are seeking ways to effectively administer these programs. As this review of literature will illustrate, management

theorists have found that organizational culture and effectiveness are closely related and often structured organizational cultures are aligned with structured organizational tasks (Bergquist & Pawlak, 2008; Birnbaum, 1988; Burns & Stalker, 1961; Fayol, 1949). This suggests that a culture that aligns with a more structured management approach may be best suited to support changing student needs and increasingly regulated environments.

Institutions implement online learning programs for a number of reasons. The demand for flexibility and ease of access are certainly top factors as students increasingly expect educational experiences that complement their schedule. Additionally, there is evidence that students will attend an online program at their chosen university but, if an online program is not available, they will not attend at all (Eisenhauer. 2013). As well, students are becoming more savvy consumers when it comes to selecting an online program. "While a university's good name will always matter to its stakeholders, with so many options to choose from, students will become more savvy consumers, making decisions based on value and service, not just reputation and rank" (Bruininks, et al., 2010, p. 122). The National Center for Educational Statistics (2009) found that the most common factors affecting distance education decisions were: (a) meeting student demand for flexible schedules (68%); (b) providing access to college for students who would otherwise not have access (67%); (c) making more courses available (46%); and (d) seeking to increase student enrollment (45%). The challenge now may be for administrators to find ways to efficiently and effectively deliver online programs.

Distance education has had a lengthy history and the research agenda has covered a wide range of topics. This literature review will highlight key areas of historical and current study related to the field of distance education. Since 1996, the World Wide Web began to be used in higher education on a consistent basis, and "regular classroom teachers started to incorporate the

Internet into their teaching" (Bates, 2004, p. 273). Correspondence methods and the issue of effectiveness dominated early literature. Indeed, many faculty members are still uncomfortable with distance-enabled teaching and the issue of effectiveness continues to be highly studied. To illustrate this point, a survey of faculty attitudes related to online learning revealed that 50% of faculty members believe that online learning is lower quality than face to face teaching while only 10% of administrators express this same view (Jaschik & Lederman, 2013, p. 18). The topic of effectiveness is one that continues to be studied, especially with the emergence of new online models, like MOOCs.

While scholars continue to complete comparative studies, more recent literature on distance education has shifted to an emphasis on issues that various stakeholders (such as students, faculty members and administrators) face when moving online. Secondly, research has moved from a solely comparative perspective to empirical research related to: (a) faculty and organizational resistance (Allen, et al., 2012; Hixon, Buckenmeyer, Barczyk, Feldman & Zamojski, 2102; Muilenburg & Berge, 2005); (b) understanding the nature of distance learners (Bates, 2004; Bristow, Shepherd, Humphreys & Ziebell, 2011; Kerr, Rynearson & Kerr, 2006); (c) determining criteria for success both for students (Bristow, Shepherd, Humphreys & Ziebell; 2011; Muilenburg & Berge, 2005); and (d) organizational strategies for managing online programs (Berge & Muilenburg, 2000; Bischel, 2013; Curran, 2009; Garza-Mitchel, 2009; Lowenthal & White , 2009; Moore & Kearsley, 2012; Paolucci & Gambescia, 2007; Stone, Showalter, Orig & Grover, 2001; Yang, 2010).

Perhaps the most challenging issue with scholarship related to online education is the lack of uniform terminology, which makes results of studies difficult to interpret (Garrison, 2009; Guri-Rosenblit & Gros, 2011; Moore, Dickson-Deane, & Galyen, 2011). In addition, the

perceived weaknesses in early distance education research methodology provides inconclusive and inconsistent study results (Bernard, et al., 2004; Guri-Rosenblit & Gros, 2011; Labach, 2011; Means, et al., 2010; Rovai, 2003; Simonson, et al., 2011; Zawacki-Richter, 2009; Zhao, Lei, Yan, Lai & Tan, 2005). In some research, proper attention was not given to the methods used and studies were often based at a local level and therefore not generalizable. Given that distance education research expands across a broad timeline and covers a wide continuum of topics, the research agenda is most commonly focused on the areas outlined on the following table (Table 1):

Table 1. Historical Distance Education Research Topics

Area of Inquiry	Researchers
Defining distance education and historical perspectives	Allen & Seaman, 2002, 2010, 2011, 2013 Bates, 2004 Bernard, et al., 2004 Dziuban & Moskal, 2011 Guri-Rosenblit & Gros, 2011 Holmberg, 1987 Moore, et al., 2011 Rumble, 2001 Sangrà, Vlachopoulos, Cabrera & Bravo, 2011 Zawacki-Richter, 2009
Effectiveness of distance education versus face-to-face instruction including assessments of technology and instructional approaches for distance education	Allen, Mabry, Mattrey, Bourhis, Titsworth & Burrell, 2004 Bernard, et. al., 2004 Gunes & Altintas, 2012 Hershkovitz & Nachmias, 2010 Holmberg, 1987 Johnson, Aragon, Shiak & Palma-Rivas, 2000 Leiblein, 2001 Machtmes & Asher, 2000 Means, et al., 2010 Rovai, 2003 Russell, 1999 Sangrà, et al., 2011 Sellani & Harrington, 2002 Simonson, et al., 2011 Zhao, et al., 2005

Area of Inquiry	Researchers
Barriers to adoption including change management and faculty resistance	Adams & DeFleur, 2006 Allen, et al., 2012 Bates, 2004 Berge & Muilenburg, 2000 Boubsil, Carabajal & Vidal, 2011 Bristow, et al., 2011 Curran, 2009 Garza-Mitchel, 2009 Hixon, et al., 2102 Lowenthal & White , 2009 Muilenburg and Berge, 2005 Paolucci & Gambescia, 2007 Stone, et al., 2001 Yang, 2010
Distance learner user characteristics, experience and success	Dziuban & Moskal, 2011 Lewis, Agarwal, & Sambamurthy, 2003 Muilenburg & Berge, 2011 Naveh, Tubin & Pliskin, 2010 Simonson, et al., 2011 Saba, 2011

As illustrated in Table 1, distance education has a number of common areas of inquiry that have changed over time. “During the 1970’s and 80’s, when distance education research seems to have come of age, most research studies emulated from scholars in Australia, Canada and the United States” (Holmberg, 1987, p. 16). These countries remain at the forefront of distance education research. However, developing nations are also beginning to explore distance education as a topic of study (Gunes & Altintas, 2012; Hershkovitz & Nachmias, 2010). Inquiry, then, has evolved from informal, non-scientific analysis of effectiveness versus face-to-face courses and barriers to adoption to more rigorous, broad based inquiry.

2.1.1 Defining the Term "Distance Education"

Perhaps the most appropriate place to begin an examination of online education is to set a common frame of reference. This is a difficult task as the term "distance education" is used across a wide variety of delivery approaches (Guri-Rosenblit & Gros, 2011) with "vast differences in the meaning of foundational terms that are used in the field" (Moore, et al., 2011, p. 134). Researchers continue to note the lack of a common framework for terminology (Bischel, 2013) as the labels of *distance education*, *online education*, *hybrid*, and *blended* often overlap due to the lack of an established method of categorization. Although the term "distance education" relates mostly to television and correspondence delivery methods that were common in the mid-1980's (Bernard, et al., 2004, p. 286), today the term is used as a descriptor for all forms of remote education including online delivery in synchronous and asynchronous formats, as well as historical distance forms. Distance education is most often used as a broad term with many meanings while the words online or eLearning typically refer specifically to the method of delivery (Guri-Rosenblit & Gros, 2011; Sangrà, et al., 2011) via the World Wide Web. Most recent literature on the topic of online learning begins with a discussion of terminology and definition of approach.

This lack of standard terminology creates difficulty in both understanding research components and "internationally for the referencing, sharing, and the collaboration of results detailed in varying research studies" (Moore, et. al, 2011, p. 134). Descriptive terms for distance education can be viewed in several ways. Terminology can be based on the technology that is used to deliver the material, along with its specific functions and communication methods, or it can be used as a descriptor of the educational paradigm (Sangrà, et al., 2011, p. 19). For example, some programs are referenced by their delivery methods, such as synchronous or

asynchronous, while others are categorized by their technology base. Web-based or online programs are examples of the latter.

To confuse the issue further, the meaning of eLearning differs by geographic location (Sangrà, et al., 2011, p. 38) with regionally selected terminology and definitions. Distance education and open learning are often used outside the United States, while the use of the terms eLearning or online learning is more prevalent in the United States. Historical terms, such as open education, now have multiple meanings. Open education was initially used to reference the correspondence approach of the British Open University in the United Kingdom (Rumble, 2001, p. 31), but in the United States this name referred to open classrooms in the K-12 environment (Giaconia & Hedges, 1982, p. 579). More recently, a similar term, "open courseware", has been used to describe online materials and courses that are freely accessible. Examples of this approach include MIT OpenCourseware, EdX and Coursera. EdX is a partnership between Harvard and MIT to deliver free online courses, while Coursera is a company that (as of February 2013) has partnered with 62 institutions to develop freely delivered Internet courses (Lewin, 2013).

When thinking about how to categorize distance education approaches, a somewhat consistent taxonomy can be developed based on the categorization presented in prior research. Categorizations of distance education align along a spectrum of delivery methods that ranges from traditional, face-to-face formats to fully online delivery (Allen & Seaman, 2002; Bates, 2004). A traditional face-to-face course has no content delivered online and is offered entirely in the classroom (Allen & Seaman, 2002, p 4). The course may include a syllabus or other documents posted online, but no interaction occurs remotely. On the other end of the spectrum, fully online courses deliver all content online and typically have no face-to-face meetings (Allen

& Seaman, 2002; Bates, 2004; Dziuban & Moskal, 2011). Finally, a variety of blended or hybrid forms combine online and face-to-face components (Sangrà, et al., 2011, p. 17).

The term "fully online" can refer to individual courses or fully online programs. For this study, the term distance education will refer to all types of distance delivery and online education will be used in relation to programs that are delivered over the Internet, in asynchronous formats. This literature review provides an analysis of research directed towards fully online degree programs rather than individual courses or hybrid programs. To ensure alignment of terminology, operational definitions of specific terminology used throughout this study will be discussed in Section 2.1.2.

2.1.2 Distance Education Terminology

As illustrated in the previous section, the topic of distance education can be difficult to review due to the many ways that common terms are used. For the purposes of this study, terminology is used according to the definitions provided in Table 2 below:

Table 2. Summary of Key Terms

Term	Definition
Distance Education	Distance education refers to educational programs that are delivered in methods other than face-to-face, such as correspondence, tele-learning or online delivery. In this study, distance education will be used as the overall descriptive term refers to all types of courses that are delivered remotely including correspondence, video, online and satellite locations.

Term	Definition
Massively Open Online Courses (MOOCs)	Massively Open Online Courses (MOOCs) refers to online courses that feature some faculty interaction but all assessments are auto-graded in formats such as peer review or auto-generated test scoring. MOOCs are available for a fixed duration and often have a global audience. Although some schools have created their own internal formats, MOOCs are often hosted by organizations that are external to the university such as Coursera and Udacity.
Open Courseware	Open courseware refers to online materials that are freely available over the internet. In the open courseware approach no instruction is included and materials are not delivered on a schedule but rather available at any time.
Online Education or Online Learning	Online education refers to programs that are delivered entirely over the Internet to students at a distance. Online programs can be asynchronous or synchronous in format. This study defined online education as programs that are delivered over the Internet either synchronously or asynchronously.
Open Learning	Open Learning has historically been aligned with both K-12 approaches in the United States and distance education in the United Kingdom.
Online Program Management (OPM)	Online program management (OPM) refers to the administrative function of managing online programs. OPM can be managed internally or outsourced to external, usually for-profit, providers.
Tele-learning	Tele-learning is a format that was derived from early correspondence models and added video, radio and phone interaction with the faculty members. In some cases, students would gather in a certain location, in other forms, students would receive mailed video tapes to watch at home.

2.1.3 Concerns Regarding the Effectiveness of Online Learning

The most highly discussed, rigorously contested and heavily researched area within the field of distance education is the issue of effectiveness. Historically, many faculty members did not have confidence that online learning would achieve the same objectives as face-to-face instruction. Even recently, half of the faculty members who participated in an Inside Higher Ed survey of faculty attitudes related to online education (Jaschik & Lederman, 2013) reported this perception.

Research in this area can be challenging to quantify as the topic of effectiveness is difficult to measure, partially due to the many ways that distance education can be defined and the variety of delivery approaches. Additionally, much of the early research related to distance education was limited in scope, making its generalizability limited.

Several meta-analyses have sought to clarify the issue of effectiveness by reviewing historical comparative studies (Allen, et al., 2004; Bernard, et al., 2004; Machtimes & Asher, 2000; Means, et al. 2010; Ramage, 1999; Zhang, 2005). The outcomes of these reports have provided varying and often inconclusive results. Some individual studies conclude that face-to-face instruction is the most effective approach, while other outcomes suggest that distance education is more effective. In spite of the wide range of findings, the general consensus, based on the large volume of studies, is that in terms of effectiveness, no significant difference exists between online and face-to-face instruction (Allen, et al., 2004; Bernard, et al., 2004; Machtimes & Asher, 2000; Means, et al., 2010; Ramage, 1999; Zhao, et al., 2005; Zhang, 2005). One of the most frequently cited and often contested articles about the effectiveness of online education was published in 2010 by the U.S. Department of Education (Means, et al., 2010). The Department of Education (DOE), through a systematic search of the research literature from 1996 through July, 2008, confirmed previous meta-analyses and found that online education is as effective as face-to-face delivery and in some cases slightly more effective when applied in a blended approach (Means, et al., 2010). Recent studies reveal improved results in the effectiveness of distance education (Zhao, et al., 2005). Additionally, when faculty members have experience with online delivery they often express a more favorable perception. Jaschik and Lederman (2013) found that of faculty members who have experience with online delivery, 57% found the

two approaches to be compatible, in terms of effectiveness. Research and concern related to the effectiveness of online learning will most likely continue.

As mentioned previously, effectiveness was perhaps the most common topic for inquiry in early research. Now that some consider online learning to be established as a "legitimate alternative to classroom instruction," there is the suggestion that "the need for comparative studies may diminish" (Bernard, et al., 2004, p. 414). So far this has not been the case. Comparative studies continue to be common; however, new areas of inquiry are also being developed. The reason for this continued inquiry is that many faculty members still express concerns about online education. They are not alone. "A substantial minority of chief academic officers continues to hold serious reservations about the quality of student learning outcomes for online education" (Allen, et al., 2012, p. 9) and external stakeholders, such as employers, continue to be wary of online degrees (Adams & DeFluer, 2006; Linardopoulous, 2012). As might be expected, technology administrators express a much more positive view as 74% view online and face-to-face instruction as having the same quality (Jaschik & Lederman, 2013, p. 13).

The issue of effectiveness is related to the key idea behind this paper as regulatory requirements are often related to the desire to ensure quality within online delivery. Faculty members worry that the quality of instruction is lessened online, while regulators worry that Federal Financial Aid is being used for programs that are not providing appropriate outcomes for students. In spite of these challenges, online education is growing exponentially, embraced by students as a way to gain educational credentials (Allen & Seaman, 2010; Aslanian & Clinefelter, 2013). Likely studies related to the effectiveness of online learning will continue especially given the emergence of new models like MOOC's.

2.1.4 Barriers to Adoption of Online Learning within Higher Education Institutions

As mentioned in the previous section, research in the field of distance education focuses heavily on the issue of effectiveness. Another research topic is related to the desire to understand the limitations of online learning by looking at adoption trends. Recent inquiry has become more constructivist in nature with scholars seeking to understand success factors for program administrators and students (Adams & DeFleur, 2006; Berge & Muilenburg, 2000; Muilenburg & Berge, 2005). Barriers related to distance education adoption have historically been tied to change management and organizational issues, which is a key idea behind this study.

Scholars find that most often distance programs struggle due to "lack of funding," "resistance to change," the "lack of shared vision for distance education in the organization," and the "lack of support staff to help with course development" (Berge & Muilenburg, 2000, n.p.). Additionally, in many types of higher education institutions, faculty resistance (Bates, 2004; Matthews, 1999; Rumble, 2001) continues to be a barrier to online program expansion. Faculty members remain hesitant about the effectiveness of online education and "report being more pessimistic than optimistic about online learning" (Allen, et al., 2012, p. 2). Faculty resistance to online learning continues to be a barrier for online adoption by higher education institutions. As distance education makes new ways of teaching available, organizations are often impacted by changes that are required in process and approach. Scholars suggest that, "the emergence of online distance learning highlights a pressing need for educational institutions to embrace innovation and change" (Zawacki-Richter, 2009, p. 15). These changes may not occur until faculty members are convinced that the effectiveness question has been resolved.

In fact, one of the most common barriers to implementation continues to be organizational resistance to change (Moore & Kearsley, 2012). The disparity between the views

of administrators and faculty members illustrates this point (Allen, et al., 2012). Administrators tend to view online programs in a more positive light while faculty members are less convinced and several reports point to the fact that both administrators and faculty continue to question outcomes (Allen, et al., 2012; Allen & Seaman, 2011; Jaschik & Lederman, 2013). Scholars suggest that for "online education to be successful, faculty members must be willing to embrace online learning" (Bristow, et al., 2011, p. 246). Organizational culture will contribute to this change effort as organizational culture drives norms of behavior. For this reason, organizational culture will be a crucial part of future inquiry and implementation related to online education.

2.1.5 Characteristics of Distance Learners

An area of increasing attention is distance learners themselves. Research finds that a unique characteristic of distance learners is that they generally have a more favorable attitude toward distance education (Aslanian & Clinefelter, 2013; Lee, 2010) and believe that, despite perceived barriers, they have the ability to succeed in a distance education environment (Lewis, et al., 2003; Muilenburg & Berge, 2011; Simonson, et al., 2011). Students "who think they can" often do enroll and succeed as online students, in spite of potential barriers. A significant amount of research is available regarding success factors for online students and research indicates that successful distance learners traditionally tend to be abstract learners who are intrinsically motivated and possess an internal locus of control (Simonson, et al., 2011, p. 139). Additional sources suggest that their ability to succeed in an online environment can be measured (Kerr, et al., 2006).

Online education is certainly not the best approach for all students. Studies have shown that online learning "is less appropriate for immature students, for students unable or unready to

learn independently, and for students in need of close and personal interaction with other students" (Bates, 2004, p. 289). In general, more mature learners (88% are 24 years of age or older) are accessing online education (Noel-Levitz, 2012, p. 4). Additionally, recent studies have found that online learning increases achievement gap for males, Black students, younger students and students with lower grade point averages (Xu & Jaggar, 2013). Community college students reported in one study that they prefer face-to-face courses for difficult topics or classes that they think they will enjoy (Smith, Lange & Huston, 2012). This is evidence that concerns related to effectiveness will continue to be a subject of scholarly inquiry.

Recent research also suggests that students have consistent satisfaction levels between course modality - blended, online or face-to-face - and they express high levels of satisfaction regardless of whether the Learning Management System (LMS) is used in a blended or fully online approach (Dziuban & Moskal, 2011; Naveh, et al., 2010). As technology changes and online approaches become more pervasive, additional research in this area would be valuable. Research related to the characteristics of distance learners will continue to be an area of inquiry as institutions seek to improve in areas related to effectiveness.

2.1.6 Current and Future Distance Education Research

While traditional areas of inquiry, such as effectiveness and barriers to implementation, persist, modern studies have expanded distance education research in a number of ways. Research has shifted to studying ways to understand globalization, as in: (a) the expansion of U.S. online programs to an international market (Gaspay, Legorreta & Dardan, 2009; Zawacki-Richter 2009); (b) the administration of online programs (Bernard, et al., 2004; Bischel, 2013; Moore &

Kearsley, 2012; Simonson, et al., 2011); and (c) the impact of for-profit institutions (Bates, 2004; Green & Wagner, 2011; Kinser, 2006; Kinser 2007; Zawacki-Richter, 2009).

Globalization research includes the applicability of online learning to different cultures (Chen & Bennett, 2012; Gaspay, et, al., 2009) and the need for institutions to benefit from economies of scale, driven largely by the for-profit sector (Morey, p. 140, 2004). Research regarding administration suggests that "Lone Ranger" (Bates, 2004) approaches, which were used heavily in the management of early distance programs, have not proven scalable and that structure has an influence on the types of programs that are offered via distance education (Stone, et al., 2001, n.p.). The "Lone Ranger" structure consisted of an online program managed entirely by an individual faculty member or department. Early distance programs were often deployed using this approach and even today both on-campus and online programs in higher education are often managed at the department level.

Research has also begun to identify gaps in the literature (Bernard, et al., 2004; Guri-Rosenblit & Gros, 2011; Labach, 2011; Means, et al., 2010; Rovai, 2003; Simonson, et al., 2011; Zawacki-Richter, 2009; Zhao, et al., 2005) and scholars suggest that future research should focus on psychological and social attributes of the learner or the impact of distance education on the organization (Guri-Rosenblit & Gros, 2011; Simonson, et al., 2011; Zawacki-Richter, 2009). As online programs continue to become more pervasive, increased regulatory scrutiny will require new areas of inquiry in the field of online program management. More recent studies that focus on the areas of inquiry are outlined in Table 3:

Table 3. Current Distance Education Research Topics

Area of Inquiry	Researchers
Globalization of eLearning and appropriateness of online modules across cultures	Boubsil, et al., 2011 Chen & Bennett, 2012 Gaspay, et al., 2009 Healy, 2009 Labach, 2011 Lee, 2010 Morey, 2008
Online program business models and the administration of online programs	Bates, 2004 Bischel, 2013 Bramble & Panda, 2008 Curran, 2009 Guri-Rosenblit & Gros, 2011 Garza-Mitchell, 2008 Moore & Kearsley, 2012 Paolucci & Gambescia, 2007 Yang, 2010
The impact of for-profit providers and increasing regulatory constraints in the U.S.	Bates, 2004 Green & Wagner, 2011 Kinser, 2006, 2007 Zawacki-Richter, 2009
Literature gaps and research methodology issues	Bernard, et al., 2004 Guri-Rosenblit & Gros, 2011 Labach, 2011 Means, et al., 2010 Rovai, 2003 Simonson, et al., 2011 Zawacki-Richter, 2009 Zhao, et, al., 2005

These areas of study are just beginning to create knowledge and each of these areas would benefit from additional inquiry.

As economic factors motivate U.S. institutions of higher education to expand abroad, recent studies, related to online programs, have begun to focus on the topic of globalization (Boubsil, et al., 2011; Gaspay, et al, 2009; Healy, 2008; Morey, 2004). Research has been conducted on the path of higher education institutions in pursuit of globalization via the

"Uppsala Internationalization Model" (Healy, 2008, p. 355) and the compatibility of international learners with online instructional delivery (Gaspay, et al., 2009; Lee, 2010). One benefit of the Internet is that it provides institutions with an opportunity to cross borders without developing expensive campuses. Research suggests that an asynchronous approach works across many cultural frameworks as "the flexibility of asynchronous Web-based DL (distance learning) appears to be a universally valued attribute" (Gaspay, et al., 2009, p. 63). Globally, demand is high for a U.S. education, but travel costs and administrative bureaucracy make it difficult for international students to study in the United States. Online programs may have appeal to this target population and as a result, scholars suggest that online education "is changing the traditional face and form of higher education in developed and developing countries alike" (Boubsil, et al., 2011, p. 16).

A common theme here is change. Studies suggest (Moore & Kearsley, 2012) that change is required for institutions seeking to adopt distance education; change is also required for the adoption of global online learning approaches. Some scholars suggest that, "if U.S. universities are to be successful competing on a global scale, then their approach to distance education and their organizational structures will need to change" (Boubsil, et al., 2011, p. 13). Limited empirical research is available regarding foreign demand for U.S.-based online programs or the impact of distance programs globally. This literature gap underscores the need for additional research to understand the impact of online programs outside the borders of the United States. While these areas represent emerging fields, it has been suggested that "there are research opportunities in developing and/or non-native English speaking countries" (Labach, 2011, p. 51). The need for change to adopt online learning will likely continue.

Online programs have always required some level of oversight, as the nature of the delivery approach is generally different from that of the overall institution. As mentioned previously, early online programs often followed Bates' (2004) Lone Ranger model rather than following the more formal approach established by earlier mail based programs. Most correspondence methods featured production and formalized administrative structures to manage the many program components (Rumble, 1987). In fact, there is much we can learn from the evolution of early distance formats. "One of the few significant findings that emerged from the TV studies of the 1950s and 1960s was that planning and design pay off, it was not the medium that mattered so much as what came before the TV cameras were turned on" (Bernard, et al., 2004, p. 414). Today attention to the development of online courses, prior to their delivery and a programmatic approach are common within large online programs (Bischel, 2003). Research suggests that the lessons learned from the implementation of correspondence and tele-learning, such as the need for structured processes, may also be applicable for online delivery. For this reason, many online education projects adopt "institution-centered models in which the primary focus is on increasing the efficiency" (Rubble, 1986, p. 27). As a result of this formalization, more structured online program management approaches are becoming increasingly visible within U.S. institutions of higher education (Bischel, 2013; Moore & Kearsley, 2012).

The future of research related to online programs may employ analytics to understand quantitatively how learners use online systems. Modern online program managers have access to tools, often imbedded within Learning Management Systems (LMS), which can be used to better understand the nature and practices of online learners (Flavian, 2011; Herschkovitz, 2011). Analytics will allow researchers to determine best practices for online learners based on trends of use and time on task, and especially related to design and user interface. As online program

delivery is now maturing, administrators are looking for models for implementation and ways to use technology to assess technology use and effectiveness. Recent research regarding distance education focuses heavily on administration of online programs and the need for additional research in this area (Bates, 2004; Guri-Rosenblit & Gros, 2011; Muilenburg & Berge, 2005; Zewicki-Richter, 2009).

Current research also illustrates the importance of cost containment and increased accessibility of higher education. Economic models and strategies for efficient delivery of online programs may be a focus of future research (Bates, 2004; Curren, 2009; Eisenhauer, 2013) as online education is becoming strategically important to institutions of higher education (Allen & Seaman, 2010; Allen & Seaman, 2011; Bischel, 2013). Additionally, the growth of the for-profit sector in the area of online learning may be signaling a commoditization of eLearning delivery (Chau, 2010). Limited research is available regarding the impact of for-profit organizations on the overall higher education landscape, but for-profit providers have drawn the attention of federal and state regulators and have experienced exponential growth as publically traded companies. For-profits, most often studied in relation to completion and student loan default rates, will continue to impact and be impacted by higher education policy (Bates, 2004; Kinser, 2006; Kinser, 2007).

Finally, the issue of federal regulations for online programs may greatly impact the organizational culture of online programs. Increasingly new requirements from federal and state authorities are being levied on online program administrators. This is due to the increasing investment in online education that is being made through Federal Student Aid programs. It has been suggested that "members of Congress are now asking very public questions about a variety of issues concerning online education programs" (Green & Wagner, 2011, p. 4). Regulators

have commented that programs and institutions must provide assurances that students will find "gainful employment" in order to be eligible for Federal Student Aid. Gainful employment regulations are being discussed as a way to protect students from unsustainable debt and taxpayers from the responsibility of repaying large numbers of defaulted Federal Student Aid loans. Similarly, state authorization requirements are being enforced as individual state governments seek to protect their constituents from fraudulent practices. This topic will be covered in more detail in Section 2.2.

As distance education has matured so have the research inquiries related to the administration of online programs. Early researchers focused primarily on the effectiveness of online programs versus face-to-face models, defining distance education, overcoming barriers and understanding distance learner characteristics. Modern researchers have strengthened these areas of study and have expanded inquiry to include globalization, administration and the impact of for-profits. Scholars continue to investigate the effectiveness of distance learning often with conflicting results. Future studies that focus on the applicability of online learning across cultures and ways to maximize the efficiency of online program administration will be valuable. Most likely, for-profits will continue to impact policy for all higher education providers and with the advent of the MOOC, online education scholars have a number of new research areas to consider.

2.1.7 Literature Gaps and Methodology Concerns

A key challenge with any inquiry into distance education is that researchers have identified a number of methodology concerns, particularly within comparative studies. Several researchers have completed meta-analyses to determine overall findings related to effectiveness of online

programs versus face-to-face instruction (Allen, et al., 2004; Bernard, et al., 2004; Means, et al., 2010; Machtmes & Asher, 2000; Ramage, 1999; Zhang, 2005). Each study has highlighted a number of research gaps. For example, some studies suggest early research was not empirical in nature (Guri-Rosenblit & Gros, 2011; Labach, 2011; Means, et al., 2010; Zawacki-Richter, 2009) while others highlight the fact that "codable study features (including methodological features) were (are) missing" (Bernard, et al., p. 405; Zhao, et al., 2005). For example, often the attrition rate is not considered; this can impact results as some distance programs have high attrition (Machtmes & Asher, 2009, p. 43). Other researchers allude to the notion that "research seems to have as its incentive a management and administrative motivation" (Holmberg, 1987, p. 16), which may cause it to be biased in favor of a more positive outcome.

One challenge with research in the field of the management of distance programs is that some of the early inquiry is considered neither rigorous nor theoretically sound (Bernard, et al., 2004; Guri-Rosenblit & Gros, 2011; Means, et al., 2010; Rovai, 2003). Much of the existing research is limited in scope (Simonson, et al., 2011) in that studies are confined to a single class, institution or regional area. Most early literature was positivist and qualitative in approach, thus suggesting there is one true reality: that online education either was effective or ineffective and "the historically anecdotal nature of distance education literature, reporting results of a specific project, makes it difficult to generalize the findings to a broader audience" (Simonson, et al., 2011, p. 129). Additionally, key elements of the methodology, such as the study population and number of participants, are missing in some studies.

Each of these meta-analyses (Bernard, et al., 2004; Guri-Rosenblit & Gros, 2011; Means, et al., 2010; Rovai, 2003) points to a lack of focus on longitudinal studies. By reviewing one or a small population of faculty, results are impacted by unique elements within that organization,

area, individual or time frame. Much of the research on distance education is in the micro perspective and based on small sample sizes or local geographic regions (Guri-Rosenblit & Gros, 2011; Zawecki-Ritcher, 2009). Additionally the lack of consideration for faculty across universities or between countries (Gunes, 2012; Labach, 2011) makes the applicability of research limited. The lack of consistent terminology also contributes to this issue as early research often uses conflicting labels without specifying their meaning. The field of distance education is missing "a validated meta-structure of research topics" (Zawacki-Richter, 2009, p. 1). This issue illustrates the importance of clear terminology with studies related to distance education.

In summary, a number of meta-analyses have highlighted key gaps in literature and problems with early methodology that make it difficult to generalize prior studies. Problems with rigor and the lack of universal language have also contributed to gaps in the literature. "The research on e-learning is marked by large gaps, particularly at the institutional and system- wide levels" (Guri-Rosenblit & Gros, 2011, n.p.). This study seeks to build on the scholarship that has already been completed and seeks to fill in a gap in the research literature related to the influence of online program organizational culture related to regulatory adherence.

2.1.8 Summary

In summary, future research agendas will most likely provide numerous opportunities for researchers to expand into new and existing areas related to online education. Distance education has had a long lifespan, and its historical roots in correspondence and tele-learning models may offer insights into management approaches for future online program delivery approaches. Furthermore, increasing federal scrutiny will create additional requirements and

measures for online program administrators. As the online market becomes more competitive, higher education administrators will seek new ways to administer, globalize and monetize online programs, while faculty members will continue to evaluate rigor and quality. This literature review has illustrated the evolution of online education research topics. As the field becomes more highly regulated and increases in strategic importance to university administrators, research related to organizational and program effectiveness, in terms of student outcomes and efficient delivery models, will be of interest. This inquiry seeks to determine if organizational culture can be used as a predictor of regulatory adherence.

2.2 FEDERAL REGULATIONS RELATED TO ONLINE LEARNING

To support the research questions for the study, it is necessary to explore the expanding role of the Federal Government and research related of regulatory policy for online programs. The Federal Government has played an increasing role in regulating higher education (Matthews, 2012; Mayadas, Bourne & Bascich, 2009), and as the use of federal funds for enrollment in online programs expands, distance education has attracted the attention of policy makers. One of the key factors in the growing level of scrutiny is the increasing amount of Federal Student Aid that are devoted to online programs, particularly at for-profit schools. Currently, up to 90% of the revenue at for-profit institutions is permitted to be from federal sources (Cellini, 2010), which means that revenues from tuition at for-profit institutions are driven primarily from taxpayer funds (Demin, Goldin & Katz, 2012, p. 150). This becomes exponentially more important when schools have a high default rate, which means that loans are not being repaid. High default rates may also signal a lack of quality.

Research suggests that students at for-profits institutions default on their loans at higher rates and are left with considerably higher debt than students at other types of institutions (Deming, et al., 2012, p. 159). For example, as of August 3, 2012, Tidewater Tech has a default rate of 41.7% while the University of Pittsburgh has a default rate of 2.4% (Official cohort default rates for schools, 2012). As mandates regarding online programs are new and currently evolving, only a few empirical studies are available on the impact of federal regulation on online programs. This literature review will provide an overview of the limited information that is available related to federal regulatory requirements and online programs.

One of the first mandates that directly impacted online program management was the Americans with Disabilities Act (ADA). ADA requires that online programs be built in a way that is accessible to all students. Outside of the ADA, "the role of the Federal Government in postsecondary education has largely been defined by the Higher Education Act of 1965 (HEA), which is administered by the U.S. Department of Education" (Mayadas, et al., 2009, p. 52). New regulations, highlighted by the recent reauthorization of the Higher Education Opportunity Act (2008), include requirements for identity verification (Section 2.2.1) and state approval requirements (Section 2.2.2). These additional requirements have created greater demands for accrediting agencies to create and enforce policies specifically related to distance education.

While the Federal Government is enacting policies to protect its investment, and the investment of taxpayers, in higher education, states also are now becoming involved in order to guard online students living within their borders. If history repeats, institutions will be slow to adopt new requirements governing online program management. Research related to the impact of the requirements of the Higher Education Reauthorization Act (2008) and other federal regulations does not currently exist, but will be more common in the future as the requirements

of these policies are finalized. Sections 2.2.1, 2.2.2 and 2.2.3 provide an overview of current federal requirements related to online programs.

2.2.1 Federal Regulations Related to Identity Verification for Online Learners

One of the many ways that regulators are seeking to protect the Federal Government's investment in higher education relates to verification of identity for online students. One of the most frequent concerns related to delivery of online programs is that the student taking an online class be positively identified as the same student who completed the assignments. This worry now is occurring at the federal level (Mayadas, et al., 2009, p. 52) and accrediting agencies are tasked with enforcing this requirement. Federal policy related to accrediting agencies currently states that,

> an agency must require an institution that offers distance education or correspondence education to have processes through which the institution establishes that the student who registers in a distance education or correspondence education course or program is the same student who participates in and completes the work and receives the academic credit (Dear Colleague-Accreditors, p. 4).

These new mandates require that institutions have processes to ensure the identity of distance students. No empirical research has been completed on the process and effectiveness of identity verification for online students; thus, this represents an additional gap in the literature. This requirement highlights increasing federal oversight of online program delivery.

2.2.2 Federal Mandates Related to State Authorization for Online Programs

In the summer of 2010, an amendment to the Higher Education Reauthorization Act was approved that required distance programs to have state approval from all the states from which students were enrolled. State approval was to be required in order to be eligible for Federal Student Aid. What this implied was that if an institution was determined to have online students in states where they had not received the appropriate authorizations, the entire institution would lose its Federal Financial Aid eligibility. The requirement and tie to Federal Financial Aid eligibility was struck down in the spring of 2011 (WCET, 2011d) and state approval is no longer required for Federal Student Aid; however, the state requirements remain and this requirement provides an additional example of federal interest in online delivery. "States have traditionally asserted a right to impose rules and regulations on institutions that are located on their soil with a 'physical presence' within their boundaries" (Madayas, et al., 2009, p. 52). The Act required that "if the state had an additional approval or licensure requirement, the institution must comply with those requirements" (Integrity, 2010, p. 66858). State requirements around distance education, which had already been in place, had not previously been tied to Federal Financial Aid.

Based on trending communications on informal distance education networks and personal contacts, state requirements were initially ignored by higher education institutions. A study by WCET in 2011 found that only 28% of institutions had applied to one or more states (WCET Study, 2011). In 2012, that percentage increased to 52% (UPCEA, et, al., 2013), which may have been an indicator that online program administrators are beginning to consider compliance to be important. This study found that 79% of higher education institutions view themselves as compliant and may suggest that organizational cultures have shifted or perhaps time has led to

greater compliance. Whatever the cause, institutions of higher education appear to be increasingly aware of federal requirements for online program administration.

These increasing regulatory requirements may suggest that government agencies more carefully considering online delivery as an integral part of higher education. "The recent reauthorization of the Higher Education Opportunity Act (HEA) of 2008, contains several specific provisions that indicate that the Federal Government is increasingly taking into account the importance of online education" (Madayas, et al., 2009, p. 52). Regarding the issue of state authorization, several organizations are now working on reciprocity agreements that would provide approval to multiple regional states with a single application process. The State Authorization Reciprocity Agreement (SARA) is currently in progress but may take years to fully operationalize. No real empirical research either on the impact of state or federal requirements for distance education programs is available. This represents a clear gap in the research literature and a potential new field of inquiry.

2.2.3 The Influence of Federal Regulations on Accrediting Agencies

As a result of exponential growth and the perception of a lack of oversight, accrediting agencies have been called upon to be more accountable in regards to the evaluation of online programs. Accrediting agencies that previously had limited insight into distance education activities have now formulated specific guidelines and policies. Two examples of such documents include: (a) the Middle States Commission on Higher Education's (2011) publication of *Interregional Guidelines for the Evaluation of Distance Education;* and (b) the *Guidelines for the Review of Off-Campus and Distance Education Programming during a Comprehensive Evaluation*, from the New England Association of Schools and Colleges Commission on Institutions of Higher

Education. (2004). These new guidelines point to the fact that online education should be "an integrated part of regular university activities, routinely subject to the normal governance, management structures and processes of the institution" (Curren, 2009, p. 43). Moreover, this formalization of accrediting requirements may have an impact on approaches to management of online programs in the future.

Current literature suggests that accrediting can lead to quality improvement (Lejeune, 2011), but few empirical studies on the impact and effectiveness of the accreditation processes have been completed. Federal stakeholders are pushing accrediting bodies to hold higher education institutions more accountable to federal mandates. This is evidenced in the expansive introduction of new requirements that accreditors now monitor. This new focus on outcomes and online delivery may be changing the nature of the collegial accrediting process in higher education resulting in organizational culture shifts. There is limited research on the role of private accrediting organizations in the determination education quality (Matthews, 2012, p. 12). This is another area where higher education institutions may be forced to change their current practices. The role of accrediting agencies in higher education, and specifically their evaluative processes for online programs, represents a literature gap and a new area of inquiry.

In summary, there is a gap in the literature related to higher education and the impact of federal requirements. The most highly researched area is the topic of compliance with ADA and requirements involving accessibility. Having first been adopted in 1990, this is also the most mature federal requirement related to online programs. Literature in this area highlights the fact that institutions have been slow to enact policy and fully implement these federal requirements. As the Federal Government increases its investment in online education through Federal Student Aid, additional requirements have been implemented. Whereas previous accrediting approaches

relied heavily on self-reporting and were highly related to an institutions organizational culture and mission, recent approaches attempt to unilaterally administer restrictive guidelines. Matthews (2012) suggests that, "the federal recognition process for accreditation is reaching a point of precision and prescription to an extent that accrediting organizations are held firm to every regulation and granular requirement of the recognition process regardless of the individual qualities and characteristics of the institution" (p. 118). What this means for online program administrators is that more formal and documented requirements for distance education are now in place and must be managed. These more formal requirements may lead to a need to adopt more formal organizational cultures, which is the key idea behind this study.

2.2.4 Summary

While the Federal Government is enacting policies to protect the investment of taxpayers in the delivery of higher education, states are also now becoming involved in order to guard online students living within their borders. If history repeats, institutions may be slow to adopt new requirements governing online program delivery. Research related to the impact of the requirements of the Higher Education Reauthorization Act (2008) and other federal regulations does not currently exist but may be more common in the future as the requirements of these policies are finalized. The future of accrediting for higher education, as well as online programs, may be one that is more rigorous and governed more from federal interests rather than as a collegial process.

As illustrated here, higher education administrators may need to reconsider organizational cultures of the online program groups in order to efficiently align with new requirements. Other factors are at work here as well, such as the need to be efficient and deliver

high quality experiences and outcomes. Given that the nature of online delivery may require a more structured approach, theoretical approaches from the field of business may provide a useful framework for inquiry. Sections 2.1 and 2.2 have provided an overview of scholarship related to historical and current topics related to distance education and the limited research that is available related to federal regulations. The other area of focus that this study considers is the influence of organizational culture. Core themes related to scholarly research on organizational culture in business and higher education is developed in Section 2.3.

2.3 ORGANIZATIONAL CULTURE THEORIES

The key idea of this study is that the organizational culture of an institution may drive its approach to regulatory adherence. Models from the field of business specifically, organizational culture theory offer a way to investigate this idea and is the focus of this section (Section 2.3). Online program administrators are now faced with regulatory compliance requirements which may change the organizational culture approaches that are most effectively aligned with management of online programs. Section 2.3 investigates scholarship related to commonly referenced theories of organizational culture. The goal of this analysis was to identify the approach for the conceptual framework of this study. No one theory captures all elements of organizational culture and the unique characteristics of higher education, hence a variety of frameworks are considered here.

It is important to keep in mind that there is no right or wrong way to frame organizational culture. Organizational culture is simply a set of norms that drive institutional behavior (Schein, 2010). As suggested by Cameron (1978), “no single profile is necessarily better than any other,

since strategic constituencies, environmental domain, contextual factors, etc., help determine what combination is most appropriate for the institution" (p. 625). For this study, we seek to determine if institutional organization behavior is related to regulation adherence for online program groups. In the context of higher education, a number of researchers have created organization typologies to describe culture as a unique element of institutions (Bergquist & Pawlak, 2010; Birnbaum, 1988). These theories are reviewed here, as well.

When considering ways to organize and manage online programs, theories related to organizational culture (Burns & Stalker, 1961; Fayol, 1949; Schein, 2010), distributed leadership (Burns & Stalker, 1961; Yoo, Lemak & Choi, 2006; Zheng, Yang & McLean, 2010), the competing values framework (Cameron, 1978; Denison & Spreitzer, 1991; Quinn & Rohrbaugh, 1981), and management of innovation (Burns & Stalker, 1961; Christensen, 1997; Rogers, 2003) have relevance to higher education settings. Hence, all offer potential theoretical frameworks for a study on the influence of organizational culture within online program groups. As online programs are often more entrepreneurial in nature than other areas of the higher education establishment, it is important to understand these business approaches. Table 4 provides an overview of these areas of inquiry, each of which is reviewed in detail in Sections 2.3.1, 2.3.2, 2.3.3 and 2.3.4:

Table 4. Management Theorist by Topic

Theory	Researchers
Organizational culture theory	Burns & Stalker, 1961 Fayol, 1949 Jones, Lefoe, Harvey & Ryland, 2012 McNamara, 2009 Ramezan, 2011 Sawyer & Howard, 2011 Schein, 2010 Vinekar & Huntley, 2010 Yoo, et al., 2006

Theory	Researchers
Distributed leadership	Bolden, 2011 Bolden, Petrov & Gosling, 2009 Burke, 2010 Burns & Stalker, 1961 Mayrowetz, 2008 Meyer, 2009 Reigle, 2001 Shagholi & Hussin, 2009 Yoo, et al., 2006 Zheng, Yang & McLean, 2010
The competing values framework	Cameron, 1978; Cameron & Quinn, 2011a Denison & Spreitzer, 1991 Hartnell, Ou, & Kinicki, 2011 Hassan, et al., 2011 Quinn & Rohrbaugh, 1981 Smart, 2003 Trivellas & Dargenidou, 2009
Management of innovation	Adams & Jean-Marie, 2011 Burns & Stalker, 1961 Christensen, 1997 Christensen, 2006 Garza-Mitchell, 2009 Kosma, 2012 Loogma, Kruusvall & Ümarik, 2010 Mahajan, Muller & Srivastava, 1999 McNamera, 2009 Rogers, 2003 Sine, Mitsuhashi & Kirsh, 2009 Straub, 2009
Higher education and culture	Birnbaum, 1988 Bergquist & Pawlak, 2008 Smart & Hamm, 1993 Smart & St. John, 2003

2.3.1 Organic and Mechanistic Culture Theories

When researching organizational culture, many of the concepts developed by early management strategists are applicable to today's organizations. Theorist and French industrialist, Henri Fayol

(1949) used his experience in industry to suggest five key elements to understand the management of organizations: planning, organizing, commanding (leading), coordinating, and controlling (Fayol, 1949; McNamera, 2009; Parker & Ritson, 2005). The organizations that Fayol (1949) described are, somewhat similar to large, bureaucratic institutions of higher education, and Fayol's approach works well in areas where formal processes are required for regulatory, safety or quality purposes.

Burns and Stalker (1961) suggest the term "mechanistic" to identify and describe a structured organizational framework, and "organic" to suggest a more loosely bound format (Burns & Stalker, 1961, p. 5). A mechanistic leadership style works well under conditions where machines work well (Vinekar & Huntley, 2010, p. 88) and where straightforward tasks are performed, in a stable environment (McNamara, 2009, p. 65). Mechanistic cultures feature "very clear job descriptions and rules and regulations that guide behavior" (Birnbaum, 1988, p. 111). Elements of the mechanistic culture are at work in institutions of higher education as some tasks require tight controls and rigid processes. Such tasks include: (a) the management of grants and federal aid programs; (b) the Institutional Review Board (IRB) approval of research; (c) the production of online courses; or (d) adherence to regulatory requirements.

On the other end of the spectrum, organic cultures are everything that mechanistic approaches are not. Organic cultures focus on teamwork and autonomy (McNamara, 2009, p. 65), and "function best when not bound by rigid, formal processes" (Vinekar & Huntley, 2010, p. 88). Whereas employees within mechanistic cultures have formal job classifications and tasks, "participants in an organic environment are equally leveled" (Ramezan, 2011, p. 92). Organic cultures generally operate with no job descriptions or classifications. The organic culture "thrives on the power of personalities, (and the) lack of rigid procedures and communication"

(Ramezan, 2011, p. 92). It is a decentralized format that is adaptive in nature (Zheng, et al., 2010). Many researchers have suggested that an organic or decentralized approach is most appropriate for new ventures (like online education) and to improve productivity (Burns & Stalker, 1961; McNamara, 2009; Mohr, 1971; Shagholi & Hussin, 2009; Zheng, et al., 2010).

Although historically, management theorists have suggested that an organic culture aligns well with the needs of a new venture (Burns & Stalker, 1961; McNamara, 2009; Mohr, 1971; Shagholi & Hussin, 2009; Zheng, et al., 2010), mechanistic elements are also useful in the management of innovation (Burns & Stalker, 1961; Christensen, 1997; Quinn & Cameron, 1983; Sine, et al., 2006). Decentralists would suggest that, "mechanistically structured organizations have great difficulty adapting to changing circumstances because they are designed to achieve predetermined goals" (McNamara, 2009, p. 65). This may suggest that organic cultures are more suited to a fast changing technology environment. However, more recent scholarship finds that, in some types of organizational cultures, a role driven and mechanistic culture can be helpful when supporting a new venture (Quinn & Cameron, 1983; Sawyer & Howard, 2007; Sine, et al., 2006; Yoo, et al., 2006) because it provides role clarity. Burns and Stalker (1961), who clearly advocate in favor of organic cultures, found that a lack of clear role definition resulted in a "pervasive sense of insecurity" (p. 2) in the organizations they studied.

The weakness of studies related to organic and mechanistic cultures is that empirical research is most often related to individual organizations, localized groups or regional concerns. Currently, limited empirical research exists on how management theory might be applied to higher education in the United States, thus illustrating a gap in the literature on higher education management and technology. This review of literature suggests that Fayol (1949) is most often discussed in terms of organizational structure while research related to the views of Burns and

Stalker (1961) are most often compared to organizational culture. In relation to the influence of organizational culture on compliance adherence, there is evidence that either cultural approach may be appropriate.

2.3.2 Distributed Leadership Theory

Researchers are divided between centralized (Fayol, 1949; Sine, et al., 2006; Yoo, et al., 2006) and decentralized cultures (Burns & Stalker, 1961; Zheng, et al., 2010), perhaps this is because organizational culture is difficult to define in simplistic terms (Mohr, 1971). This divide represents a sliding scale along the continuum between designated organic and mechanistic cultures (Reigle, 2001, p. 7). Not only are these approaches about rigidity of structure, but they also relate to leadership (Cameron, Quinn, DeGraff, & Thakor, 2006; Shagholi & Hussin, 2009; Schein, 2010) in that different types of organizations require more structured or unstructured leadership approaches. As organizational structures are rigid and flexible, leadership styles are as well. Distributed leadership suggests a shared approach wherein decision making is less directorial and more consensus-based (Bolden, et al., 2009; Burke, 2010).

The idea that governance should be collaborative and inclusive, rather than dictated from upper management is a core tenet of distributed leadership theory and matches well with organic culture types and with approaches generally used in higher education. In spite of the fact that many universities are imbedded with traditional processes, the concept of distributed leadership - often called “shared leadership” - has found general acceptance. The obstacle, however, is the difficulty in implementing shared governance processes (Bolden, et al., 2009, p. 269). The challenge when considering distributive leadership as a framework for inquiry is that it has multiple definitions with little agreement regarding terminology (Mayrowetz, 2008, p. 433). In

fact, Bolden and colleagues (2009) allege that its attempted use is so pervasive that it is simply leadership (p. 272), meaning that all governance is shared in some respect. General consensus underscores the need for more distributed leadership (Bolden, 2011; Burke, 2010) as higher education institutions may require a "less hierarchical approach that supports the needs of their diverse professional and subject disciplines" (Jones, et al., 2012, p. 74). This view supports the idea that a decentralized structure best supports innovation.

Distributed or shared leadership has been supported within higher education by a number of studies illustrating its usefulness in understanding management best practices. Leaders often define the culture of the organizations they oversee by what they "pay attention to, measure and control" (Schein, 2010, p. 235). Distributed leadership allows for the sharing of this control and as culture is influenced by the views of leadership, this approach incorporates the collective leadership insight. This management style "is most influential through its rhetorical value whereby it can be used to shape perceptions of identity, participation and influence but can equally shroud the underlying dynamics of power within universities" (Bolden, et al., 2009, p. 257). The hierarchies within higher education can be viewed in relation to the distributed leadership framework and organization theory suggests that higher education institutions may not be decentralized or centralized but rather a combination of multiple organizational cultures. It may be that centralized administration can support "effective decentralization and autonomy at lower levels" (Meyer, 2009, p. 463). The idea of shared governance is one that is familiar in higher education institutions and could be used as a theoretical framework for this study; however, the lack of agreement regarding terminology could present challenges with a correlation of previous research in this area.

2.3.3 Management of Innovation Theory

As we consider ways to evaluate organizational culture in online programs, the approaches of distributed leadership, organizational theory and the competing values framework each present a valid framework. One final approach for consideration is the management of innovation theory. This approach has been used as a framework through which to view organizational culture in relation to the adoption of new processes, ideas and technology. Adoption of new processes, ideas, and technology is clearly an issue in the emergence of online programs. One of the most well-known management theories is Rogers' (2003) theory of diffusion of innovation. Researchers have applied Rogers' theory to consumer product adoption (Mahajan, et al., 1990), the adoption of technology (Blackburn, 2011; Kosma, 2012), technology development (Wonglimpiyarat & Yuberk, 2005), leadership styles (Adams & Jean-Marie, 2011, p. 369), and the adoption of eLearning (Garza-Mitchell, 2009; Loogma, et al., 2010). Rogers' theory has been applied to a number of different industries, as well as to higher education institutions in relation to technology adoption.

The theory of diffusion of innovation (Rogers, 2003) suggests a staged process through which products, services or processes are adopted. Rogers (2003) outlines a normally distributed curve along which lays a continuum of adoption criteria and describes four elements that impact adoption: innovation, communication, time, and the social system (Lundblad, 2003, p. 52). In relationship to organizational culture preferences for higher education, Rogers' theory of innovation could provide a useful framework through which to view the diffusion of innovation throughout a university and may result in cultural change. It would be particularly useful related to the element of time (which also involves funding) because "funding is critical for innovation and is needed for time released from other duties to plan, develop, and install the innovation"

(Kosma, 1985, p. 315). In addition to an understanding of the social system as a whole (Rogers, 2003), leadership within the organization is an element that can be included in the process of innovation diffusion (Adams & Jean-Marie, 2011, p. 369). The work of Christensen (1997) is useful here as well related to how organizations can prepare themselves to predict future technology needs. Online education is, in some ways, an example of a disruptive technology.

Research has identified some weaknesses in the application of Rogers' theory of innovation (Mahajan, et, al., 1999; Straub, 2009) in that most diffusion theories are based on a series of stages that, although "suggest a progression of knowledge and understanding," may not necessarily be representative of the true nature of the decision-making process (Straub, 2009, p. 641). Others suggest that Rogers' model does not incorporate internal and external factors into its normal curve distribution (Mahajan, et al., 1999, p. 49). In spite of its limitations, the theory has been used effectively to describe a wide variety of adoption activities, including those in a higher education arena.

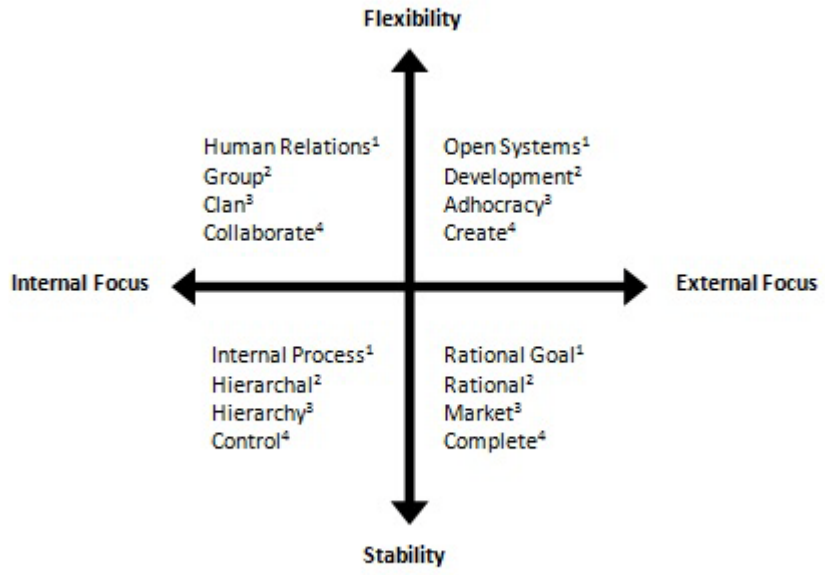
Institutions of higher education are perceived as "important magnets for talent and innovation" (Bruininks, et al., 2010, p. 114), and this is especially true in relation to technology. Imbedded within technology innovation is the increasingly competitive market for innovative access to education and the rise of online programs. Literature suggests that, "there may be a gap in the research about diffusion of innovation as related to organizations" (Lundblad, 2003, p. 63). Literature also acknowledges that most of the empirical research related to Rogers' theory is tied to the adoption of products and technology (Mahajan, et al., 1999; Wonglimpiyarat & Yuberk, 2005), as well as to faculty and campus adoptions of eLearning (Garza Mitchell, 2009; Loogma, et al., 2012). Rogers' theory does not appear to have been extensively applied to the growth of appropriately skilled development teams. Furthermore, research is limited since it

often relates to a specific product or geographic location. For these reasons, management of innovation theory may not present a valid way to evaluate organizational culture within online program groups.

2.3.4 The Competing Values Framework

The complexity and variety within the work of a higher education institution aligns well with a theoretical framework based on competing priorities and values. The competing values framework (Cameron & Quinn 2011a; Denison & Spreitzer, 1991; Quinn & Rohrbaugh, 1981) has been analyzed in relation to a number of different industries and multiple versions of the theory have been developed. The framework has been extensively used to describe the elements of higher education, such as organizational culture (Hassan, et al., 2011; Smart, 2003), effectiveness (Hartnell, et al., 2011), service quality (Trivellas & Dargenidou, 2009), and knowledge management (Zheng, et al., 2010) and suggests that organizational behavior can be mapped against cultural attributes. Additionally, modern higher education theories presented by Birnbaum (1988) and Berquist and Pawlak (2008) are based on the work of organizational culture theorist.

The competing values framework is the result of the work of a number of organizational researchers. The evolution is illustrated, along with the historical naming systems, in Figure 2 on a two dimensional grid with the four distinct quadrants that make up the competing values approach.



[1] (Quinn & Rohrbaugh, 1983)
[2] (Denison & Spreitzer, 1991)
[3] (Cameron & Quinn, 2011a)
[4] (Cameron & Quinn, 2011b)

Figure 3. Competing Values Framework Terminology

This approach has been studied by a number of scholars who each used slightly different nomenclature to describe each of the cultural preferences (Figure 3). The naming schemes of the quadrants, while similar, follows slightly different paths based on the researcher. These distinctions are illustrated in Figure 3. For example, Denison and Spreitzer (1991) categorize the competing values framework value quadrants through the names of "Group, Development, Rational and Hierarchal" (p. 5). Cameron and Quinn (2011a) suggest that the quadrants be labeled as "Clan, Adhocracy, Hierarchy and Market." The four quadrants identified by Quinn and Rohrbaugh (1981) are called the "Human Relations Model, Open System Model, Rational Goal Model and Internal Process Models" (Quinn & Rohrbaugh, 1981, p. 136). More recently, the quadrants were labeled as "Collaborate, Create, Compete and Control" (Cameron & Quinn,

2011b). "The verbs were created to capture the major theme in each quadrant because the academic terms were frequently misunderstood and often difficult to translate across languages" (K. Cameron, personal communication, October 19, 2012).

To illustrate the nature of competing values, the theory presents the y-axis as a continuum of structure, from control to flexibility, and the x-axis as a continuum of focus from organization to individual (Quinn & Rohrbaugh, 1981, p. 131). Plotted points illustrate the emphasis on approach, process or organizational outcomes. This graphical representation of the competing values framework (Cameron & Quinn, 2011a) shows the inner connection of three sets of competing values: (a) organizational focus related to attention on the development of employees or the organization itself; (b) organizational structure, from stability structure and processes to flexible methods; and (c) organizational means and ends, or an emphasis on either processes or final outcomes (Quinn & Rohrbaugh, 1981, p. 131). The competing values framework can be described as "an organizing taxonomy to meta-analytically test hypotheses about the relationship between culture types and organizational effectiveness" (Hartnell, et al., 2011, p. 677). In relation to online program management, the framework (Cameron & Quinn, 2011a, p. 53) might be illustrated as shown in Figure 4.

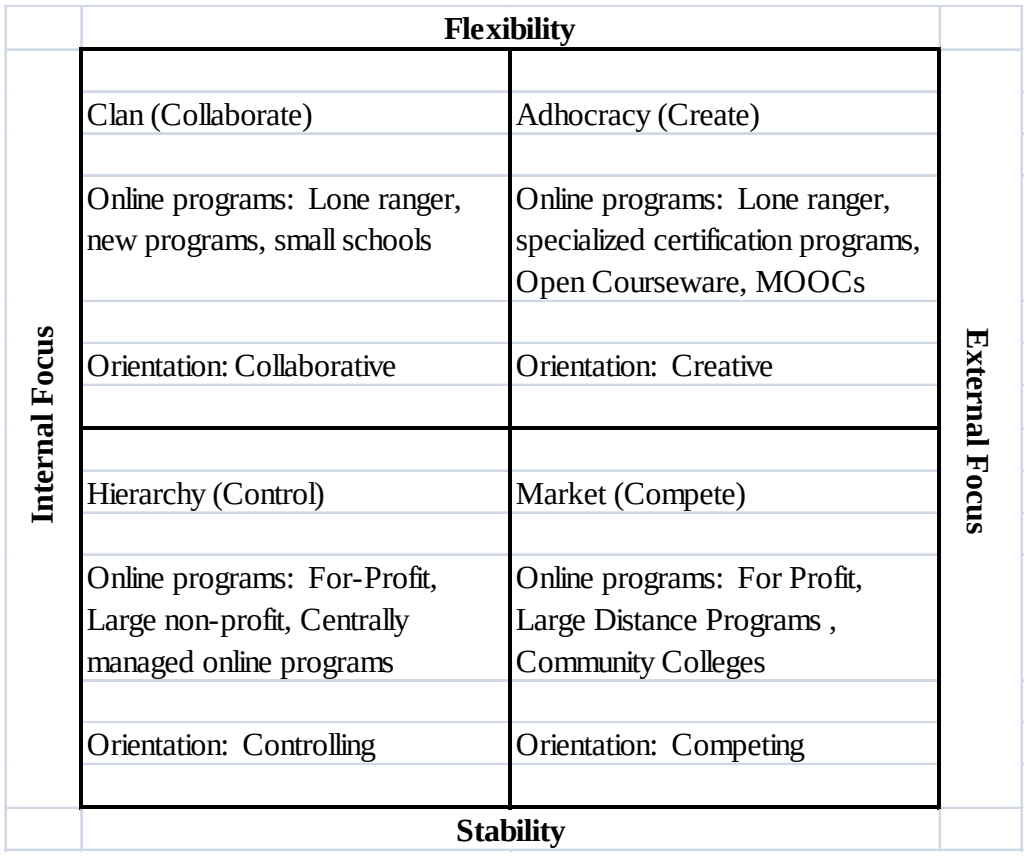


Figure 4. Suggested Competing Values of Online Program Management

Each of the quadrants represents a specific type of organizational structure. The Hierarchy (Control) culture (Cameron & Quinn, 2011a, p. 42) matches Fayol's (1949) mechanistic framework and might be aligned with for-profit organizations and institutions with large distance programs. The Market (Compete) culture (Cameron & Quinn, 2011a, p. 43) focuses on external transactions and competition with others and may be aligned with Online Program Management companies, large distance programs and community colleges. The Clan (Collaborate) culture (Cameron & Quinn, 2011a, p. 46) operates with a sense of "we-ness" and family orientation and might best align with more traditional, brick and mortal institutions. Finally, the Adhocracy (Create) culture (Cameron& Quinn, 2011a, p. 49) embodies the pioneer spirit coming from the word "ad hoc," suggesting a structure that is temporary and constantly

evolving and may best be aligned with entrepreneurial ventures like MOOC's and open courseware.

Research on the applicability of the competing values framework (Cameron & Quinn, 2011a) suggests that organizational effectiveness is related to an institution's dominant organizational culture (Cameron, 1978; Denison & Spreitzer, 1991; Hartnell, et al., 2011; Quinn & Rohrbaugh, 1981; Smart, 2003; Trivellas & Dargenidou, 2009). Higher education institutions, however, are difficult to classify, and while a university might have an overall central tendency, it is a complicated network of competing and sometimes overlapping processes and priorities. "Institutions of higher education vary on a continuum from loose coupling, (i.e., organized anarchies), to tight coupling (i.e., structured bureaucracies)" (Cameron, 1978, p. 610). This allows some organizations to be effective when "they demonstrate flexibility and adaptability," and other organizations to be effective when "they demonstrate stability and control" (Quinn & Rohrbaugh, 1983, p. 367). Related to the research question of this study, organizational culture preference could effectively be mapped on the competing values grid.

The competing values framework includes an evaluation instrument known as the Organizational Culture and Assessment Instrument (OCAI), which can be used for assessing organizational culture (Cameron & Quinn, 2011a, p. 27). Numerous studies have suggested that organizational culture and effectiveness can be measured using this tool (Cameron, 1978; Denison & Misrah, 1995; Denison & Spreitzer, 1991; Hartnell, et al., 2011; Quinn & Rohrbaugh, 1981). Therefore, the competing values framework provides a valid theoretical perspective for discovery of organizational approaches for higher education. As a theory that has been heavily investigated against higher education organizations, the competing values framework (Cameron, 1978; Cameron & Quinn, 2011a; Denison & Spreitzer, 1991; Quinn & Rohrbaugh, 1981) would

be an appropriate theoretical framework for assessing and analyzing online program management because it provides a proven framework through which to understand organizational culture and effectiveness within higher education online programs.

In addition to presenting a proven framework for evaluation of higher education organizational culture, key concepts from the competing values framework (Cameron & Quinn, 2011a) are included in well-known higher education texts. Several models of organizational culture have been developed specifically related to institutions of higher education. These models include Birnbaum (1988) and Bergquist and Pawlak (2008) who build upon some of the concepts created by Kim Cameron (Cameron, 1978; 1984; 1985, 1985a; Cameron, 1983; Cameron & Whetten, 1983) and the competing values framework (Cameron & Quinn, 1999). These theories were developed specifically related to higher education organizational culture.

Birnbaum's (1988) models of organizational functioning, is distributed along the spectrum of the organic and mechanistic approaches and the "collegial, bureaucratic, political, and anarchical cultures which he describes each illustrate different hypotheses regarding the nature of organizational life and change" (Lueddeke, 1999, p. 235). Birnbaum's (1988) classifications range from collegial formats that are organic and unstructured to bureaucratic, managerial, and political cultures that are more mechanistic in their leadership approaches (Birnbaum, 1988; Bergquist & Pawlak, 2008; Burns & Stalker, 1961; Fayol, 1949). When comparing these classifications (Figure 5) overlapping occurs at both the organic and mechanistic ends of the spectrum. However, most cultures are uniquely defined and fall between the mechanistic and organic frameworks and within the four organizational culture quadrants defined by Cameron and Quinn (2010a).

Fayol, 1949; Burns & Stalker, 1961	Birnbaum, 1988	Bergquist & Pawlak, 2008	Cameron & Quinn, 2011a
Organic ↓	Anarchical		Adhocracy
	Collegiate	Collegial Culture	Clan
		Developmental	
		Advocacy Culture	
↑		Virtual Culture	
		Tangible Culture	Market
	Political		
Mechanistic	Bureaucratic	Managerial Culture	Hierarchy

Figure 5. Comparison of Higher Education Organizational Models

More recently, theorists diversified these stratifications further from four into the six cultures of the academy: collegial, managerial, developmental, advocacy, virtual and tangible (Bergquist & Pawlak, 2008). Similar to the organic structure previously described, the collegial institution does not stress hierarchy but rather is "informal, (so that) all members have equal standing**"** (Birnbaum, 1988, p. 99). Meanwhile, the bureaucratic institution is similar to a mechanized culture with formalized "lines of communication and authority" (Birnbaum, 1988, p. 109). Given that "universities and colleges are centers of creativity and innovation" (Bruininks, et al., 2010, p. 121), it is valuable to consider these specific higher education classifications. The use of the scholarship related to the competing values framework within theories of higher education, and the extensive use of this framework to evaluate higher education culture suggest that the competing values quadrants be appropriate for this study.

2.3.5 Summary

In summary, this literature review has sought to uncover areas of inquiry related to organizational culture theories from the fields of business and higher education. The goal of this work was to understand current research views related to organizational culture in relation to regulation adherence and to identify a conceptual framework for this study. While a great deal

of empirical research addresses online education, there is less literature available related to the organizational culture preferences of online program groups. Little to no scholarship is available related to federal regulations and online programs. An inquiry into organizational culture as a way to predict regulation adherence would represent a new field of study. This topic adds valuable to provide benchmark insight for administrators in higher education, and especially those who oversee online ventures. The next section (Section 2.4) provides insight into the selection of the conceptual framework of this study, based on the information presented in this literature review.

2.4 CONCEPTUAL FRAMEWORK

This research study seeks to understand the relationship between organizational culture and regulation adherence within online program groups. As the literature review illustrates organization culture impacts organizational effectiveness. These ideas were influential in the selection of the conceptual framework for this study. Online education means change (Moore & Kearsley, 2012) and in order to influence change organizational culture must be considered as the two are closely related. The wide variety of research presented in the literature review points to the fact that innovation and change is not adopted through the actions of individuals (Kosma, 1985) but rather through intentional direction and leadership (Garza Mitchell, 2009; Yang, 2010). It is important for leaders in higher education to understand cultural variations in relation to regulation adherence.

The literature review provided an overview of a variety of topics related to distance education research and management theories. Building on the concepts and themes developed in

the review of research, the most appropriate conceptual framework for this study is the competing values framework (Cameron & Quinn, 2011a). The competing values framework was selected as it provides a well-vetted framework for mapping organizational culture. Additionally this study is quantitative and the competing values framework has been applied extensively in quantitative research.

A typical campus is comprised of multiple influences and organizational cultures. Given the diversity and scope of higher education institutions, certainly one organizational culture would fit all requirements within any individual organization (Cameron, 1978). Therefore, a variety of cultures might be used to classify diverse institutional environments. This approach is taken in Quantitative Study 1, presented in Chapter 3 and Smart (2003) asserts that,

> rather than suggesting that campus officials should seek to foster the development of a campus culture that emphasizes the attributes of a Clan or Adhocracy culture and avoids attributes of the hierarchy culture, as suggested in previous research, . . . campus officials should seek to develop a more complex or balanced overall campus culture that incorporates a healthy emphasis on all culture (p. 694).

For higher education administrators, this means understanding the culture of an institution and applying the most appropriate managerial strategy for each individual situation. To support innovation successfully, administrators should look for "a balance between faculty autonomy and organizational considerations" (Kosma, 1985, p. 317). The competing values framework is used to evaluate organizational culture preferences to determine if preference is linked to regulatory adherence.

2.4.1 Selection of the Competing Values Framework

As discussed previously, a number of management theories were explored in the literature review to determine the most appropriate theoretical framework for this study. When considering ways to organize and manage online programs, business theories related to organizational culture (Burns & Stalker, 1961; Fayol, 1949; Schein, 2010), distributed leadership (Burns & Stalker, 1961; Yoo, et, al., 2006; Zheng, et, al., 2010), management of innovation (Burns & Stalker, 1961; Christensen, 1997; Rogers, 2003), and the competing values framework (Cameron, 1978; Quinn & Rohrbaugh, 1981; Denison & Spreitzer, 1991), have relevance to higher education settings and offer potential theoretical frameworks for online program management inquiry. Each of these approaches has been reviewed in detail in the literature review, and this section discusses the applicability of each framework.

The first management theory discussed in the literature review was a theory describing culture as organic and mechanistic. Historical theorists Fayol (1949), and Burns and Stalker (1961) present research related to the level of rigidity of an organization. This approach provides an appropriate baseline for inquiry; however, categorization of online programs as simply organic or mechanistic would not provide enough detail to paint a realistic picture of cultural preferences. These concepts are imbedded within the methodology of the competing values framework (Cameron & Quinn, 2011a), as the x-axis measures flexibility versus structure of approach. The Market and Hierarchy cultures (Cameron & Quinn, 2011a) represent approaches that are more rigid, while Clan and Adhocracy cultures are more flexible and organic, in nature. The criteria, described by the competing values framework, complements the ideas of Fayol (1949) and Burns and Stalker (1961) in terms of internally-focused versus externally-focused organizations, and flexibility of the control mechanisms (Hartnell, et al., 2011, p. 679). Organic

and mechanistic approaches are presented in a more detailed way in the competing values framework. For this reason, this approach was not selected as the conceptual framework for this study.

In addition to organic and mechanistic cultures (Burns & Stalker, 1961; Fayol, 1949), the idea of distributed leadership theory (Bolden, et al., 2009; Burke, 2010) as a framework for inquiry was discussed in the literature review. While distributed leadership offers an opportunity for scholarship, the lack of a clear definition and the complexity of higher education organizational cultures make this approach challenging. The theory of distributed leadership has been applied to higher education; however, the literature on these topics has gaps since the theories are not applied as a way to classify organizational culture preferences in relation to external forces. Additionally, most empirical research is limited by geographic location or subject matter constraints and may not be applicable to either higher education or online program management in the United States. Distributed leadership theory is simply not broad enough for a review of the effect of organizational culture and for these reasons distributed leadership theory was not selected as an appropriate conceptual framework for this study.

Of the business theories reviewed, Rogers' (2003) diffusion of innovation theory provides a close match as a way to conceptualize this study as it is related to technology adoption and organizational change. Rogers (2003) diffusion of innovation theory could provide a useful lens for analysis of online program management because it has been thoroughly vetted, used as a frame of reference within the field of higher education and employed as a way to understand adoption of new products or processes (such as those for online learning). The limitation of Rogers' (2003) theory is that it has been used most extensively as a research framework to

understand and predict the adoption of new technology or processes. It has not been used as a way to classify organizational culture within institutions.

While it is interesting to consider where online programs at different institutions fall along the continuum from early adopter to laggard such as in Rogers' (2003) theory, this view does not help to answer the research questions. The topic of inquiry seeks to understand the relationship between regulatory adherence and organizational culture within online programs. The diffusion of innovation (Rogers, 2003) approach is more aligned to mapping a change process, whereas this study seeks to determine the current state of organizational culture within online programs. Similarly, Christensen's work (1997; 2006) relates to the need to predict and foresee disruptive technology, rather than specifically how organizational culture influences behavior, such as the likelihood to adhere to regulatory requirements. To achieve the goals of this study, the diffusion of innovation theory was not selected as the competing values framework, which is discussed next, aligns more closely with research goals.

In conclusion, diffusion of innovation theory (Rogers, 2003), distributed leadership theory (Burns & Stalker, 1961; Yoo, et, al., 2006; Zheng, et, al., 2010), organic and mechanistic culture theory (Burns & Stalker, 1961; Fayol, 1949) and the competing values framework (Cameron, 1978; Denison & Spreitzer, 1991; Quinn & Rohrbaugh, 1981) were reviewed to determine the most appropriate approach for inquiry into the research questions. Of these many lenses through which to view higher education culture, the competing values framework provides the most appropriate guide for analysis of online program organizational culture as related to the approach to adherence to federal regulatory requirements. Details related to the applicability and use of this approach is discussed in Sections 2.4.2, 2.4.3 and 2.4.4.

Using the competing values framework as a conceptual base, this study was developed from a post-positivist epistemology and theoretical perspective. As this research is related to the business of online program management, the epistemology of business organizations was also incorporated. "Management theorists suggest that individuals have an "epistemology of possession," as they possess knowledge and that "knowing found in individual and group practice as action calls for an 'epistemology of practice'" (Cook & Brown, 1999, p. 381). Organizational epistemology is related to how individuals and organizations come to know (von Krough & Roos, 1995, p. 10) and "includes how and why individuals within organizations and organizations as social entities come to know or fail to know" (Miller & Linn, 2010, 98). This relates to the competing values framework, which seeks to measure organizational culture related to effectiveness. In conclusion, the competing values framework supports the theoretical and epistemological perspectives of this research study.

2.4.2 Applicability of the Competing Values Framework

The competing values framework (Cameron & Quinn, 2011a) has evolved over time with a number of scholars contributing to its development. Researchers who previously studied institutional effectiveness (Cameron, 1978; Cameron & Quinn, 1999; Campbell, 1977; Quinn & Rohrbaugh, 1981; Quinn & Rohrbaugh, 1983) had the common goal of developing a framework for evaluating culture types based on a set of consistent attributes. The competing values framework was based on a series of studies by Quinn and Rohrbaugh (1981, 1983) and the work of Cameron and Ettington (1988), Quinn and Kimberly (1984), Quinn and Spreitzer (1991), and Denison and Spreitzer (1991). Much of this early inquiry was based on the work of John P. Campbell (1977) and Campbell, Bownas, Peterson and Dunnette (1974), who created a series of

30 criteria for evaluating the effectiveness of organizations and Cameron and Whetten (1983), who collected models of measuring organizational effectiveness. Quinn and Rohrbaugh (1981, 1983) then completed a series of studies that "had organizational theorists and researchers make judgments regarding the similarity or dissimilarity between pairs of organizational descriptors" (Quinn, Hildebrandt, Rogers & Thompson, 1991, p. 216). In this way, they identified competing approaches that could then be related to organizational effectiveness. These competing descriptors eventually became the basis of the competing values framework (Cameron & Quinn, 2011a). The central tenant of the competing values framework is that organizational culture and effectiveness are related and can be measured. By plotting cultural values upon an axis representing opposite approaches, the competing values grid presents a continuum from a flexible to rigid structural approach and an internal to external personnel focus.

The competing values framework (Cameron & Quinn, 2011a) has been used to study a wide range of disciplines such as health care (Gregory, Harris, Armenakis & Shook, 2009; Helfrich, Li, Mohr, Meterko & Sales, 2007), higher education (Berrio, 2003; Cameron, 1978; Cameron & Freeman, 1991; Fjortoft & Smart, 1994; Hassan, Shah, Ikramullah, Zaman & Khan, 2011; Hofstede, Neuijen, Ohayv & Sander, 1990; Kezar & Eckel, 2002; Smart, 2003; Smart & St. John, 1996; Trivellas & Dargenidou, 2009), and the use of this classification in the classroom (Thompson , 1993). Additionally, the concept has been proven to be valid across cultural boundaries (Hassan, et, al., 2011; Trivellas & Dargenidou, 2009) and organizations (Kwan & Walker, 2003). The competing values framework has been used in relation to management approaches (DiPadova & Faerman, 1993) and managerial communication (Belasen & Frank, 2010; Quinn, et, al., 1991). The competing values approach is acknowledged as a valid way to measure organizational culture and effectiveness (Hartnell, et al., 2011). The major criticism of

the competing values framework is related to its applicability with predicting organizational culture when applied below the managerial ranks (Helfrich, et, al., 2007). To address this concern, this study includes participants from managerial and executive positions only. A summary of key topics related to competing values research is listed in Table 5:

Table 5. Competing Values Framework Topics by Researcher

Subject	Researchers
Health care	Gregory, Harris, Armenakis & Shook (2009) Helfrich, Li, Mohr, Meterko & Sales (2007)
Effectiveness	Gregory, et, al. (2009) Lukas, Whitwell & Heide (2013) Quinn & Cameron (1983) Smart & St. John (1996) Zammato (1984)
Change Management	Quinn & Kimberly (1984) Vilkinas & Ladyshewsky (2012)
Higher Education	Berrio, (2003) Cameron (1978) Cameron & Freeman, (1991) Fjortoft and Smart, (1994) Hassan, et, al. (2011) Hofstede, Neuijen, Ohayv & Sander (1990) Kezar & Eckel, (2002) Smart, (2003) Smart & Hamm (1993) Smart & St. John, (1996) Trivellas & Dargenidou (2009) Vilkinas & Ladyshewsky (2012) Zummuto & Krakower (1991)
Cultural Validity	Hassan, et, al. (2011) Hofstede, et, al. (1990) Kwan & Walker (2003) Trivellas & Dargenidou (2009) Yu & Lu (2009)

Subject	Researchers
Validity & Reliability	Cameron & Freeman (1991) Hartnell, et, al. (2011) Kalliath, Bluedorn & Gillespie (1991) Quinn & Spreitzer (1991) Yeung, Brockbank & Ulrich (1991) Zammuto & Krakower (1991)
Managerial Communication	Belasen & Frank (2010) Quinn, Hildebrandt, Rogers & Thompson (1991)
Leadership Style	Smart & St. John (1996)

As illustrated by Table 5, the competing values framework (Cameron & Quinn, 2011a) has been heavily studied within the fields of both higher education and business. It is used effectively in both areas and works well with a post-positive inquiry into online program administration and higher education. The competing values framework was selected because it is a mature method of analyzing organizational culture, and has been proven valid in a number of research studies (Cameron & Freeman, 1991; Hartnell, et al., 2011; Quinn & Spreitzer, 1991; Yeung, et, al., 1991; Zammuto & Krakower, 1991). Additionally, my personal epistemology is in alignment with the concept of post-positive perspective because I find that while knowledge creation is related to all different types of life experiences, knowledge can also be identified specifically, if only for a certain moment in time. This study seeks to identify how institutions "act" in relation to adherence to regulatory guidelines.

In addition to being well matched with the competing values framework (Cameron & Quinn, 2011a), a post-positive approach is generally understood as an epistemology that is appropriate for the field of distance education (Allen & Seaman, 2002, 2010, 2011, 2013; Means, et al., 2010; Simonson, et al., 2011). The competing values approach is most appropriate for this study since it provides a view into the culture of online programs that has not been assessed

previously. While the competing values framework (Cameron & Quinn, 2011a) has been used as a way to evaluate higher education culture, the sub-culture of online programs has not yet been investigated.

Numerous studies have suggested that organizational culture and effectiveness can be measured (Cameron, 1978; Denison & Spreitzer, 1991; Denison & Misrah, 1995; Hartnell, et al., 2011; Quinn & Rohrbaugh, 1981). Additionally, the competing values framework (Cameron & Quinn 2011a) has been extensively tested for reliability and validity (Quinn & Spreitzer, 1991, Yeung, et al., 1991; Kalliath, et al., 1999; Zammuto & Krakower, 1991; Cameron & Freeman, 1991). All scholars have confirmed the validity of the competing values framework as a reliable way to evaluate organizational culture, with one exception. One study (Helfrich, Li, Mohr, Meterko & Sales, 2007) found that the framework is not effective when administered below the managerial level. The competing values framework provides a valid and reliable conceptual framework for discovery of organizational approaches for higher education, when the rubric is delivered to managerial personnel. As a theory that has been heavily investigated in relation to higher education organizations, the competing values framework (Cameron, 1978; Cameron & Quinn, 2011a; Denison & Spreitzer, 1991; Quinn & Rohrbaugh, 1981) would be an appropriate framework for this study, which seeks to classify organizational culture within higher education online programs.

2.4.3 Development of the Competing Values Framework

As discussed at a summary level in Section 2.4.2, the competing values framework (Cameron & Quinn, 2011a) is based on cultural elements related to competing priorities and values. Cameron and Quinn's (2011a) approach suggests that organizational culture can be mapped across four

quadrants. The quadrants include the Clan, Adhocracy, hierarchy and Market cultures. The upper left quadrant is known as the "Clan culture" (Cameron & Quinn, 2011a), and is also referred to as the Collaborate quadrant (Cameron and Quinn, 2011b) because it represents a culture of collaboration and cooperation among coworkers. Of course, for all the benefits a specific culture can bring to an organization, each approach also can be detrimental if used too excessively. "The Collaborate quadrant taken to an extreme becomes negative and turns into a permissive, lax environment where outcomes and results are under-emphasized" (Cameron & Quinn, 2011b). Additionally, each style requires a specific type of leadership to function at peak performance. "In Clan cultures, the primary leadership style is that of a mentor or facilitator, bonding mechanisms emphasize loyalty and tradition, and the strategic approach focuses on human resources and cohesion. This generic classification of organizational culture is highly compatible with the image of the university as a 'community of scholars'" (Smart & St. John, 1996, p. 222).

The "Adhocracy culture" (Cameron & Quinn, 2011a) resides in the upper right corner of the grid and is also known as the "Create Quadrant" (Cameron & Quinn, 2011b). The Create quadrant is comprised of individuals who are focused on creativity, innovation and constant change. "The Create quadrant taken to an extreme becomes negative by being constantly chaotic, trying out multiple new ideas, and under-emphasizing the achievement of predictable outcomes and structure" (Cameron & Quinn, 2011b). The appropriate leadership type is often "the entrepreneur and innovator leadership styles . . .(where) the bonding mechanisms emphasize innovation and development, and growth and the acquisition of new re-sources constitute the primary strategic emphases" (Smart & St. John, 1996, p. 222).

The "Compete quadrant" (Cameron & Quinn, 2011b) or "Market culture" (Cameron & Quinn, 2011a) is located on the lower left side of the quadrant, between the structure and externally focused orientation. The Compete Quadrant represents competition, drive for results, and an aggressive achievement orientation that "taken to an extreme becomes negative by giving rise to self-interests and conflict and by neglecting the more humane people issues" (Cameron & Quinn, 2011b). "The leadership style most compatible with the Market culture is that of the producer or hard-driver, while goal attainment provides the bonding mechanism, and the strategic emphasis is on competitive actions and achievements" (Smart & St. John, 1996, p. 222). Finally, the "Hierarchy Culture" (Cameron & Quinn, 2011a) is focused on people in a very structured way. Also considered the Control Quadrant this culture is embedded with formal processes and is often bureaucratic in nature. "The Control quadrant taken to an extreme becomes negative by leading to red tape, languishing bureaucracy, and organizational stagnation" (Cameron & Quinn, 2011b).

Figure 6. The Competing Values Framework (Cameron & Quinn, 2011b)

The model in Figure 5 (Cameron & Quinn, 2011b) shows the quadrants with the labels of Collaborate, Create, Compete and Control, which were created as a way to make the modules more easily understood across cultures (K. Cameron, personal communication, October 19, 2012). Included with the text *Diagnosing and Changing Organizational Culture* (Cameron & Quinn, 2011a), is an evaluation instrument known as the Organizational Culture and Assessment Instrument (OCAI). The OCAI can be used for assessing organizational culture (Cameron &

Quinn, 2011a, p. 27) as well as for the evaluation of managerial culture and effectiveness. As this study focuses solely on the culture of online programs, only the institutional tool is used. As with the competing values framework, this instrument has been thoroughly vetted and found to have "both face to face and empirical validity" (Cameron & Quinn, 2011a, p. 37). The validity has been tested and confirmed in a number of studies (Cameron & Freeman, 1991; Helfrich, et al., 2007; Quinn & Spreitzer, 1991; Yeung, et al., 1991). The Competing Values Culture Assessment (Cameron & Quinn, 2011b) provides a tested evaluation tool for measuring the culture of an organization against the four quadrants described.

The competing values framework has been developed over time and was initiated when early management theorists (Campbell, 1966; Campbell, Bownas, Peterson, & Dunnette, 1974; Cameron, 1978) sought to create a topology used to evaluate effectiveness. This framework is based on the idea that organizations can be classified as having an internal focus (Control and Collaborate quadrants) versus an external focus (Create and Compete), a concern for flexibility (Collaborate and Create quadrants) versus a concern for control (Compete and Control quadrants). (Quinn & Cameron, 1983). The Competing Values Culture Assessment (Cameron & Quinn, 2011b) suggests that cultural attributes can be measured as a way to track organizational change. The grid plots the current culture (now) and then organizations map their desired future culture. An example of this is shown in Figure 7.

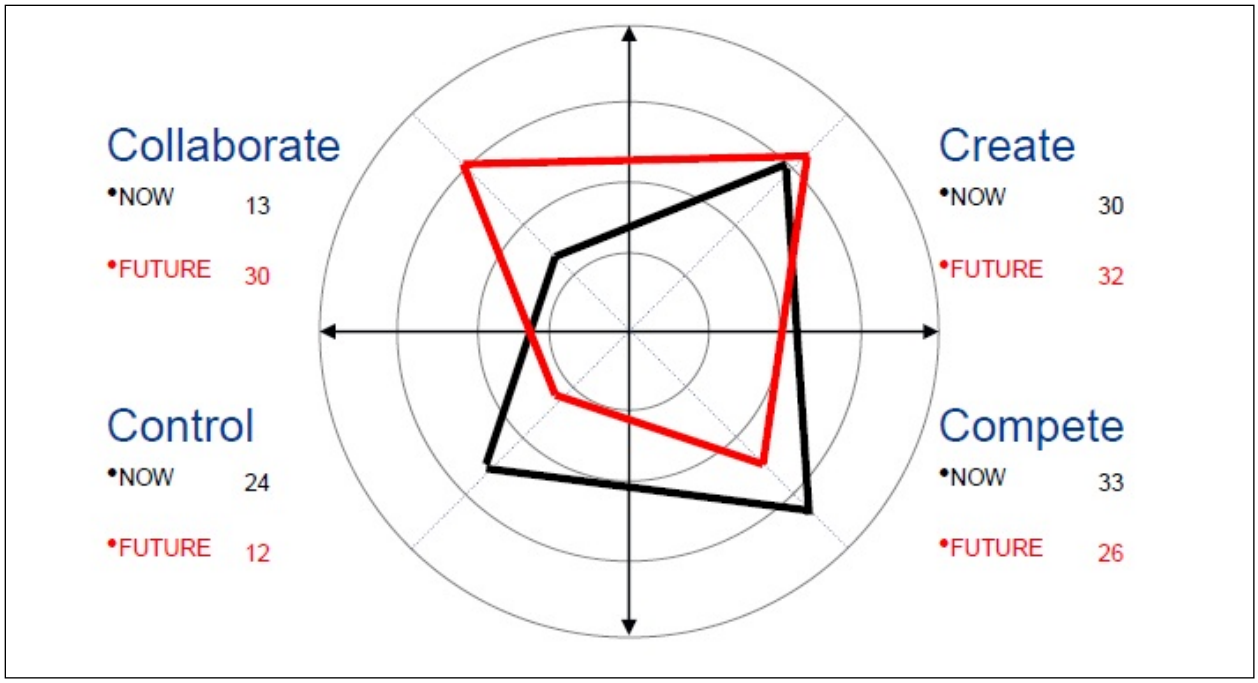


Figure 7. Competing Values Framework Grid (Cameron & Quinn, 2011b)

To diagnose organizational culture, the Competing Values Framework Assessment measures six different factors and evaluates the strength of these characteristics:

- Dominant Characteristics
- Organizational Leadership
- Management of Employees
- Organizational Glue
- Strategic Emphasis
- Criteria of Success

Participants evaluate each characteristic based on questions that are directly related to each quadrant by allocating to a descriptive sentence a percentage of 100 points. The survey questions are included in the methodology section of this report.

As described in *Diagnosing and Changing Organizational Culture* (Cameron & Quinn, 2011a) evaluators query participants on their views of the current organizational culture and then the future desired culture. The result is a map, which then can be used to move the organization from the current state to the desired state. This study modified that traditional approach.

Instead, phase 1 of the competing values framework is used to assess current online program organizational culture only. Additionally, supplemental qualitative questions were asked to understand the institutions' approach to adherence with regulations for online programs and views related to the online culture preferences of online program groups. This approach is described in the methodology section (Chapter 3) of this report.

Organizational culture theory has evolved over time as illustrated in Table 6. Initial studies (Cameron, 1978; Quinn & Rohrbaugh, 1981) sought to identify frameworks for evaluating culture and effectiveness. The competing values framework developed as the result of these ongoing studies one of which includes thorough vetted across cultures (Yu & Lu, 2009). Also influencing the competing values framework were types of organizations and their adherence with concurrent identifying frameworks of culture in higher education (Bergquist & Pawlak, 2008; Birnbaum, 1988). As discussed here the competing values framework was used in this study to establish current organizational culture within online program groups. A number of studies have used the competing values framework in this way and each is reviewed in Section 2.4.4.

2.4.4 Studies that Have Used the Competing Values Framework

As previously mentioned, the competing values framework (Cameron & Quinn, 2011a) has been used extensively to investigate organizational culture, effectiveness, and managerial styles. Table 6 provides an overview of research that contributed to the development and validity of the competing values framework.

Table 6. Chronology of Culture and Competing Values Research

Researcher	Study Overview
Campbell, Bownas, Peterson & Dunnette, (1974)	This study identified 30 measures for organizational effectiveness.
Campbell (1977)	Campbell outlined 30 effectiveness criteria and suggested that there are multiple levels of effectiveness and organizations are not simply "effective" or "ineffective" (Campbell, 1977, p. 18). The identified two general models of the effectiveness construct are goal-centered and natural systems views.
Cameron (1978)	This study identifies patterns of effectiveness in higher education institutions across nine cultural dimensions.
Pettigrew (1979)	This study implemented anthropological processes to understand how culture is created.
Quinn & Rohrbaugh (1981)	This study seeks to move closer to a framework for evaluating institutional effectiveness by creating a ranking of Campbell's (1977) organizational effectiveness indicators based on perceptions of organizational effectiveness researchers. Quinn & Rohrbaugh describe the four quadrants as Human Relations Model, Open System Model, Rational Goal Model and Internal Process Model" (p. 136).
Cameron (1981)	This study reveals elements of institutional effectiveness as evaluated by 40 higher education administrators and faculty members.
Cameron (1985)	This study investigates the impact of unionization on effectiveness in institutions of higher education. The study finds that ineffectiveness leads to unionism and eventually leads to ineffectiveness.
Quinn & Rohrbaugh (1983)	This study seeks to continue the development of a framework for the evaluation of effectiveness based on the perceptions of organizational theorists and researchers to evaluate Campbell's (1977) 30 criteria for effectiveness.
Quinn & Cameron (1983)	This study compares organizational life cycle (entrepreneurial, collectivity, formalization and control, elaboration of structure) and effectiveness using a framework of effectiveness developed by Quinn & Rohrbaugh (1983).
Quinn & Kimberly (1984)	This chapter discusses ways of processing information among organizational members through the hierarchical perspective, the developmental perspective, the rational perspective and the group perspective. The authors use the competing values framework as a way to show managerial approach to managing change. They present 8 guidelines for managing transitions.

Researcher	Study Overview
Zammuto (1984)	The researcher evaluates relativistic, power, social justice, and evolutionary perspectives to determine to prove two generalizations are concerned with the value-based and time-specific nature of the effectiveness construct.
Cameron & Ettington (1988)	Cameron and Ettington provide a literature review of common views of organizational culture. They suggest that definitions related to organizational culture can be categorized as 1) social interpretation definitions, 2) behavioral control definitions and 3) organizational adaptation definitions. This article introduces a model based of effectiveness based on four quadrants – Clan, Adhocracy, Hierarchy, and Market.
Birnbaum (1988)	The text, *How Colleges Work: The Cybernetics of Academic Organization and Leadership*, outlines models of organizational functioning in institutions of higher education according to four styles of institution: Collegial, Bureaucratic, Political and Anarchical.
Hofstede, Neuijen, Ohayv & Sander (1990)	This study investigates 20 organizations in Denmark and the Netherlands to investigate task, structure and control and measured culture on six dimensions 1) process-oriented vs. results-oriented; 2) employee-oriented vs. job-oriented; 3) parochial vs. professional; 4) open system vs. closed system; 5) loose vs. tight control; 6) normative vs. pragmatic.
Quinn & Spreitzer (1991)	This study tests the validity of the competing values framework through an analysis of two studies. The article also discusses the importance of mixed method approach to view effectiveness across organizations.
Cameron & Freeman (1991)	This study compares 334 institutions of higher education and seeks to find a link between culture and effectiveness across multiple institutions. Culture, Congruence and Strength. Researchers found that the type of culture has a relationship to effectiveness. This study tested for validity.
Denison & Spreitzer (1991)	This study provides an overview of the competing values framework and presentation of four studies: Cameron & Freeman (1991), Zammuto and Krakower (1991) and two papers by Quinn & Spreitzer (1991) that used this approach. The authors suggest that both qualitative and quantitative approaches to research are useful to understand organizational culture.

Researcher	Study Overview
Kalliath, Bluedorn & Gillespie (1991)	Tested the CVF on a sample of 300 hospital managers and supervisors. Results support previous scholarship that finds that the competing values framework is reliable and valid.
Quinn, Hildebrandt, Rogers & Thompson (1991)	The researchers analyzed the relationship between descriptive terms to develop a model of presentational communication based on the competing values framework.
Zammuto & Krakower (1991)	This paper used quantitative and qualitative studies of organizational culture through analysis of 332 college and universities compared with two in depth case studies. Tested validity of the competing values framework.
Yeung, Brockbank & Ulrich (1991)	This paper studies the relationship between organizational culture and organizational performance and the HR practices predict organizational performance. Study also tested validity of the competing values framework.
Bergquist (1992)	The author outlines four cultures within higher education institutions as Collegial, Managerial, Developmental and Advocacy.
Schein (1992)	The first edition of *Organizational Culture and Leadership*
DiPadova & Faerman (1993)	This study uses the competing values framework as a tool for evaluating management approaches across varying levels of the organizational hierarchy.
Smart & Hamm (1993)	The effectiveness of two-year colleges is strongly related to their competing values framework culture preference. The study found that schools with an Adhocracy culture (n=10) were perceived to be most effective, followed by Clan (n=10) and Market (n=3). Institutions with a Hierarchical (n = 7) culture were perceived as least effective.
Thompson (1993)	The author presents examples for the use of the competing values framework in the classroom.
Fjortoft and Smart (1994)	This study investigates the impact of organizational culture and type on mission alignment at institutions of higher education.
Denison & Mishra (1995)	The authors seek to prove the link between organizational culture and effectiveness and identify the four criteria of involvement, consistency, adaptability, and mission as measurable cultural traits.
Schein (1996)	The second edition of *Organizational Culture and Leadership*

Researcher	Study Overview
Smart & St. John (1996)	This study seeks to determine relationship between culture type and effectiveness within colleges and universities and found that some culture types do have a strong positive correlation with measures of effectiveness.
Cameron & Quinn (1999)	*Diagnosing and Changing Organizational Culture Based on the Competing Values Framework – Edition 1.*
Detert, Schroeder & Mauriel (2000)	The authors seek to develop a framework for assessing organizational culture in relation to total quality management.
Kezar & Eckel (2002)	The authors seek to identify change strategies in relation to higher education. This article builds on the work of Berquist (1992) and Tierney (1991).
Kwan & Walker (2003)	Researchers from University of Hong Kong seeks to support the claim that the competing values framework can be used to describe how organizational cultures compare between organizations.
Smart (2003)	This study looks for perceptions of faculty and administrators at Community College and a link between their views on cultural complexity and administrator behaviors.
Berrio (2003)	This study analyzes the Ohio State University Extension (OSU Extension) personnel based on the competing values framework and identified the organization as a Clan culture.
Schein (2004)	The third edition of Organizational Culture and Leadership
Cameron, Quinn, DeGraff & Thakor (2006)	Book: Competing Values Leadership.
Cameron & Quinn (2006)	Diagnosing and Changing Organizational Culture Based on the Competing Values Framework – 2nd Edition.
Helfrich, Li, Mohr, Meterko & Sales (2007)	This study applies the competing values framework to employees in a health care system and concludes that the validity of the framework may be problematic when the approach is applied to non-managers.
Bergquist and Pawlak (2008)	This study expands upon four cultures of the academy of cultural types within institutions of higher education and adds two additional cultures which include Collegial, Managerial, Developmental, Advocacy, Virtual and Tangible cultures.
Gregory, Harris, Armenakis & Shook (2009)	This study analyzes employee attitudes as a contributor to organizational culture and effectiveness among hospital administrators.

Researcher	Study Overview
Trivellas & Dargenidou (2009)	This study analyzes the impact of organizational culture and job satisfaction on service quality in higher education institutions in Greece.
Yu & Lu (2009)	This study provides a meta-analysis of competing values framework research related to Chinese organizations and its cultural applicability for China.
Zheng, Qu & Yang (2010)	This study reviews the competing values framework related to an organizations progress along the organizational life cycle (start-up, growth, maturity, and revival).
Belasen & Frank (2010)	This study analyzes manager messages to subordinate groups across the four quadrants identified by the competing values framework.
Schein (2010)	The fourth edition of Organizational Culture and Leadership builds on theories of organizational culture previously presented in relation to culture and leadership.
Cameron & Quinn (2011a)	The third edition of Diagnosing and Changing Organizational Culture Based on the competing values framework offers strategies for using the competing values framework as a tool for diagnosing and changing organizational culture. Supplemental website materials provide additional culture assessment tools.
Hartnell, Ou, & Kinicki (2011)	This meta-analysis seeks to test the validity of the competing values framework between three culture types and effectiveness indicators.
Hassan, Shah, Ikramullah, Zaman & Khan (2011)	This study seeks to clarify the link between organizational culture and effectiveness in higher education institutions in Pakistan and seeks to affirm the cross-cultural impact of competing values framework.
Vilkinas & Ladyshewsky (2012)	This Australian study found that program managers with no formal authority mainly focused on people rather than organizational effectiveness and introducing change.
Lukas, Whitwell & Heide (2013)	Identified a relationship between organizational culture and overshooting customer product needs. Adhocracy and Market cultures were found to be the primary cultures that behaved in this way. These two cultures share an internal focus which may be related to a “love affair” with the product causing the product to be developed with more than the customer needs.

An important thing to remember when discussing culture is that one must be clear that "culture" refers the culture of organizations and is not related to a specific nationality but rather to the way a certain institution functions. Organization culture differences are distinct from the factors that comprise national culture differences (Hofstede, et, al., 1990). An example of the use of the competing values framework is a study completed by the Ohio State University Extension (OSU Extension) office, which used the competing values framework to determine the culture of department personnel. They identified a Clan orientation (Berrio, 2003), which is consistent with their role within the university as an "Extension" division. Evidence also points to the fact that there is often a dominant culture in most higher education institutions. Historically, that dominant culture has been for the Collaborate (Clan) culture. However, it should be acknowledged that a typical campus is comprised of multiple influences and approaches. Therefore, a variety of cultures might be used to classify diverse institutional environments. The relationship between primary and non-primary organizational culture preferences is illustrated when evaluating differences between the two statistical analyses (Quantitative Study 1 and Quantitative Study 2) that were used in this study.

2.4.5 Summary

In summary, this study was developed from a post-positive perspective, which is appropriate for this field of inquiry. This study seeks to understand if organizational culture preference contributes to regulatory adherence. The competing values framework (Quinn & Rohrbaugh, 1983) was used as a conceptual framework to answer the following research questions:

a. *"Is there a relationship between adherence with regulatory requirements and the organizational culture of online programs within institutions of higher education?"*

b. *Based on the competing values framework, does primary organizational culture type explain regulation adherence?*

c. *Do the institutional characteristics of experience with online delivery, regional location, type of institution, or enrollment size explain regulation adherence?*

The competing values framework (Cameron & Quinn, 2011a) has been selected as a conceptual approach based on its maturity as a model for evaluating organizational culture and its alignment with the goals of this study. By identifying the current cultural quadrant within an online program, administrators can determine how or if to orchestrate change processes to better adhere to regulations. Change management can be a time consuming and expensive proposition and one that is not always effective in the end. An inquiry into how institutions may be required to change to accommodate online programs and federal requirements is valuable addition to higher education management research.

3.0 CHAPTER 3 – METHODOLOGY AND QUANTITATIVE STUDY 1

As discussed in Chapters 1 and 2, the goal of this study is to investigate the influence of organizational culture preferences and institutional attributes on the likelihood to adhere to federal regulatory requirements for online programs. The key idea was based on prior research, outlined in the literature review, which suggests that more formalized structures (Burns & Stalker, 1961; Cameron & Freeman, 1991; Fayol, 1949; Zummato & Krakower, 1991) are often matched with more structured activities. This is important for higher education administrators as change and online development are closely aligned (Moore & Kearsley, 2012). Additionally, scholars suggest that there is "growing consistency of evidence that the performance of colleges and universities is linked to their culture types suggests that the management and change of that culture are paramount responsibilities of College leaders" (Fjortoft & Smart, 1994, p. 444). This leads to the key idea that more formal organizational cultures might be more likely to adhere to federal regulatory requirements, as these requirements are complex and require detailed attention.

This study employed a quantitative approach that was appropriate for several reasons. First, the conceptual framework is based on an established, quantitative questionnaire. Secondly, as described in Chapter 1, a quantitative approach best fits the epistemological and theoretical perspectives of the researcher, as well as the goals of this study. Perhaps most importantly, quantitative inquiry aligns with the competing values framework assessment as the model was

developed based on a quantitative analysis of organizational effectiveness and culture traits (Cameron 1978, 1981; Cameron & Ettington, 1988; Cameron & Quinn, 2011a; Campbell, 1977; Campbell, et al., 1974; Denison & Spreitzer, 1991; Quinn & Kimberly; 1984; Quinn & Rohrbaugh, 1981, 1983) and the competing values framework has often been used in quantitative studies, as a way to investigate higher education culture (Cameron 1981; Cameron & Freeman, 1991; Fjortoft & Smart, 1994; Hassan, et, al., 2011). This study was completed from a post-positivist perspective using a non-experimental survey method, supported by informal, unstructured interviews. The quantitative analysis was comprised of two studies (Quantitative Study 1 & Quantitative Study 2) which each used a series of similar, binomial probit regression models.

Of course, each method of inquiry has weaknesses that should be addressed. Some scholars suggest that quantitative studies tend "to collapse groups into socially constructed categories that do not accurately reflect or represent the complex nature of students, individually or collectively" (Perl & Noldon, 2000, p. 44). What this means is that the nuances of organizational culture may be overlooked. To accommodate for this limitation and to meet the needs of the research questions, supporting qualitative components (Chapter 5) were included. The research questions call for narrative descriptions to support findings from the competing values framework assessment (Cameron & Quinn, 2011a), which is a common approach with competing values framework research (Denison & Spreitzer, 1991; Zammuto & Krakower, 1991). For this reason, this study includes supporting qualitative findings. To support the analysis, quantitative data was collected and triangulated with qualitative findings. Details about the approach and inclusion of supporting qualitative method are presented in Chapter 5.

As discussed in this chapter, this study is primarily quantitative but incorporates findings from qualitative inquiry. Using this approach, this study addresses the following research questions:

a. *Is there a relationship between adherence with regulatory requirements and the organizational culture of online programs within institutions of higher education?*
b. *Based on the competing values framework, does primary organizational culture type explain regulation adherence?*
c. *Do the institutional characteristics of experience with online delivery, regional location, type of institution, or enrollment size explain regulation adherence?*

The next section (Section 3.1) provides an overview of the data collection process. An overview of study participants are then be covered in Section 3.2. Indicators of study quality are discussed in Section 3.3. Additionally, this chapter (Chapter 3) presents an overview of study approach as well as the findings related to Quantitative Study 1. Quantitative Study 2 is outlined in detail in Chapter 4 and supporting qualitative data is discussed in Chapter 5.

3.1 DATA COLLECTION METHODS

The primary method of data collection for this study was survey research conducted to examine the relationship between organizational culture, institutional attributes, and adherence to federal regulatory requirements for online programs. Concurrently with the survey, informal, unstructured phone and email conversations were completed with the intent to support quantitative findings with qualitative comments. Survey research methodology refers to the

"numeric description of trends and attitudes" (Creswell, 2009, p. 12), and as described in the previous section is consistent with the theoretical and conceptual approaches of this study. Another reason for the use of a survey research approach is that study participants are geographically dispersed. Participants were selected from a national population of higher education administrators. Additionally, as quantitative analysis requires a larger number of participants in order establish an appropriate sample size, an online survey provides a uniform way to gather quantitative data. As online program administrators, study participants are individuals who have worked extensively with the Internet and were familiar with online survey delivery and participation. Data was gathered via Survey Monkey, an online data collection tool, and coded using STATA 12 and Microsoft Excel 2007. Informal, unstructured interviews were completed in a variety of ways, which are described briefly here and defined in more detail in Chapter 5.

Overall data collection consisted of a three-part process. Phase one was the delivery of an online survey through Survey Monkey. The survey, presented as Appendix A, included both qualitative and quantitative questions. Phase two was the completion of supplemental informal interviews, conducted via telephone and email correspondence. Phase three included the gathering of quantitative data related to institutional type, size and regional location. These details were gathered from institutional profiles provided by the Carnegie Foundation for the Advancement of Teaching (Carnegie Foundation for the Advancement of Teaching, 2013).

The online survey was available to participants between November and December 2012 and supporting interviews were conducted between December 2012 and January 2013. Candidates for participation were identified using a combination convenience and criterion sampling approach. The goal was to model the national distribution of higher education

institutions in the United States on the basis of type (public, private, community, and for-profit) and regional location (East, Midwest, and West). To ensure validity with the competing values framework assessment (Cameron & Quinn, 2011a) participants were selected from individuals who are at the director level and above. Competing values researchers have found that the framework is most effective at the managerial level where participants have greater knowledge of institutional processes and policy (Helfrich, et al., 2007).

In alignment with the methodology and conceptual framework and to address the requirements of the research questions, the survey instrument included primarily quantitative elements. The quantitative questions, related to organizational culture, were the competing values framework assessment questions, presented in the text *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework* (Cameron & Quinn, 2011a, p. 30). As discussed previously, the competing values framework was developed over time with a number of organizational culture scholars (Denison & Spreitzer, 1991; Quinn & Rohrbaugh, 1983; Cameron & Quinn, 2011a) contributing to its development. A number of studies (Yeung, Brockbank, & Ulrich, 1991; Quinn & Spritzer, 1991; Kalliath, et al., 1999; Zummato & Krakower, 1991) have tested the reliability of the competing values framework as a measurement tool and found it to be a reliable way to evaluate organizational culture. In addition to the competing values framework assessment, a series of open-ended questions gathered demographic and supplemental data related to experience with online programs, perceptions of organizational culture and regulation adherence. The survey was given approval as an exempt study through the University of Pittsburgh's IRB (Appendix D).

Supporting qualitative data was captured through three distinct steps. First, as described above, the survey instrument included a series of open-ended questions designed to support

numerical findings. Secondly, during the solicitation phase of the study, email exchanges with participants resulted in dialogues that were useful to support a more developed response to the research questions. Finally, additional informal interviews with selected participants were conducted to address any gaps in the quantitative findings (Hatch, 2002, p. 92). Interview participants were selected based on their willingness to contribute to the study or unique characteristics of the institution or individual (such as involvement in higher education policy). Six interviews were conducted and seven informal email conversations were completed. For this study, participant responses were recorded anonymously. Information related to the type of school and the location of the institution are included to provide contextual detail for the reader and to support the research questions related to type, location and institutional size.

Quantitative data was cleaned to ensure accuracy. Five entries did not include the year of first delivery of online programs; therefore, five entries are missing the variable "age". Within the age variable there was one outlier - 47 years - which appears to be the result of either a typographical error or misunderstanding of the question. As the Internet has not been in use in higher education for this extent of time, this response would be invalid. Entry #112 was excluded from the analysis related to age of online programs. Some entries contained incomplete data for the competing values framework questions. These participants were removed from analysis related to organizational culture preferences. Finally, organizational culture scores, resulting from the mean response to Questions 7 through 11, were summed to ensure that each grouping equaled 100 points. In this way data was collected and processed for inclusion in this study.

Personal statements and perceptions gained from the informal interviews were reviewed through the triangulation of these key themes, which included changing organizational

structures, impact of institutional attributes and potential effects of state authorization requirements. This approach is considered to be a typological analysis (Hatch, 2002, p. 153), which relates specific responses to particular categories, themes or typologies. Interviews and email dialogues were recorded as anonymous and were then coded based on an ID number (1, 2, 3, etc.) and the date of conversation (for example: ID#, personal communication, date). Statements drawn from the online survey were coded as question number, followed by Survey Monkey response number (for example: Question 3, Response 80). In this way, confidentiality was maintained.

In summary, quantitative and qualitative data were collected via online survey, informal interviews, and publically available information provided by the Carnegie Foundation for the Advancement of Teaching. Information related to "regional location," "enrollment size," and "institutional type," were identified through the Institution Lookup available through the Carnegie Foundation website. Data on competing values framework scores, duration of experience and number of online programs and approach to adherence to regulatory requirements, were solicited through the online survey. Finally, supporting qualitative comments were collected via the online survey, email and telephone correspondence. The characteristics of study participants are presented next, in Section 3.2.

3.2 CHARACTERISTICS OF STUDY PARTICIPANTS

Sections 3.1 outlined the data collection approach for this study. Section 3.2 provides insight into the characteristics of study participants. As noted previously, this sample was selected in a way that was intended to approximate the distribution of institutions of higher education in the

United States and to provide well rounded support for the research questions. Institutions were included based on type, regional location, and size to represent the distribution of higher education institutions in the United States. The population for this study included all higher education institutions that offer online programs in the United States. The exact number of such institutions was difficult to identify because data related to program numbers was often dated, and terminology related to distance, correspondence, hybrid and online formats used inconsistently. According to the most recent data (NCES Fast Facts, 2012), as of 2009, 4634 degree granting institutions of higher education existed in the United States. Further, the National Center for Educational Statistics states that 56% (2595) of these institutions have online courses ("National Center for Education Statistics, 2001). However, this data may not have been accurate because it was last reported in 2001. A large number of institutions have ventured into the development of full online programs since 2001 when this data was captured.

In spite of the challenges in determining the exact number of online programs that are in existence, we can make some estimates about the percentage of higher education institutions that have online programs. Given that in 2012, Allen and Seaman (2013) report that "sixty-nine percent of all reporting institutions said that online learning was a critical part of their long-term strategy" (p. 4), we can use this as a baseline and estimate that at least 69% of higher education institutions currently have online programs. The true number is probably higher as some institutions have online programs but may not view them as strategic, or may not have responded to the Sloan-Consortium survey (Allen & Seaman, 2013). Given these assumptions, the population for this study is 3197 institutions of higher education in the United States. As of 2012, the NCES was beginning to collect data on online programs and in the near future, more

reliable data regarding the number of online programs being offered in the United States will be available.

This study followed a strict ethical process as required through the University of Pittsburgh's, Institutional Review Board (IRB). Respondents were asked to participate voluntarily and were able to withdraw at any time. As requested by the University of Pittsburgh's IRB, individuals and institutions are not identified. Via personal email correspondence, 253 eLearning professionals were contacted as potential participants for the survey. Candidates were identified based on professional relationships with the researcher, and their participation in national distance education listservs such as WCET, EDUCAUSE and Sloan-C. Additionally, individuals with titles like "Director of Distance Education" and "Director of Online Programs" were identified from the EDUCAUSE, WCET and Sloan-C membership lists and contacted directly. Therefore, participants represent a variety of different types of higher education organizations and assume high-level executive and managerial roles and responsibilities. The rationale for the selection of middle and senior level managers is that members of this group are best qualified to respond to questions related to effectiveness because they are privy to institutional decisions related to organization and policy (Fjortoft & Smart, 1994; Hassan, et al., 2011). Additionally, the competing values framework has not been shown to be valid in regard to lower level staff members, who may have a different understanding of an organization's culture (Helfrich, et al., 2007) due to their limited interaction with upper level executives and employees within other areas of the institution.

The sample was compiled using a combination of convenience sampling (Mertens, 2010, p. 325) and criterion sampling for both the quantitative and qualitative participants. Initial participants (convenience sample) were identified through personal contacts within the online

education industry. To ensure diverse distribution across institutional types and locations, targeted email requests were delivered to members of the EDUCAUSE, WCET and Sloan C membership lists (criterion sample). Supplemental interview participants were selected based on several factors: a) willingness to contribute additional input, b) interest in the topic; and c) to strategically clarify themes identified from write-in survey responses. Interview participants are recorded anonymously, and are identified by type of institution and regional location in order to provide context for comments.

To create an appropriate sample group, candidates were solicited from public, private, community college and for-profit designations as well as East Coast, Midwest and West Coast regional locations. Of the 253 online program administrators that were approached to participate in the online survey 131 (52%) responded that they would participate and were sent a link to complete the survey in Survey Monkey. In total 94 unique institutions completed the survey for a 37% response rate. The target participation for the survey was 80 institutions, which would be an appropriate number for a quantitative study and thus this study exceeded the desired participation rate. The goal of 80 institutions was developed so that the responses would provide appropriate data for a quantitative study and to include institutions from multiple regional locations and a variety of institutional types.

As mentioned previously, the sample was modeled after the distribution of institutions of higher education in the United States. According to the Carnegie Foundation for the Advancement of Education (2013), the regional distribution of higher education institutions in the United States is approximately: 38% along the East Coast; 40% in the Midwest; and 22% on the West Coast (Carnegie Foundation for the Advancement of Teaching, 2013). The study sample has a larger number of Eastern (46%) and Western (25%) institutions than the national

distribution of 38% and 22%, respectively. Conversely, the sample has a smaller group of Midwest institutions (29%) than the national distribution (40%). The distribution is illustrated in Table 7.

Table 7. Regional Distribution of Institutions

Region	National %	Study %	Difference between Study % and National %
East Coast	38%	46%	+8%
Midwest	40%	29%	-11%
West Coast	22%	25%	+3%

n = 94

Another element related to the demographics of study participants is designation by type. Schools were grouped as public, private, community, and for-profit. The resulting participants are derived from a larger amount of public institutions - public and community colleges - (63%) than the U.S. population suggests (37%). The study sample contains 33% private institutions as compared to the national distribution of 37%, and a smaller percentage of for-profit institutions (3%) than at the national level (26%). Distribution by type of institution is illustrated in Table 8.

Table 8. Summary of Types of Institutions with which Study Participants Are Affiliated

Type of Institution	National %*	Study %	Difference between Study % and National %
Public (48% in study) Community College (15% in study)	37%	63%	+27%
Private	37%	33%	-4%
For-Profit	26%	3%	-23%

n=94

Finally, the size of an institution may contribute to its organizational culture and approach to adherence. Size was determined based on the student enrollment information that is provided on the Carnegie Foundation's Institution Lookup (Carnegie Foundation for the Advancement of Teaching, 2013). Institutions in this study ranged in size from 474 to 99,911 (a

large community college system), with the majority of institutions falling in the 3,000 – 29,999 range (77%). The mean enrollment size was 15,226. Table 9 illustrates the size of participating institutions.

Table 9. Enrollment Size Distribution at Participating Institutions

Size	Frequency	%
>1000	4	4%
1000 - 2999	10	11%
3000 - 9999	29	31%
10,000 - 19999	24	26%
20,000 - 29999	19	20%
>30,000	7	8%

n = 93

As is illustrated here, a number of different types of institutions from a variety of regional locations were included to provide diversity of responses. In all cases participants also met the requirement of being a director level employee with a title related to distance education.

Unstructured, qualitative interviews were completed with individuals who expressed willingness to participate or were recommended to have specific expertise related to state authorization, online higher education policy and organizational culture. Table 10 illustrates the types of individuals who were interviewed in short, unscripted telephone conversations:

Table 10. Participants for the Informal Interviews

	Type	Location	Size
1.	Public University System	Northeast	Large
2.	Private	East Coast	Small
3.	Public Research University	Southeast	Large
4.	Private, Religious Affiliation	Northeast	Small
5.	Private University System	West	Large
6.	Individual influential in higher education policy	Midwest	N/A

Email dialogs occurred as part of the recruitment process and often resulted in spontaneous dialog. Individuals mentioned a willingness to participate and provided comments and feedback

via email. Email conversations were conducted with director level personnel within the following types of institutions (Table 11):

Table 11. Participants from Email Dialog

	Type	Location	Size
1.	Multi-campus System Branch	West	Large
2.	Public	West	Small
3.	Private	West	Small
4.	Career College	Northeast	Small
5.	Private	West	Small
6.	Private, Multi-campus System	East	Large
7.	Private	Midwest	Large
8.	Private	Southeast	Small

Most of the qualitative participants were selected via convenience sample, in that they were willing to participate or requested a follow-up conversation to further understand the research topic. A few select participants were selected based on personal relationships or referrals based on specific knowledge of state authorization, online programs or higher education policy. For example, ID#6 from the informal interviews was selected based on knowledge of state authorization requirements and participation at a national level with higher education policy discussions.

In summary, respondents were gathered from a wide range of institutional types and from a diverse range of locations, modeled after the distribution of higher education institutions in the United States. Ninety-four distance education administrators participated, representing schools from public, private, community college and for-profit groups. Additionally, schools were located across all regions of the US and include institutions of varying size. The next section (Section 3.3) provides a summary of indicators of study quality including researcher subjectivity (Section 3.3.1) and Study Limitations (Section 3.3.2). Section 3.4 describes the first quantitative analysis (Quantitative Study 1) which investigates organizational culture preferences of these

participants in relation to their approach to regulation adherence. Additionally, the influence of institutional characteristics related to experience with online delivery, regional location, institutional type and enrollment size are investigated.

3.3 INDICATORS OF STUDY QUALITY

Sections 3.1, and 3.2 provided an overview of the data collection approach and characteristics of study participants. This section (Section 3.3) provides an overview of quality indicators such as research subjectivity (Section 3.3.1) and approach to study limitations (Section 3.3.2). Standards of quality are particularly important since every study becomes the baseline for future scholars. High standards for ethics are required by the University of Pittsburgh and are stated explicitly in the University Code of Ethics (University of Pittsburgh, Code of Ethics, 2013). At the beginning of each academic term, all students at the University of Pittsburgh, School of Education must agree to this Code of Ethics.

Statistical analysis offers the benefit of numerical certainty and by supporting this approach with additional personal interviews, additional validation is provided. One of the strengths of blending qualitative inquiry with quantitative findings is validity and as Creswell (2009) suggests "it is based on determining whether the findings are accurate from the standpoint of the researcher, the participant, or the readers" (p. 191). Additionally, robustness testing was completed by way of the secondary analysis, which is included in Chapter 4. In this way, the validity of the results was supported. Through the use of quantitative analysis with supporting qualitative

data, the researcher strives to represent the relationships identified through this research accurately. The following sections provide an overview of researcher subjectivity (Section 3.3.1) and study limitations (Section 3.3.2).

3.3.1 Researcher Subjectivity

Study quality is an important element of the research process. Any research effort should be objective in that data should be presented in a non-biased way with the results of the study dictating the findings. However, human nature often comes into play as individuals have a tendency to view research findings through their own personal lens. In some ways, this is appropriate as each researcher has a personal epistemology and distinct experiences to contribute. However, bias can be dangerous because a purely objective view of study findings may not be presented.

It should be noted that I have has been working in the field of online learning since the late 1990's and is an advocate of online programs, which may cause some inherent bias. I find myself drawn to studies that show the success of online learning but have attempted in this study to include alternate perspectives as well. Additionally, as Director of Online Programs, I have participated in the state authorization process at both the University of Pittsburgh and Virginia Commonwealth University in order to ensure compliance, which may indicate that I have a preference for adhering to regulatory requirements. At the University of Pittsburgh and in previous work in the for-profit industry I worked within a centralized online program group, which may indicate a preference for centralization and more structured organizational cultures. Currently, I am working in a consultative role at a for-profit online program management company.

I have attempted to provide an impartial view of online learning program management research - one that is not overly positive but portrays the many varying opinions related to online education. The focus of recent scholarship has lately been on ways to improve instruction and new methods of online delivery rather than having the singular perspective of seeking to validate the effectiveness of the approach. A review of a number of meta-analyses (Allen, et al., 2004; Bernard, et al., 2004; Machtimes & Asher, 2000; Means, et al., 2010; Ramage, 1999; Zhang, 2005) suggests that while some studies show online learning as less effective, others show face-to-face instruction as less effective. When viewed collectively, however, the suggested result is that online education is slightly more effective than face-to-face instruction.

Of course, this must be considered in context as there are a variety of nuances to the delivery and assessment of online programs. Additionally, it should be acknowledged that there is still a high level of disagreement about the effectiveness of online education. A 2013 study of faculty perceptions of online education continued to show a high level of faculty skepticism (Jaschik & Lederman, 2013). Jaschik and Lederman (2013) found that about 50% of faculty members believe that online education delivers the same level of outcome achievement as face-to-face environments. The topic of online learning is one that has been, and will continue to be, greatly contested. The most recent of the dissenting views can be found in a study suggesting that online learning may contribute to an achievement gap for males, Black students, younger students and students with lower grade point averages (Xu & Jaggar, 2013). Released in 2013, this study is based on 2004 data, but its emergence and extensive coverage by higher education industry publications (*The Chronicle of Higher Education*, *Inside Higher Ed* and others) and mass media outlets (*The New York Times*, *Virginia Gazette Newsletter* and National Public

Radio) suggests that this issue of effectiveness is still one that is of great interest to scholars as well as the general public.

In summary, the study of online education may continue to be one that is constantly evolving and fraught with emotionally charged stakeholders. This study has attempted to minimize any researcher bias through the methods described here. Additionally, members of the dissertation committee are comprised of scholars representing a wide variety of perspectives on the topic of online learning. This grouping of alternate opinions is intended to help ensure that study findings are presented in a non-biased way. This section (Section 3.3.1) detailed the researcher's approach to subjectivity and declarations of potential areas of bias. Section 3.3.2 provides an overview of study limitations and the approach that has been taken to mitigate these issues.

3.3.2 Study Limitations

In addition to the influence of researcher subjectivity (Section 3.4.1), each research project has limitations that prevent the study from being one hundred percent conclusive. Whether the limitation is inherent bias, inability to access the target population, or challenges with the selected research method, these constraints keep a study from being a perfect representation of the research subject. This study seeks to understand if the organizational culture of online program groups contributes to compliance adherence related federal requirements. The initial research proposal presented several key limitations. Some of those predicted limitations did, in fact, influence the results of the survey. These issues are outlined in Table 12:

Table 12. Issues and Mitigation and Overall Impact

ISSUE	MITIGATION APPROACH	IMPACT
Participants have different types of online programs.	This will not be problematic as all online programs, no matter the delivery method, are subject to federal and state regulations.	Clarity around definition of "online program" would have been beneficial.
Participants may have different responsibilities within the organization.	To accommodate, participation will be requested from staff members that are Director level and above, working directly with distance education or online programs.	Director level and above contacts were included. This was the appropriate group.
Institutions may not want to admit that they are non-compliant.	The survey is confidential which should minimize any concerns. Additionally, the requirements are constantly evolving and being disputed which has resulted in some dissention in the industry about whether or not compliance is needed. Based on communications in social networks, many schools are openly expressing that their approach is to ignore state authorization requirements.	Some administrators did express concern regarding regulations which may have impacted their responses. This issue is detailed in Chapter 6.
It may be difficult to acquire an appropriate target population.	Based on connections within the industry, I was confident that I would have enough participants to complete the study.	The study goal was 80 participants based on the requirements of quantitative method. In total, 94 institutions participated. Although efforts were made to include a representative sample, the study sample did include a higher number of public and East coast based institutions than the national representation.

ISSUE	MITIGATION APPROACH	IMPACT
Regulatory requirements are constantly changing which may make it difficult to ask questions about compliance.	No changes are forecast in the near future. During the time when the survey will be deployed, legislators will not be focusing on these regulations. Should changes occur to specific policies, the key issue of this study, increasing regulation, remains constant. Federal regulators are becoming more involved in distance education policy. Additional policies, no matter the exact requirements, may impact the organizational culture of online programs.	Strategies for addressing these requirements are being developed however reciprocity agreements have not yet been completed.

As evidence that this topic is still of importance to higher education administrators, WCET released its second study related to compliance and state authorization on February 27, 2013 (UPCEA, et, al., 2013). In addition to the WCET study, the Chronicle of Higher Education (Bidwell, 2013b) recently reported that, "under a new interpretation by the Education Department of its 'state authorization' rule, many colleges around the country could risk losing their eligibility to receive federal student aid" (n.p.). This recent study and continued appearance in national news media highlights the continuing importance of federal regulatory requirements for online programs.

In summary, Sections 3.3.1 and 3.3.2 outline the researcher's declarations about potential areas for bias and provides an overview of perceived study limitations. Each of these areas should be considered when evaluating the findings presented in Chapters 3, 4 and 5. Study limitations and researcher perspective have an impact on the presentation of research findings in every study and should be considered. However, every attempt has been made to minimize the impact of bias and potential limitations in the study design and presentation of research results.

3.4 QUANTITATIVE STUDY 1

The previous sections provided an overview of the data collection process (Section 3.1), characteristics of study participants (Section 3.2), and indicators of study quality (Section 3.3). Section 3.4 provides detailed information about the first of two quantitative studies that were used to evaluate organizational culture and institutional attributes in relation to regulation adherence. Findings and the methods of analysis are provided. The primary method of inquiry for this study was quantitative, using binomial probit regression models, supported by qualitative analysis. Quantitative analysis was completed in two separate ways to ensure the robustness of results. The first regression (Quantitative Study 1), presented here in Chapter 3, utilized the quantitative, numerical scores from the competing values framework (Cameron & Quinn, 2011a) as predictor variables to determine the organizational cultures quadrants that were most closely linked to regulation adherence. The second study (Quantitative Study 2), presented in Chapter 4 was completed as a robustness check and utilized each institution's primary culture quadrant to determine likelihood to comply.

3.4.1 The Use of Binomial Probit Regression Analysis

Probit regression is an appropriate choice for this analysis because it is increasingly used in higher education and organizational behavior research and provides a way to model relationships in a non-linear way. Researchers (Peng, So, Stage & St. John, 2002) found that scholars have applied increasingly sophisticated use of regression (logit, probit and tobit) for a wide range of topics related to educational research. For example, this approach has been used by higher education researchers, in regard to graduation rates (Jones-White, Radcliffe, Huesman, &

Kellogg, 2012; Dey & Astin, 1993) and course withdraws (Adams & Becker, 1990). Probit regression has been used in business fields related to marketing messaging (Teixeira, Wedel & Pieters, 2010), organizational commitment (Rayton, 2006), change related to lobbying (Richter, Samphantharak &Timmons, 2009), and voter turnout (Lassen, 2005). Probit analysis is based on "different assumptions than those used by linear models, and as such are theoretically more appropriate for studying dichotomous phenomena" (Dey & Astin, 1993, p. 572). This analysis is dichotomous in that yes/no responses were used for the compliance variable. For these reasons this method was used to understand the relationship between regulation adherence and organizational culture.

Logistic regression and probit analysis are two related statistical techniques for analyzing the relationship between one or more independent variables or predictors and a binary dependent variable. "Probit regression is an umbrella term meaning different things in different contexts, though the common denominator is treating categorical dependent variable assumed to have an underlying normal distribution" (Garson, 2012, p. 7). The major difference between these techniques is that different theoretical distributions are used to transform a non-linear model into a linear model. "In order to explain the behavior of a dichotomous dependent variable we have to use a suitably chosen Cumulative Distribution Function (CDF). . . The estimating model that emerges from the Normal CDF is known as the Probit Model" (Vasisht, n.d. p. VI-59). Logistic regression makes use of a log transformation, whereas probit analysis makes use of a transformation based on the normal distribution. Unlike logistic regression, probit regression assumes that there is a continuous normally distributed variable underlying the binary response (Tabachnick & Fidell, 2007). For these reasons, binomial probit analysis was selected for this

study. The next sections, Sections 3.4.2 and 3.4.3 explain the development of the dependent and independent variables for this study.

3.4.2 Development of the Dependent Variable

The dependent variable in both Quantitative Study 1 and Quantitative Study 2 is the dichotomous variable for "adherence" assessed by responses to Question 5 (How does your organization address state authorization requirements?). Responses of "unaware," "have no current plan to implement requirements," or "have a plan but have not yet implemented the processes," were classified as non-compliance (no). Selections of "staff with internal personnel" and "outsource to consultant" were identified as compliant (yes) as illustrated in Table 13.

Table 13. Dummy Variables for Adherence Responses

Approach to Adherence	Yes = 1/ No = 0
Unaware	0
No Current Plan	0
Plan but not implemented	0
Outsource to Consultant	1
Staff Internally	1

Table 14 presents the responses to Question 5 related to regulation adherence. As is illustrated in Table 14, 4.3% of participants reported that they were not aware of state authorization requirements. No participants selected the option "outsource compliance work to consultant." A majority of participants (78.49%) indicated that internal staff members were responsible for addressing state authorization requirements. The remaining participants were aware of requirements but either had not developed a plan (7.53%) or had not yet implemented their plan (9.98%).

Table 14. Responses to Question 5 – How does your organization address state authorization requirements?

Approach to Adherence	Frequency	Percent
Unaware	4	4.30%
No Current Plan	7	7.53%
Plan but not implemented	9	9.98%
Outsource to Consultant	0	0%
Staff Internally	73	78.49%

n = 93

When viewing the responses in terms of simply compliance or non-compliance (Table 15), 78.49% of participants reported that they are adhering while 21.51% would be classified as not adhering.

Table 15. Frequency of Reported Adherence to State Authorization Policy

Adhere	Frequency	Percent
No	20	21.51%
Yes	73	78.49%

n = 93

In summary, the dependent variable is the dichotomous yes/no response for adherence based on responses to Question 5 of the online survey questionnaire. As the dependent variable is dichotomous a binomial probit analysis was used for this study. Section 3.4.3 explains the use of the independent variables for organizational culture.

3.4.3 Development of the Independent Variables

The independent variables (predictors) were based on the mean scores for each of the four cultural types (Collaborate, Create, Compete, and Control) based on the four quadrants identified by the competing values framework (Cameron & Quinn, 2011a) and also institutional characteristics. This organizational culture variable data was gathered based on responses to Questions 7, 8, 9, 10, 11 and 12, which were based on the assessment provided in the competing

values framework (Cameron & Quinn, 2011a). The competing values framework assessment is a well-vetted approach to evaluating organizational culture and the study was used in whole as presented in the text *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework* (Cameron & Quinn, 2011a). The existing framework was used in its entirety for this study. Within the survey, participants were asked to assign a numerical score - between 1 and 100 - to each of four statements, along the six organizational topics identified by Cameron & Quinn (2011b). The six organizational characteristics are as follows:

1. Dominant Characteristics
2. Organizational Leadership
3. Management of Employees
4. Organizational Glue
5. Strategic Emphases
6. Criteria of Success

In each of these six areas, participants allocated a total of 100 points across each of the four questions (Cameron & Quinn, 2011b). The competing values organizational culture score was then determined by calculating the means of responses within the six categories. For example, Table16 shows a representative response to the competing values framework questions. The first statement from each section is related to the Collaborate quadrant, the second to the Create quadrant, the third to the Compete quadrant and the last to the Control Quadrant.

Table 16. Competing Values Framework Sample (ID# – 112) (Cameron & Quinn, 2011a)

7. DOMINANT CHARACTERISTICS	
A. The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves. *(Collaborate Question)*	60
B. The organization is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks. *(Create Question)*	20
C. The organization is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented. *(Compete Question)*	20
D. The organization is a very controlled and structured place. Formal procedures generally govern what people do. *(Control Question)*	0

8. ORGANIZATIONAL LEADERSHIP	
A. The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing. *(Collaborate Question)*	70
B. The leadership in the organization is generally considered to exemplify entrepreneurship, innovating, or risk taking. *(Create Question)*	10
C. The leadership in the organization is generally considered to exemplify an aggressive, results-oriented, no-nonsense focus. *(Compete Question)*	0
D. The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency. *(Control Question)*	20
9. MANAGEMENT OF EMPLOYEES	
A. The management style in the organization is characterized by teamwork, consensus, and participation. *(Collaborate Question)*	90
B. The management style in the organization is characterized by individual risk-taking, innovation, freedom, and uniqueness. *(Create Question)*	5
C. The management style in the organization is characterized by hard-driving competitiveness, high demands, and achievement. *(Compete Question)*	5
D. The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships. *(Control Question)*	0
10. ORGANIZATIONAL GLUE	
A. The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high. *(Collaborate Question)*	90
B. The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge. *(Create Question)*	5
C. The glue that holds the organization together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes. *(Compete Question)*	5
D. The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important. *(Control Question)*	0
11. STRATEGIC EMPHASES	
A. The organization emphasizes human development. High trust, openness, and participation persists. *(Collaborate Question)*	85
B. The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued. *(Create Question)*	10
C. The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant. *(Compete Question)*	0
D. The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important. *(Control Question)*	5
12. CRITERIA OF SUCCESS	
A. The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people. *(Collaborate Question)*	80
B. The organization defines success on the basis of having the most unique or the newest products. It is a product leader and innovator. *(Create Question)*	5
C. The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key. *(Compete Question)*	0
D. The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling, and low cost production are critical. *(Control Question)*	15

Data from the competing values framework was then downloaded from Survey Monkey into Microsoft Excel 2007, where the means of the four organizational culture quadrants were

determined for each institution. The calculation of the competing values culture scores is shown in Table 17.

Table 17. Example Mean Culture Score Approach (ID# - 112)

Organizational Culture Variables	Scores	Mean Score
Collaborate	(60 + 70 + 90 + 90 + 85 + 80) / 6	79
Create	(20 + 10 + 5 + 5 + 10 + 5) / 6	9
Compete	(20 + 0 + 5 + 5 + 0 + 0) / 6	5
Control	(0 + 20 + 0 + 0 + 5 + 15) / 6	7
	TOTAL	**100**

n = 1

Once mean organizational culture scores were calculated, and the results summed to ensure a total value of 100 for each institution, the values were uploaded into the STATA 12 data file. A final step was to review the STATA data file against original survey responses to ensure that responses were entered correctly.

As mentioned previously, the organizational culture variables were developed in two ways. First, index variables were developed based on the mean scores from the competing values framework questionnaire (Quantitative Study 1) as described in Table 17. An index is a name used in statistical analysis for a composite measure that takes several specific observations and classifies them into a more general classification. For this study, the index variable was represented by the mean score for each organizational culture quadrant (Collaborate, Create, Compete and Control). The index variable represents the mean of all responses to questions related to a specific organizational culture quadrant. For the second study (Quantitative Study 2) dummy variables were created based on the highest mean score across the four organizational culture quadrants. The dummy variable is a way of reorganizing information into a yes or no response (dichotomous) for statistical analysis. So for example, for institution location, we created a field called “West” and then coded each of the schools as yes (1) or no (0) based on

their location in the Western region. Another example would be the creation of dummy variables for the preferred organizational culture quadrant. We created a variable called "Collaborate" and if the highest mean score across all of the four quadrants was for the Collaborate quadrant then they were coded as "yes". If the top mean score for an institution was not for the Collaborate culture then the variable was coded as 0 for "no". Table 18 illustrates the differing uses of the competing values framework variables for Quantitative Study 1 and Quantitative Study 2.

Table 18. Competing Values Mean Scores for ID#1

Variable Names	Index Values (Quantitative Study 1)	Dummy Values (Quantitative Study 2)
Collaborate	14	0 – No
Create	43	1 – Yes
Complete	30	0 – No
Control	13	0 – No

n=1

Institutional attributes related to duration of online programs and number of online programs, were calculated based on responses to Questions 1 and 2. Demographic information related to type of institution and enrollment size were determined by information provided by the Carnegie Foundation for the Advancement of Teaching's Institution Look-up website.

Within each of the quantitative studies (Quantitative Study 1 & Quantitative Study 2) a series of binomial probit regressions were used to understand the relationships between organizational culture preferences, regulation adherence, and institutional characteristics. Table 19 provides an overview of the analyses that were completed:

Table 19. Overview of Regression Analyses in Study 1 and 2

	Quantitative Study 1 **(Completing values framework mean scores)**	Quantitative Study 2 **(Competing values framework primary quadrant)**
Competing values framework preference and regulation adherence		
Regression 1	Culture and regulation adherence	Culture and regulation adherence
Influence of institutional characteristics on regulation adherence, controlling for culture preference		
Regression 2a	All institutional characteristics – Experience, Location, Type, Size and Organizational Culture	All institutional characteristics – Experience, Location, Type, Size and Organizational Culture
Regression 2b	Experience with Online Delivery and Organizational Culture	Experience with Online Delivery and Organizational Culture
Regression 2c	Regional Location (East, Midwest, West) and Organizational Culture	Regional Location (East, Midwest, West) and Organizational Culture
Regression 2d	Institutional Type (Public, Private, Community, For-Profit) and Organizational Culture	Institutional Type (Public, Private, Community, For-Profit) and Organizational Culture
Regression 2e	Institutional Size based on Enrollment and Organizational Culture	Institutional Size based on Enrollment and Organizational Culture

As illustrated in Table 19, the first analysis within each study was performed by utilizing a binomial probit regression to illustrate the relationship between organizational culture and regulation adherence. Regression 1 evaluated the influence of only organizational culture on regulation adherence. The second analysis in each study consisted of a series of regressions to investigate the influence of individual, institutional characteristics (experience, location, type, and size) on regulation adherence. Regression 2 consisted of five, individual binomial probit regressions analyses. The goal of Regression 2 was to determine if experience with online delivery, location, institutional type, and size contribute to regulation adherence. Regression 1 and Regression 2, as described here, were used in both Quantitative Study 1 and Quantitative Study 2. For both studies, the dependent variable remains the same (adherence). As discussed

here the independent variables were developed in two separate ways. Table 20 provides an overview of the variable categorization for Quantitative Study 1:

Table 20. Listing of Variable Labels for Quantitative Study 1

Variable Label	Variable Definition
Adhere	Constructed from Question 5 - Index responses categorized as yes(1)/no(0) as follows: 0 – Not aware 0 – No plan 0 – Plan but not implemented 1 – Outsource to consultant 1 – Staff internally
Collaborate	Mean numerical score between 1 and 100 from the "Collaborate" questions on the competing values framework assessment
Create	Mean numerical score between 1 and 100 from the "Create" questions on the competing values framework assessment
Compete	Mean numerical score between 1 and 100 from the "Compete" questions on the competing values framework assessment
Control	Mean numerical score between 1 and 100 from the "Control" questions on the competing values framework assessment
Age	2013 - Year of first online program (x)
Prog	Number of online programs typed into field
Enrollments	Number of total students enrolled in the institution as identified by the Carnegie Foundation for the Advancement of Teaching
Public	Carnegie designation as Public institution (yes = 1, no = 0)
Private	Carnegie designation as Private institution (yes = 1, no = 0)
Community	Carnegie designation as 2 year institution (yes = 1, no = 0)
For-Profit	Carnegie designation as 2 year institution (yes = 1, no = 0)
East	Location in Eastern United States (yes = 1, no = 0)
Midwest	Location in the Midwestern United States (yes = 1, no = 0)
West	Location in the Western United States (yes = 1, no = 0)

In summary, regression analyses (for both Quantitative Study 1 and Study 2) were completed in two distinct ways. The first regression (Regression 1) used only variables related to the competing values framework to explain regulation adherence. The second regression (Regression 2) was a series of analyses, which added variables related to experience with online delivery (age of programs and number of online programs), region (East, Midwest and West), type of institution (public, private, community and for-profit), and size (based on enrollment).

The same regression approach was used for both Quantitative Study 1 and Quantitative Study 2. The key difference between these studies was the approach to development of the organizational culture variable. Quantitative Study 1 utilized the numerical, mean scores from the competing values framework (Cameron & Quinn, 2011a) that included values that represented all of the different cultural quadrants. Quantitative Study 2 assigned a primary culture quadrant based on the highest mean score for the competing values framework questions. Quantitative Study 1 is presented her in Chapter 3 and Quantitative Study 2 is described in Chapter 4. Supporting qualitative analysis findings are outlined in Chapter 5.

3.4.4 Study 1 - Regression 1 – Culture and Adherence

For this study, the researcher sought to determine if organizational culture preference could be used to explain regulation adherence. Specifically, based on findings from the literature review, the assumption was that institutions with more structured cultures (Control and Compete) might be more likely to adhere with complex regulatory requirements. The first regression in Quantitative Study 1 (Quantitative Study 1 - Regression 1), investigated organizational culture preference, in relation to regulation adherence and found that the Collaborate and Compete cultures were statistically significantly related to regulation adherence, when compared to the Control culture. Statistically significant relationships were also identified in Quantitative Study 1 - Regression 2 when institutional characteristics were considered. These findings are presented in Section 3.4.5. Figure 8 below illustrates adherence approach by primary culture quadrant. By presenting mean scores for each culture quadrant by approach (yes/no) to regulatory requirements as a bar graph we can view the relationships between these variables. Institutions

with a Control or Compete preference appear to be more likely to comply than those with Collaborate cultures.

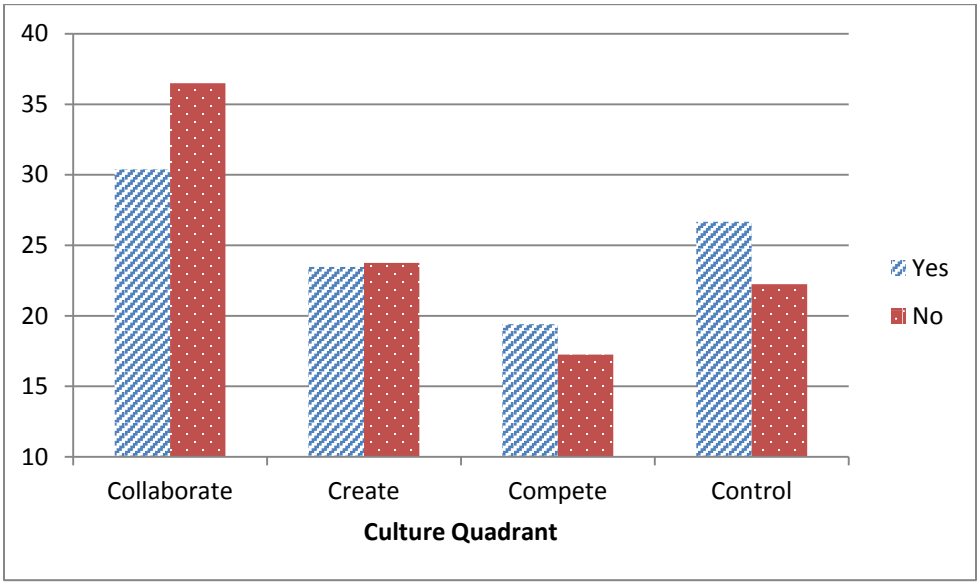


Figure 8. Culture Preference by Adherence to Regulatory Requirements

To examine these relationships, a binary probit analysis was completed. The STATA probit analysis command "probit adhere collaborate create compete," was executed, followed by the command for marginal effects (STATA: mfx compute). The probit is modeled by: $p = \Phi(a+bx)$. "In linear regression, we write $y = a + bx$, where y represents the dependent variable. Since y in this case is a binary outcome variable, the estimated y, mean, is the proportion, or the probability and the Greek letter Φ represents the cumulative standard normal distribution" (Princeton University Data and Statistical Services, 2011). Using this approach we can develop the following binomial probit regression model: $\Pr(\text{adhere} = 1) = F(\beta_0 + \beta_1\text{collaborate} + \beta_2\text{create} + \beta_3\text{compete})$. In this model, p represents the probability of an observation being yes (1) as the dummy variable is coded as either 1 or 0. To determine a response to the research question, a probit regression model was use to calculate the likelihood of a yes (1) response based on competing values organizational culture preference.

Following the probit regression, marginal effects was used to determine the impact of each variable. This approach was taken because when using "a dichotomous independent variable, the marginal effect is the difference in the adjusted predictions for the two groups" (Williams, 2011, p. 22). A marginal effect calculation would be appropriate here as this calculation provides an approximation to the amount of change in y that will be produced by a 1-unit change in x. This works for this model as variables for adherence can only take on two values, yes (1) or no (0). In this way, the marginal effects calculation will be used to measure the influence of different variables.

The first binomial regression model (Quantitative Study 1 – Regression 1) sought to identify if organizational culture preference can explain the adherence to regulatory requirements. The results of the probit analysis and marginal effects calculations are shown in Table 21:

Table 21. Study 1 – Regression 1: Competing Values Quadrant Scores in Relation to Adherence

Probit regression — Number of obs = 88
LR chi2 (3) = 5.00
Prob > chi2 = 0.1716
Log likelihood = -43.406446 — Pseudo R2 = 0.0545

Adhere	Coefficient.	Standard. Error.	Marginal Effects
Collaborate*	.029*	.016	.008
Create	-.004	.012	-.001
Compete**	.042**	.020	.012
Compete	base		
_cons	.012	.005	

Marginal effects after probit
y = Pr(adhere) (predict)
= .79582802

Note: **denotes statistical significance at .05%, *denotes statistical significance at .10%.

As noted previously, this probit analysis (Quantitative Study 1 - Regression 1) suggests that Collaborate ($p > .10$) and Compete ($p > .05$) quadrants are statistically significant related to regulation adherence, when compared to the Control culture. When applying the marginal effects calculation, findings suggest for every one-point increase in the mean within the Collaborate culture quadrant coefficient institutions are .8% more likely to comply with regulatory requirements than institutions that favor the Control culture. This is a small effect size which indicates that a high preference for the Collaborate culture, although statistically significant, would not have greatly influence regulation compliance.

Similarly, for every one-point increase in the mean score for the Compete culture preference institutions are 1.2% more likely to be compliant as compared to those with a Control culture coefficient preference. The marginal effects calculation works for this model as variables for adherence can only take on two values, yes (1) or no (0). So, a structured culture (Compete) is slightly more likely to have a higher level of regulation adherence than other culture types, however the effect size is small. However, this may not be a very strong model as the overall model is not statistically significant. The likelihood ratio chi-square of 5 with a p-value of 0.17, tells us that our model as a whole is not statistically significant, that is, it does not fits better than a model with no predictors.

As noted in the literature review, there may be no one particular culture that is more effective than others as culture is an abstraction (Cameron & Freeman, 1991; Schein, 2010). This analysis suggests that Collaborate and Compete preferences may be more likely than Control cultures to be compliant but as the model is weak, organizational culture does not have a large effect. This analysis found that there are statistically significant relationships between adherence to regulations and scores on the four competing values framework quadrants

(Cameron & Quinn, 2011a) related to the Collaborate and Compete preferences. This may suggest that multiple types of cultures can be effective at managing complex regulatory requirements. This finding is important as organizational culture previously has not been studied in relation to online program groups and adherence to federal requirements. Additionally, very little research has been completed on federal requirements related to higher education, in general.

In addition to the finding that Compete and Collaborate organizational culture and regulation adherence are statistically significant, this analysis also confirms previous research related to the competing values framework (Cameron & Quinn, 2011a) and higher education institutions (Birnbaum, 1988, Cameron, 1978; Cameron & Freeman, 1991; Hassan, et al., 2011; Kosma, 1985; Smart, 2003; Smart & St. John, 1996) in a couple of ways. First, as noted previously, institutions of higher education do have a primary culture preference, which can be measured. Secondly, that the preference continues to be for the Collaborate culture. This study also finds that institutions are a combination of multiple cultures as none of the institutions surveyed exhibited a preference for only one culture.

In summary, Section 3.5.1 provides an overview of the analysis (Quantitative Study 1 - Regression 1) related to organizational culture and adherence to requirements. Data collected confirms the work of previous organizational culture scholars related to organizational culture preferences in higher education, and also a relationship between organizational culture and likelihood to adhere to regulatory requirements for Compete and Collaborate cultures. Quantitative Study 1 – Regression 1 found that there is a statistically significant relationship between these cultural preferences of Collaborate and Compete as compared to the Control culture preference. As several of the cultures were statistically significant, when compared with the Control culture, this may signify is that a variety of culture types can effectively align with

complex regulatory requirements or that some cultures are more effective than others. For example, as higher education scholar Birnbaum (1988) suggests:

> "In a rational world, colleges and universities would be organized and managed in the manner that most effectively supports their activities or achieves their goals. They would have structures to guide their processes and rules and procedures to meet stated objectives. Indeed, institutions do have structures, rules, and stated goals. But these may not determine how institutions actually function" (p. 76).

Findings from Quantitative Study 1 – Regression 1 appear to support Birnbaum's (1988) conclusion that structure and rules may not always be the drivers of organizational approach within institutions of higher education.

The next section (Section 3.5.2) provides findings and approach related to the second series of regressions that were completed for Quantitative Study 1. Quantitative Study 1 – Regression 2 includes an analysis of additional institutional factors such as experience, location, type and size to determine regulation compliance, when controlling for organizational culture. Quantitative Study 1 - Regression 2 uncovered findings that suggest that, in addition to a statistically significant relationship between organizational culture preferences of Collaborate and Compete, some institutional characteristics may help to explain an institutions approach to regulation adherence. Findings related to institutional attributes of experience, location, type, and size are outlined in Sections 3.4.5.1 through 3.4.5.5.

3.4.5 Study 1 - Regression 2 Series - Influence of experience, regional location, type, and institutional size

"Do the institutional attributes of experience with online delivery, regional location, type of institution, or enrollment size explain regulation adherence?" To further investigate the findings developed in Quantitative Study 1 - Regression 1 (Section 3.4.4), a series regression analyses were conducted (Quantitative Study 1 – Regression 2) to examine the relationship between selected institutional characteristics and regulation adherence. Quantitative Study 1 - Regression 2 includes a series of five, separate, regression analyses that investigate and isolate different institutional characteristics to determine if these variables influence regulation adherence. This set of regressions is built upon the first regression but adds variables related to institutional characteristics of experience, regional location, type and size.

The first regression in the series, Quantitative Study 1 – Regression 2a, is a study of all predictor variables related to institutional characteristics. The variables of experience with online delivery, regional location, type of institution, and size were considered. Secondly, individual institutional attributes were isolated into four, separate regressions as follows: 1) experience with online programs (Quantitative Study 1 – Regression 2b), 2) regional location (Quantitative Study 1 – Regression 2c), 3) type of institution (Quantitative Study 1 – Regression 2d), and 4) size of the institution (Quantitative Study 1 – Regression 2e). The literature review suggested that more structured organizational cultures (Burns & Stalker, 1961; Cameron & Freeman, 1991; Fayol, 1949; Zummato & Krakower, 1991) are often best suited for rigid processes, like federal regulatory requirements. This analysis sought to determine the influence of institutional characteristics on regulation adherence.

When including all institutional variables (Quantitative Study 1 – Regression 2a) findings suggest that location in the Western region, institutional size, and the Collaborate culture were statistically significant related to regulation adherence, when compared to the Control culture. Following the initial regression, which included all variables, individual attributes were isolated (Regressions 2b, 2c, 2d, and 2e). When isolating for institutional characteristics, experience with online programs, location in the Western region, institutional size, and the Collaborate and Compete cultures are statistically significant related to regulation adherence. Quantitative Study 1 – Regression 2b, related to experience, found that experience related to age of online programs and the Collaborate and Compete culture preferences were statistically significant predictors of regulation adherence, but number of online programs and the Create culture preference were not. Regional location (Quantitative Study 1 – Regression 2c) was found to be statically significant as institutional location in the Western region is related to lower compliance. Additionally, Quantitative Study 1 – Regression 2c again found that Collaborate and Compete cultures were statistically significant related to compliance. The next regression in the Quantitative Study 1 – Regression 2 series, Quantitative Study 1 – Regression 2d, examined institutional types in relation to compliance and found that a preference for Collaborate or Compete culture influences regulation adherence but type of institution is not statically significant. Finally, the size of the institution (Quantitative Study 1 – Regression 2e) confirmed the findings from Quantitative Study 1 - Regression 2a and found that enrollment size, and a preference for Collaborate and Compete cultures were statistically significant. These findings are summarized in Table 22:

Table 22. Summary of Quantitative Study 1 - Regression Findings

Regression Analysis	Findings of Statistical Significance	Variables that are not Statistically Significant
Regression 1 – Organizational Culture Only	Complete (p<.05) Collaborate (p<.10)	Create
Regression 2a – All Institutional Characteristics and Organizational Culture	Collaborate (p<.05)	Create Compete
	Western Region (p<.10)	Eastern Region Midwest
		Private Community
		Age of Online Programs Number of Online Programs
	Size of Institution (p<.10)	
Regression 2b – Experience and Organizational Culture	Collaborate (p<.05) Compete (p<.10)	Create
	Age of Online Programs (p<.05)	Number of Online Programs
Regression 2c – Regional Location and Organizational Culture	Collaborate (p<.10) Compete (p<.10)	Create
	Western Region (p<.05)	Eastern Region Midwest
Regression 2d – Type of Institution and Organizational Culture	Compete (p<.05) Collaborate (p<.10)	Create
		Type of Institution
Regression 2e – Size of Institution and Organizational Culture	Collaborate (p<.05) Compete (p<.10)	Create
	Size of Institution (p<.01)	

While Quantitative Study 1 - Regression 1 sought to explain the relationship between organizational culture preference and regulation adherence, Quantitative Study 1 - Regression 2 was performed as a series of regression analyses to determine the influence of additional institutional factors (such as experience, region, type, and size) in relation to regulation adherence and organizational culture preference. Quantitative Study 1 - Regression 2 added a

number of additional independent variables to the competing values framework variables described in Quantitative Study 1 - Regression 1. The variables of "age," "number of programs," "type of institution," "regional location," and "size of institution," were included in the second series of probit equations. The Quantitative Study 1 – Regression 2 series found that experience as related to duration of time, location in the Western region and institutional size are all statistically significant related to regulation adherence. Additionally, confirming findings from Quantitative Study 1 – Regression 1, the second series of analyses identified preference for the Collaborate and Compete cultures as being statistically significant (Quantitative Study 2 – Regressions 2b, 2c, 2d, and 2e). As with each of the analyses in Quantitative Study 1, the competing values framework (Cameron & Quinn, 2011a) values were based on the mean numerical scores from the survey questionnaire. Each regression controlled for the Control organizational culture preference. Findings related to these institutional attributes are presented in Sections 3.4.5.1 through 3.4.5.5.

3.4.5.1 Study 1 - Regression 2a – All Institutional Characteristics

The Quantitative Study 1 - Regression 2 series provided a variety of ways to look at the influence of institutional attributes such as experience, location, type, and size as a way to help explain organizational culture's role in the regulation adherence. The first regression in the Quantitative Study 1 - Regression 2 series (Quantitative Study 1 – Regression 2a) looked at the influence of all institutional variables in relation to organizational culture preference and regulation adherence and found that the Collaborate culture, experience with online delivery, location and enrollment size were statistically significant.

For Quantitative Study 1 - Regression 2a, the predictor variables are those previously described. The dependent variable was again "adherence," based on the dichotomous variable

adhere, coded as yes/no (1/0) based on responses to Question 5. The STATA 12 probit analysis, "probit adhere collaborate create compete age prog East West Private Community Enrollments," was run, followed by the marginal effects calculation. The following probit model was executed: $\Pr(\text{adhere} = 1) = F(\beta_0 + \beta_1\text{Age} + \beta_2\text{prog} + \beta_3\text{East} + \beta_4\text{West} + \beta_5\text{Private} + \beta_6\text{Community} + \beta_7\text{Enrollments} + \beta_8\text{collaborate} + \beta_9\text{create} + \beta_{10}\text{compete})$. The Control culture preference was omitted as it is assumed from the literature review that more structured cultures would be related to compliance. Similarly, the Midwest variable was removed as these institutions had the highest rate of compliance. Public institutions were removed as they had the largest number of institutions in this study. Table 23 provides the probit and marginal effects calculations:

Table 23. Results of Probit Analysis for Enrollments

Probit regression — Number of obs = 85
LR chi2 (10) = 21.91
Prob > chi2 = 0.0155
Log likelihood = -31.577104 — Pseudo R2 = 0.2576

Adhere	Coefficient.	Standard. Error.	Marginal Effects
Collaborate**	.042**	.019**	.007**
Create	-002	.016	-.0003
Compete	.028	.025	.005
Control	base		
Age	.060	.037	.010
Prog	.010	.014	.002
East	-.941	.596	-.168
Midwest	base		
West*	-1.212*	.642*	-.291*
Private	.280	.461	.004
Public	base		
Community	-.189	.552	-.035
Enrollments x1000*	.050*	.026*	8.47*
_cons	-1.519	1.24	

Marginal effects after probit
y = Pr(adhere) (predict)
= .90551452

Note: **denotes statistical significance at .05%, *denotes statistical significance at .10%.

When including all institutional variables, the characteristics of regional location, institutional size, and the Collaborate culture coefficient preference were shown to be statistically significant in this model. Based on the marginal effects, for every one-point increase in the mean score in the Collaborate quadrant, institutions are .7% more likely than institutions with a Control preference to be compliant. This is a small effect size and so a greater preference for the Control organizational culture only minimally increases regulation compliance. Similarly, for every one-point increase in the mean score for the Compete culture quadrant, institutions are .5% more likely to be compliant than institutions with the Control organizational culture preference. The Create culture is not statistically significant. Enrollment size had the highest level of significance and for every 1000 enrollments, institutions are .8% more likely to be in compliance, when holding all other factors constant. Regional location was also statistically significant, as institutions located in the Western region were found to be negatively related to regulation adherence ($p < .10$). Institutions in the West are 29% less likely to be compliant than those in the Midwestern region. Overall, this model is statistically significant at $p < .05$ which suggests that institutional attributes do influence regulation adherence. The likelihood ratio chi-square of 21.91 with a p-value of 0.02 tells us that our model as a whole is statistically significant, that is, it fits better than a model with no predictors.

In summary, when including the institutional attributes of experience with online delivery, location, type, and size, the variables of location in the Western region, size of institution, and a preference for the Collaborate culture coefficient are statistically significant related to regulation adherence in this model. Location in the Western region is statistically significant related to non-compliance while institutions with larger enrollments and institutions with a preference for the Collaborate culture coefficient are more likely to be in compliance than

those with a Control culture coefficient preference, in this model. Sections 3.4.2.2 through 3.4.2.5 describe the resulting analysis of isolating each of the institutional attributes described here in relation to regulation adherence.

3.4.5.2 Study 1 - Regression 2b – Experience, Culture, and Adherence

The first analysis in the Quantitative Study 1 - Regression 2 series (Quantitative Study 1-Regression2a) looked at the influence of institutional attributes of experience, location, type, and size in relation to the likelihood to comply with regulatory requirements. The second regression in the Quantitative Study 1 - Regression 2 series (Quantitative Study 1 - Regression 2b) investigates the influence of experience. Experience is evaluated based on the duration of time that an institution has supported online programs and the number of programs that have been developed. Organizational culture is related to a number of internal factors, which drive organizational behavior. One such factor, tested by this analysis, was the relationship between an institution's experience with the delivery of online programs and regulation adherence. Experience with online education may be related to regulation adherence as a greater number of programs may increase the organizational risk and visibility to regulatory bodies. Additionally, duration of time during which online programs have been offered extends institutional knowledge and would suggest that newly introduced regulatory requirements would be readily apparent, as existing requirements are well known. This experience may impact an institutions cultural preference and approach to regulation adherence. Quantitative Study 1 - Regression 2b found that experience related to duration of time that programs have been offered is statistically significant but that experience related to the number of programs that are offered is not. In support of findings from Quantitative Study 1 – Regression 1, the Collaborate and Compete

cultures are also statistically significant related to regulation adherence in this analysis, when compared to the Control culture.

Quantitative Study 1 - Regression 2b, isolated the variables of experience, organizational culture, and regulation adherence. In addition to an institution's organizational culture preference, experience with online delivery was considered to be a possible indicator for the likelihood to comply. Table 24 provides an overview of experience factors among study participants.

Table 24. Summary of Experience with Online Delivery

Experience with Online	Obs	Mean	Std. Dev.	Min	Max
Age of Online Programs	88	11.77	5.68	1	28
Number of Online Programs	91	20	27.44	0	180

The range of online experience is 1 to 28 years and the mean age of online programs is 12 years. The number of online programs ranges from 0 to 180 with the average number of programs being 20 programs. A school with zero online programs indicated that they offer only online courses but as online courses are impacted by regulatory requirements, particularly state authorization, this institution is included in the study. As is illustrated here, most institutions who participated in the study have some experience with online delivery.

This analysis included the "age" variable and the "prog" variable. Age in this analysis refers to the duration of time that an institution has offered online programs. Data for the "age" variable was obtained through Question 1, an open ended question that required participants to enter a four-digit year and was included in Part 1 of the survey questionnaire. Numerical age was calculated then as 2013 – x. Experience is also related to the number of programs that an institution offers online. The "prog" variable (number of programs) was determined based on Question 2 from Part 1 of the survey instrument. Question 2 was an open-ended question that asked participants to submit a numerical entry indicating the number of online programs that

were currently being offered by their institution. As with all of the analyses in Quantitative Study 1, mean scores for the competing values framework quadrants (Cameron & Quinn, 2011a) were included to understand the influence of cultural and experience factors on regulation adherence. The dependent variable remained the same as those presented in Regression 1 and was "adherence" based on the dichotomous yes/no (1/0) classification and based on responses to Question 5.

To determine the influence of these variables, the STATA 12 probit analysis "probit adhere collaborate create compete prog age," was run, followed by the marginal effects calculation to determine the effect of each variable. The following probit model was executed: $\Pr(\text{adhere} = 1) = F(\beta_0 + \beta_1 \text{age} + \beta_2 \text{prog} + \beta_3 \text{collaborate} + \beta_4 \text{create} + \beta_5 \text{compete})$. As with the previous analyses, the organizational culture preference of Control was omitted as prior scholarship suggests that structured cultures are often aligned with structured processes. In this way, the effect of variables related to organizational culture and experience with online programs can be evaluated. Quantitative Study 1 - Regression 2b sought to understand the relationship between experience and organizational culture in relation to adherence to regulatory requirements as illustrated in Table 25:

Table 25. Probit Analysis of Culture and Experience Related to Adherence

Probit regression — Number of obs = 86
LR chi2 (5) = 13.15
Prob > chi2 = 0.019
Log likelihood = -37.363774 — Pseudo R2 = 0.153

Adhere	Coefficient.	Standard. Error.	Marginal Effects
Collaborate**	.039**	.018	.009
Create	-.010	.014	-.002
Compete*	.039*	.023	.009
Control	base		
Prog	.014	.013	.003
age**	.072**	.032	.017
_cons	-1.85	1.06	

Marginal effects after probit
y = Pr(adhere) (predict)
= .84514676

Note: **denotes statistical significance at .05%, *denotes statistical significance at .10%.

The probit analysis of age, number of programs and culture preference suggests that age of online programs is an indicator of regulation adherence ($p < .05$), but number of online programs is not ($p > .05$). As with Quantitative Study 1 – Regression 1, the organizational culture preferences of Collaborate ($p < .05$), and Compete ($p < .10$) are also statistically significant related to regulation adherence, when compared to the Control culture. The marginal effects calculation indicates that institutions with these culture preferences are .9% more likely to be in compliance than institutions with the Control culture coefficient preference. The effect size is small which indicates that increased experience, although statistically significant, does not have a large influence on regulation adherence. What this analysis suggests is that duration of time is a key indicator of adherence but number of programs does not influence likelihood to comply. For example, one institution may develop 100 programs in 10 years and another only 10 programs in 10 years. Marginal effects for experience related to number of years delivering online programs,

finds that for every additional year of experience an institution is 1.7% more likely to comply with regulatory requirements, holding all other factors constant.

Findings related to organizational culture preferences may indicate that preference influences adherence but that institutions that have a preference for structured cultures (Control and Compete) might not be the only groups to comply. This is indicated by findings here that suggest Collaborate cultures are also statistically significant related to regulation adherence. This model overall is statistically significant which indicates that experience with online education can be used as a way to evaluate regulation adherence. The likelihood ratio chi-square of 13.15 with a p-value of 0.02 tells us that our model as a whole is statistically significant, that is, it fits better than a model with no predictors.

Quantitative Study 1 - Regression 2b suggests that age of online programs is statistically significant, so the duration of time during which an institution has supported online programs is related to the likelihood to adhere, when controlling for organizational culture preference. In this analysis, the Collaborate and Compete culture coefficient preferences were statistically different than the Control culture coefficient preference. This may be related to the fact that the majority of the institutions in the study reported a preference for the Collaborate culture or it may indicate stronger primary preferences within the Collaborate and Compete quadrants. The next regression in the Quantitative Study 1 - Regression 2 series (Quantitative Study 1 – Regression 2c) sought to determine if regional location is related to regulation adherence. Section 3.5.2.3 provides an overview of findings from Quantitative Study 1 - Regression 2c, which sought to determine the impact of regional location and organizational culture on adherence to regulatory requirements.

3.4.5.3 Study 1 - Regression 2c – Regional Location, Culture, and Adherence

As discussed previously, the Quantitative Study 1 – Regression 2 series seeks to identify the influence of organizational attributes on regulation adherence when controlling for organizational culture. Quantitative Study 1 – Regression 2b (Section 3.3.2.1) provided an analysis of the impact of experience and found that experience related to duration of time that programs have been offered, and the Collaborate and Compete cultures are statistically significant related to compliance, when compared to the Control culture coefficient preference. The next regression in the Quantitative Study 1 - Regression 2 series (Quantitative Study 1 – Regression 2c) sought to determine if the regional location of participating institutions could help to explain likelihood to comply, when controlling for organizational culture.

The regional distribution of compliance responses (Table 26) suggests that Midwest institutions are the most likely to comply with 92% of institutions in the Midwest region reporting that they are adhering to state authorization requirements. Eastern institutions report 78% adherence, while Western institutions report the lowest level of adherence (65%).

Table 26. Regional Location and Compliance to State Authorization

	East		Midwest		West	
Adhere	**n**	**%**	**n**	**%**	**N**	**%**
No	9	22%	2	8%	9	35%
Yes	32	78%	24	92%	17	65%
TOTAL	41	100%	26	100%	26	100%

n = 93

This analysis is also related to state authorization policy at institutions across different regional locations. When looking at the existence of a state authorization policy (Question 4), institutions in the Western region are the least likely to have a policy than either Midwest or Eastern institutions as illustrated in Table 27. It is interesting to note that Eastern institutions report the

highest level of state authorization policy development but Midwestern schools are the most compliant.

Table 27. Existence of State Authorization Policy by Region

Region	No	%	Yes	%	TOTAL
East	10	24%	31	76%	41
Midwest	7	26%	20	74%	27
West	8	31%	18	69%	26

n = 94

Regional location was determined according to the state where the institution is located. As with Quantitative Study 1 – Regressions 1 and 2a, organizational culture quadrant scores from Part 2 of the survey were included to determine the impact of culture and location on likelihood to adhere. Scores utilized in this analysis are the mean organizational culture quadrant, which are evident across all quadrants. The independent variables for this analysis were the dummy variables "East," and "West." The variable "Midwest" was omitted as this region was most highly correlated to adherence to regulatory requirements. Organizational culture mean scores from the competing values framework (Cameron & Quinn, 2011b) were also included as predictor variables. The dependent variable was again, "adherence," based on the dichotomous variable adhere, coded as yes/no (1/0) based on responses to Question 5. Quantitative Study 1 – Regression 2b investigated the relationship of experience on adherence to regulatory requirements, while controlling for culture, and found that duration of time is a statistically significant predictor of compliance.

To further examine the influence of regional location related to adherence, a probit analysis of regional location, culture and adherence was completed. Recall that the Mid-western institutions were used as a reference variable and omitted from the calculation as they have the highest level of compliance. The Control variable was also omitted from the organizational

culture variable group as the assumption is that Control cultures are related to regulation adherence. The STATA 12 probit analysis "probit adhere collab create comp West East," was run, followed by the marginal effects calculation. The following probit model was executed: Pr(adhere = 1) = F (β_{0+} β_1West + β_2East + $\beta_3$collaborate + $\beta_4$create + $\beta_5$compete). Using this model, the relationship between regional location, organizational culture and adherence to requirements was examined. The results of this analysis are presented in Table 28.

Table 28. Probit Analysis of Regional Location, Culture and Adherence

Probit regression — Number of obs = 88
LR chi2 (5) = 9.39
Prob > chi2 = 0.0946
Log likelihood = -41.213904 — Pseudo R2 = 0.102

adhere	Coefficient.	Standard. Error.	Marginal Effects
Collaborate*	.028*	.016	.008
Create	-.0006	.012	-.0002
Compete*	.036*	.021	.010
Control	base		
East	-.615	.453	-.170
Midwest	base		
West**	-.944**	.471	-.300
_cons	-.145	.898	

Marginal effects after probit
y = Pr(adhere) (predict)
= .81126787

Note: **denotes statistical significance at .05%, *denotes statistical significance at .10%.

The probit analysis of regional location and culture preferences suggests that location in the Western region is a statistically significant indicator of regulation adherence ($p < .05$). The marginal effects calculation suggests that institutions in the West are 30% less likely to comply than those in the Midwest, when holding all other factors constant. This supports findings from Quantitative Study 1- Regression2a that also found that Western institutions are negatively correlated to regulation adherence. Additionally, Collaborate ($p < .10$) and Compete ($p < .10$)

are again statistically significant related to regulation adherence, when compared to the Control culture coefficient, which supports findings from Quantitative Study 1 – Regression 1 and Quantitative Study 1 - Regression 2b.

Marginal effects finds that for every one-point change in the mean, institutions with a preference for Collaborate coefficient are .8% more likely to comply than those with a primarily Control oriented culture, when all other factors are held constant. Similarly, for each one-point change to the mean, institutions with a preference for the Compete organizational culture coefficient are 1% more likely than the Control organizational culture group to be compliant. These small effect sizes suggest that an increased preference for Compete or Collaborate, although statistically significant, does not greatly increase regulation adherence. As an overall model, this approach is statistically significant at $p < .10$, which suggests that regional location is related to regulation compliance. The likelihood ratio chi-square of 9.39 with a p-value of 0.09 tells us that our model as a whole is statistically significant and fits better than a model with no predictors.

In this second analysis of the Quantitative Study 1 - Regression 2 series (Quantitative Study 1 - Regression 2c) we find that location does impact regulatory approach ($p < .05$) and again the Collaborate and Compete organizational culture preferences are statistically significant predictor of adherence ($p < .10$). Marginal effects indicate that institutions in the Western region are 30% less likely to be compliant than schools in the Midwest. Quantitative Study 1 – Regression 2c supports the analysis provided in Quantitative Study 1 – Regression 2a which included all institutional attributes and found location in the Western region and the Collaborate culture preference to be statistically significant. Findings also support Quantitative Study 1 – Regression 2b which found that both the Compete and Collaborate cultures are statistically

significant related to regulation adherence, as compared to the Control culture coefficient. This represents new information as no previous studies have been completed to determine regulatory approach by region. The next institutional characteristic that will be investigated is the influence of institutional type. Section 3.3.2.4 provides an overview of Quantitative Study 1 - Regression 2d, which sought to examine the relationship between type of institution, organizational culture, and regulation adherence.

3.4.5.4 Study 1 - Regression 2d - Type of Institution, Culture, and Adherence

Quantitative Study 1 – Regression 2 includes a series of analyses that seeks to determine if the influence of additional organizational attributes such as experience with online delivery, regional location, type of institution, and enrollment size can help to explain approach to adherence. The forth regression in the Quantitative Study 1 - Regression 2 series (Quantitative Study 1 – Regression 2d) was related to type of institution, based on a designation of public, private, and community college. Quantitative Study 1 - Regression 2d found that the type of institution does not influence regulation adherence when controlling for organizational culture and the overall model is not statistically significant.

To further investigate the influence of institutional type on likelihood to adhere a probit analysis was completed. The classifications for the independent variables of type were found on the Carnegie Foundation for the Advancement of Teaching website, Institution Lookup section, and entered according to the Carnegie classifications as public (1), private (2), community (3), and for-profit (4). The independent variables for this analysis were the dummy variables "Private," "Community." For-profit institutions were not included in this analysis as only three institutions of this type participated in the study. The variable "Public" has been omitted as it contained the largest number of institutions from within the four institutional types. The

competing values framework quadrants, “Collaborate,” “Create,” and “Compete,” are included as quantitative variables based on the mean scores in each quadrant. As with the other analyses in this study, the Control variable was also omitted and consistent with other analyses in Quantitative Study 1, the dependent variable remained the dichotomous variable adhere, coded as yes/no (1/0) based on responses to Question 5. The STATA 12 probit analysis, “probit adhere collab create comp Private Community,” was run, followed by the marginal effects calculation. The following probit model was executed: Pr(adhere = 1) = F (β_{0+} β_1Private + β_2Community + $\beta_3$collaborate + $\beta_4$create + $\beta_5$compete). Using this model, the study sought to determine if type of institution and organizational culture provide an appropriate way to explain adherence to regulatory requirements. This relationship is illustrated in Table 29:

Table 29. Probit Analysis, Type of Institution, Culture and Adherence

Probit regression — Number of obs = 88
LR chi2 (5) = 7.21
Prob > chi2 = 0.206
Log likelihood = -42.304947 — Pseudo R2 = 0.079

adhere	Coefficient.	Standard. Error.	Marginal Effects
Collaborate*	.029*	.016	.008
Create	-.007	.013	-.002
Compete**	.040**	.020	.011
Control	base		
Public	base		
Private	-.390	.353	-.115
Community	-.566	.439	-.180
_cons	-.440	.895	

Marginal effects after probit
y = Pr(adhere) (predict)
= .8020949

Note: **denotes statistical significance at .05%, *denotes statistical significance at .10%.

The probit analysis of institutional type and culture finds that type of institution ($p > .05$) is not statistically significant but that the Collaborate ($p < .10$) and Compete ($p < .05$) cultures coefficients are statistically significant related to regulation adherence. Marginal effects indicates that for every one-point increase in mean score for the Collaborate culture coefficient, institutions are .8% more likely to adhere than institutions with the Control culture coefficient preference, holding all other factors constant. Similarly, for every one-point increase in the mean score for Compete, institutions are 1.1% more likely to adhere than institutions with a preference for the Control culture. The effect size here is again small and increased preference for the Collaborate or Compete cultures, although statistically significant, does not have a large influence on regulation adherence, when compared to the Control culture. These results differ slightly from the results found in Quantitative Study 1 – Regression 2b and 2c, which identified the Collaborate culture as being more highly correlated than the Compete culture, when compared with region and type, respectively. Quantitative Study 1 – Regression 2d identified the Compete culture as more highly correlated in relation to type of institution. The likelihood ratio chi-square of 7.21 with a p-value of 0.21 tells us that, our model as a whole is not statistically significant, that is, it does not fit better than a model with no predictors. Overall, this model is not statistically significant $p > .10$ and type of institution is not an effective way to evaluate regulation adherence.

Quantitative Study 1 - Regression 2b found that duration of time that online programs have been offered can help to explain compliance approach and Quantitative Study 1 - Regression 2c found that institutions in the Western region are less likely to comply. Both analyses found that institutions with a preference for the Collaborate and Compete cultures are statistically significant when compared to the Control culture and that the Collaborate culture is

more highly correlated than the Compete culture. Quantitative Study 1 - Regression 2d did not reveal a statistically significant relationship between type of institution and likelihood to comply, but found that both Collaborate and Compete cultures are statistically significant. In all of the models a preference for the Create culture was not statistically significant, when compared to Control cultures.

In summary, findings from Quantitative Study 1- Regression 2d suggest that type of institution is not statistically significant, related to regulation adherence. Also, again in this regression we find that organizational culture preferences of Collaborate and Compete do influence likelihood to comply as both are statistically significant. This finding is valuable in that previous studies have not investigated the influence of institution type on regulatory compliance. This analysis also confirms the work of previous scholars (Birnbaum, 1988, Cameron, 1978; Kosma, 2012; Smart, 2003; Smart & St. John, 1996) who used organizational culture as a way to analyze and understand institutional culture by organizational type. The next section (3.5.2.5) provides findings related to institutional size and regulation adherence when controlling for organizational culture preferences.

3.4.5.5 Study 1 - Regression 2e - Size of Institution, Culture and Adherence

Quantitative Study 1 – Regression 2 is comprised of a series of analyses that investigate the influence of institutional attributes such as experience with online delivery, regional location, institutional type and enrollment size, on regulation adherence. In the prior analysis within this series, Quantitative Study 1 - Regression 2 has identified statistically significant relationships related to experience with online delivery and regional location, and found that institutions with preferences for the Collaborate and Compete organizational cultures are statistically significant related to adherence. This final analysis (Quantitative Study 1 – Regression 2e) examines

compliance likelihood based on institutional size, Quantitative Study 1 - Regression 2e found that size is statistically significant related to regulation adherence. Additionally, the Collaborate and Compete cultures continue to be statistically significant related to regulation adherence. Table 30 shows enrollment ranges by compliance.

Table 30. Institutional Size by Adherence

Enrollments	No	%	Yes	%	TOTAL
<1000	1	25%	3	75%	4
1000 – 2999	5	50%	5	50%	10
3000 – 9999	9	31%	20	69%	29
10,000 – 19999	3	13%	20	87%	23
20,000 – 29999	0	0%	19	100%	19
>30,000	1	14%	6	86%	7

n = 92

Size ranges were developed based on the ranges suggested by the Carnegie Foundation for the Advancement of Teaching. Table 31 segments these classifications into larger groupings to better view levels of compliance and illustrates that institutions with enrollments of more than 10,000 have a 92% compliance rate and institutions smaller than 1,000 have a 75% compliance rate. Institutions in the range of 1,000 to 10,000 have a 64% compliance rate.

Table 31. Enrollment Levels and Adherence

Enrollments	No	%	Yes	%	TOTAL
<1,000	1	25%	3	75%	4
1,000 – 10,000	14	36%	25	64%	29
>10,000	4	8%	45	92%	49

n = 92

The independent variable for this analysis was the numerical value of "enrollment." The dependent variable remained the same and was "adherence," based on the dichotomous variable "adhere," coded as yes/no (1/0) based on responses to Question 5. This final analysis in the Regression 2 series sought to determine if the institutional attribute of size is related to approach to regulatory requirements and found that size is statistically significant. For Quantitative Study

1 - Regression 2e, size of institution, organizational culture and approach to regulatory requirements were evaluated. Size is related to the number of enrollments as reported by the Carnegie Foundation for the Advancement of Teaching. Consistent with previous regressions in this series, organizational culture variables were Collaborate, Create, Compete and Control (Cameron & Quinn, 2011b).

To further investigate these relationships a binomial probit was completed. Table 31 shows the probit analysis for enrollments in relation to the dichotomous variable of adherence (adhere), controlling for organizational culture quadrant. The STATA 12 probit analysis, "probit adhere collab create comp Enrollments," was run, followed by the marginal effects calculation. The following probit model was executed: $\Pr(\text{adhere} = 1) = F(\beta_0 + \beta_1\text{Enrollments} + \beta_2\text{collaborate} + \beta_3\text{create} + \beta_4\text{compete})$ and presented in Table 32:

Table 32. Results of Probit Analysis for Enrollments

Probit regression — Number of obs = 87
LR chi2 (4) = 14.06
Prob > chi2 = 0.007
Log likelihood = -37.323437 — Pseudo R2 = 0.159

Adhere	Coefficient.	Standard. Error.	Marginal Effects
Collaborate**	.040**	.018**	.009**
Create	.002	.014	.0005
Compete*	.040*	.022*	.009*
Control	base		
Enrollments x1000***	.054***	.020***	.012***
_cons	-1.82	.960	

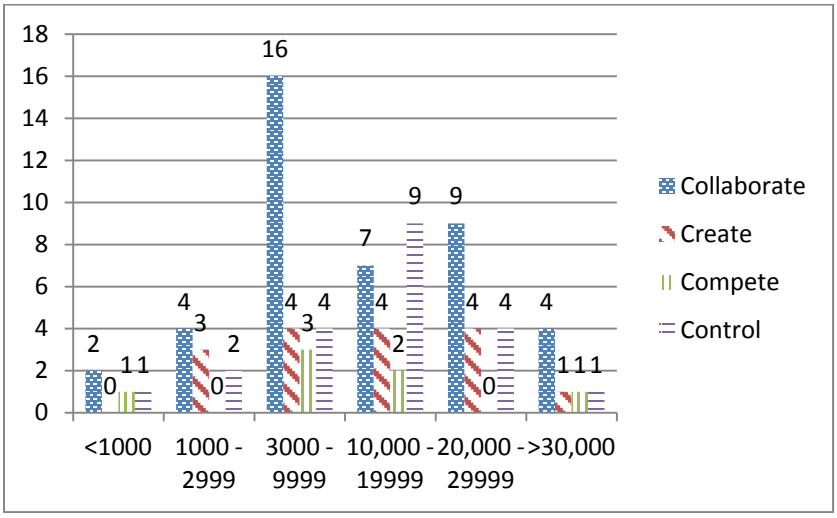
Marginal effects after probit
y = Pr(adhere) (predict)
= .85863397

Note: ***denotes statistical significance at .01%, **denotes statistical significance at .05%, *denotes statistical significance at .10%.

The final probit analysis (Table 32) in the Quantitative Study 1 – Regression 2 series finds that there is a strong relationship between size of institution based on enrollments, and adherence to regulatory requirements ($p < .01$). Additionally, the Collaborate ($p < .05$) and Compete ($p < .10$) cultures are again statistically significant related to regulatory adherence, as compared to the Control culture preference. Marginal effects suggests that a one-point increase the mean score for either the Collaborate or Compete cultures results in a .9% increase in compliance over institutions that favor the Control culture, holding all other variables constant. This is a small effect size, mirroring the findings from previous analyses in this study. In alignment with findings from Quantitative Study 1 – Regression 2b and 2c, the Collaborate culture is more highly correlated to regulation adherence than the Compete culture, although both are related. Quantitative Study 1 – Regression 2e aligns with Quantitative Study 1 – Regression 2a as both found that institutional size is related to regulation compliance. The marginal effects calculation shows us that for every 1000 additional students, the likelihood of regulation adherence increases by 1.2%, when holding all other variables constant. This may be related to the fact that larger institutions have more financial and personnel resources to devote to regulatory requirements. As with the previous analyses, the effect sizes are small for all variables. This model overall is statistically significant at $p < .01$ which further confirms that enrollment size and regulation adherence are related. The likelihood ratio chi-square of 14.06 with a p-value of 0.007 tells us that our model as a whole is statistically significant and fits significantly better than a model with no predictors.

There is limited empirical research about the influence of institutional size on organizational culture. One study (Honoree & Terpstra, 2009) did suggest that size is related to faculty focus noting that “smaller institutions were more likely to emphasize teaching (26%) than

research (9%)," although "the most common emphasis for small institutions was one in which research, teaching, and service activities were given equal weight (33%)" (p. 171). Larger institutions are more likely to emphasize research, 52% according to Honoree & Terpstra (2009) more than teaching (4%). These findings suggest that the size of an institution does influence organizational culture as faculty focus is a driver of organizational culture. This is illustrated by culture preference by size based on the competing values framework as shown in Figure 9.



n = 86

Figure 9. Institutional Size and Culture Quadrant Preference.

As is noted by the probit regression of enrollment size and cultural preference, institutional size is a statistically significant indicator of organizational approach to compliance. This is supported by a study completed by WCET (2013) in relation to state authorization compliance. WCET (2013) that found that smaller schools tend to operate in average of 11 states, while institutions with more than 20,000 enrollments operate in a median 49 states (n.p.). This may be due to the fact that smaller schools choose to operate in states where requirements are not present or that they have less geographic reach than larger institutions. Similarly, Allen and Seaman (2008) found that,

> The majority of the recent growth in online enrollments has come from the schools that are the most engaged in online education as they add new courses and programs and grow their existing offerings. These institutions are larger and more established, so they are in a better position to 'scale up' their online offerings and contribute a larger proportion to overall growth (p. 6).

This may suggest that larger schools have a great ability to adhere to requirements due to access to greater financial resources and larger presence in the online space.

Size of institution may also be related to the number of states where the institution will support students. In some states, high application fees may keep smaller schools from applying. WCET found that "on average, the institutions surveyed said that they serve 32 states, territories or protectorates with online courses" (UPCEA, et, al., 2013, p. 3). There are differences based on the size and type of institution as illustrated in Table 33:

Table 33. Average Number of States where Institutions will Seek Approval (WCET, 2013)

Enrollments	Average	Median
<5,000	25	11
5,001 to 10,000	26	21
10,001 to 20,000	34	30
>20,000	43	49

n=176

Findings from WCET suggest that smaller schools tend to operate in fewer states, with an approximate median of 11 states (excluding its own). Institutions with more than 20,000 enrollments operate in a median 49 states. The overall median is 36 (UPCEA, et, al., 2013) as is shown in Table 33.

In summary, the Quantitative Study 1 - Regression 2 series investigated the influence of institutional factors such as experience, location, type, and size to determine the effect of these variables on regulation adherence. Quantitative Study – Regression 2 uncovered findings that

confirm the work of previous researchers and three distinct relationships were identified. First, experience with online delivery as related to year of the delivery of the first online program is related to compliance. Secondly, Midwest schools are most compliant (92%), while West Coast institutions are least compliant (65%) and regional location is statistically related to regulation adherence. Lastly, institutional size is statistically significant related to regulation adherence. Additionally, Quantitative Study 1 – Regressions 2b, 2c, 2d, and 2e identified statistically significant relationships between Collaborate and Compete cultures and regulation adherence. The Collaborate and Compete cultures were also found to be statistically significant in Quantitative Study 1 – Regression 1, in relation to the Control culture. These organizational culture preferences represent both structured and flexible approaches, which may indicate that institutions can be successful at compliance efforts while operating under a variety of different organizational culture preferences. However, some organizational cultures may be more effective than others.

In conclusion, these findings are important as they represent new research related not only to organizational culture and online program delivery, but also to differences between experience levels, regional location, type, and institutional size. Scholars suggest that an understanding of organizational culture is essential for effective leadership (Birnbaum, 1988; Berquist & Pawlak, 2008; Cameron & Quinn, 2011a; Schein, 2010).

3.4.6 Summary

In summary, Quantitative Study 1 found that, the organizational culture preferences of Collaborate and Compete are statistically significant predictors of regulation adherence, depending on the empirical model that is used. Quantitative Study 2 found that institutional

attributes related to experience with online delivery, regional location, and institutional size are statistically significant related to regulation adherence, and that these models overall are statistically significant. Type of institution was not found to be related to regulation adherence and the overall model was also not statistically significant which indicated that type of institution does not influence regulation adherence. In support of prior scholarship, institutions do appear to have clear preferences for one culture quadrant over others and most commonly that favored culture remains the Collaborate culture, even within online program groups.

It is important to remember that higher education institutions are a complicated network of organizational cultures and that non-primary (secondary, tertiary, and quaternary) organizational culture preferences may be influential, as not all cultures have strong primary preferences. As illustrated in Figure 10, while all institutions currently favor the Collaborate culture, the most common secondary culture of both community colleges and public institutions is for the Control quadrant. Private institutions have a stronger secondary preference for the Create culture, which may indicate differences by type.

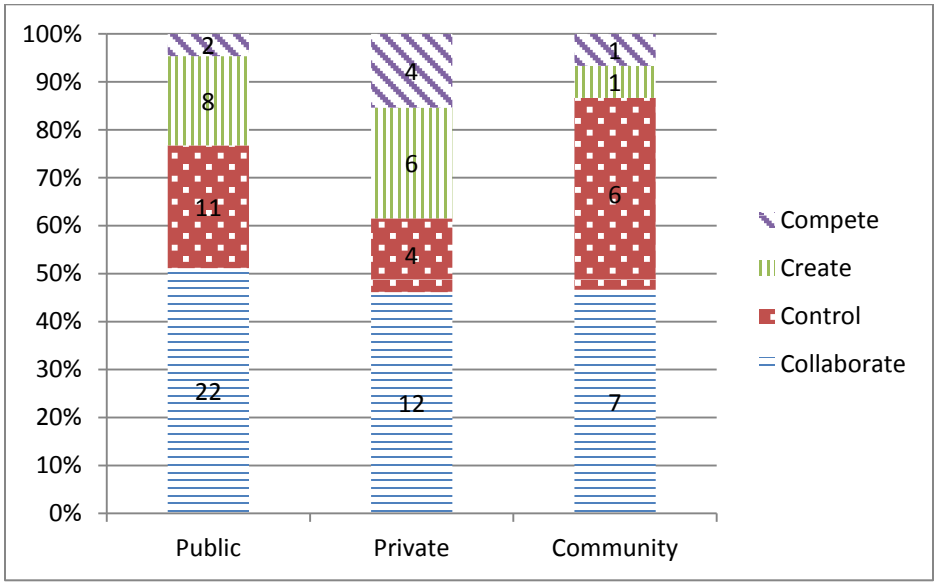


Figure 10. Primary and Secondary Culture Preferences by Type

Quantitative Study 1, which utilized values representing all culture quadrants and identified a statistically significant relationship between the Collaborate and Compete cultures and regulation adherence. Quantitative Study 2, which are presented in Chapter 4, evaluated only primary culture preference and did not find a statistically significant relationship between organizational culture preference and regulation adherence, in any of the empirical models. This may indicate that secondary, tertiary, and quaternary organizational culture preferences influence behavior as not all institutions have a strong primary preference (Cameron & Freeman, 1991) and this finding supports the work of prior organizational culture scholars (Bergquist & Pawlak, 2008; Birnbaum, 1988; Cameron & Freeman, 1991; Cameron & Quinn, 2011a; Schein, 2010; Zummato & Krakower, 1991) who suggest that institutions are comprised of a mix or organizational culture preferences. Additional details related to Quantitative Study 2 are presented in Chapter 4.

Quantitative Study 1 – Regression 2 revealed a number of relationships between experience with online delivery, regional location, institutional size, and preferences for the Collaborate and Compete cultures. A relationship was identified between experience with online delivery as related to duration of time that programs have been in place (Quantitative Study 1 – Regression 2b). Quantitative Study 1 – Regressions 2a and 2c found that institutions in the Western region are statistically significant in that they are less likely than those in the Midwest to comply with federal regulatory requirements. Finally, Quantitative Study 1 – Regressions 2a and 2e both identified size as a statistically significant contributor to regulation adherence. Each analysis in the Quantitative Study 1 – Regression 2 series also identified statistically significant relationships between the Collaborate and Compete cultures and regulation adherence. One institutional attribute was not found to be statistically significant. Type of institution was not

found to be a predictor of regulation adherence in neither Quantitative Study 1 – Regressions 2a nor 2d. Also, the organizational culture preference of Create was also not found to be statistically significant in any of the models, when compared to the Control preference. A summary of findings from Quantitative Study 1 are summarized in Table 34:

Table 34. Summary of Quantitative Study 1 Findings

Regression Analysis	Findings of Statistical Significance	Variables that are not Statistically Significant
Regression 1 – Organizational Culture Only	Complete (p<.05)	Create
	Collaborate (p<.10)	
Regression 2a – All Institutional Characteristics and Organizational Culture	Collaborate (p<.05)	Create
		Compete
	Western Region (p<.10)	Eastern Region
		Midwest
		Private
		Community
		Age of Online Programs
		Number of Online Programs
	Size of Institution (p<.10)	
Regression 2b – Experience and Organizational Culture	Collaborate (p<.05)	Create
	Compete (p<.10)	
	Age of Online Programs (p<.05)	Number of Online Programs
Regression 2c – Regional Location and Organizational Culture	Collaborate (p<.10)	Create
	Compete (p<.10)	
	Western Region (p<.05)	Eastern Region
		Midwest
Regression 2d – Type of Institution and Organizational Culture	Compete (p<.05)	Create
	Collaborate (p<.10)	
		Type of Institution
Regression 2e – Size of Institution and Organizational Culture	Collaborate (p<.05)	Create
	Compete (p<.10)	
	Size of Institution (p<.01)	

Quantitative Study 1 (Chapter 3) used a series of regression analyses (Regression 1 and 2) to explain an institution's likelihood to adhere to federal regulatory requirements for online

programs. The predictor variables, for this analysis were the quantitative numerical variables derived from mean scores from the competing values framework (Cameron & Quinn, 2011a) questionnaire. This approach included mean scores from within all four of the organizational culture quadrants (Collaborate, Create, Compete and Control). The second of two quantitative studies (Quantitative Study 2) provides a similar analysis intended to check the robustness of the findings illustrated here in Chapter 3. Chapter 4 covers the results of Quantitative Study 2 which substituted dummy variables for the competing values framework score to analyze likelihood to adhere based on a primary culture designation, rather than the mean culture scores across all four quadrants. The key difference between these two analyses is that Quantitative Study 2 looks at only the influence of the primary organizational culture whereas Quantitative Study 1 includes a more nuanced approach which includes secondary, tertiary and quaternary culture preferences.

4.0 CHAPTER 4 - QUANTITATIVE STUDY 2

This study used a quantitative approach to examine the influence of organizational culture on an institution's likelihood to comply with federal regulatory requirements for online programs. The key idea, drawn from the literature review, was that detailed processes like federal regulations are often matched with more formal organizational structures (Birnbaum, 1988; Burns & Stalker, 1961; Cameron & Freeman, 1991; Fayol, 1949) and may best align with Control and Compete culture preferences, from the competing values framework (Cameron & Quinn, 2011a). Quantitative Study 1, described in Chapter 3, investigated this idea by using the quantitative, numerical mean scores from the competing values framework survey (Cameron & Quinn, 2011b) as predictors for regulation adherence. Quantitative Study 2, presented here in Chapter 4, follows the same regression approach but the organizational culture variables are determined based on the primary organizational culture quadrant rather than mean quadrant scores. This approach (Quantitative Study 2) is used as a robustness check to confirm the validity of initial results presented in Chapter 3 (Quantitative Study 1). Scholars suggest that this type of secondary analysis can help to create results that are more generalizable. Firestone (1993) suggests that, "one of the more frequent criticisms, even among its advocates, is that it appears hard to generalize quantitative findings to settings other than those studied" (p. 16). For these reasons a secondary analysis has been completed.

As mentioned in the previous paragraph, Quantitative Study 2 differs from Quantitative Study 1 in that the organizational culture preference was based on a single, primary culture, rather than numerical scores which are present in all four culture quadrants. In Quantitative Study 2 an institution's primary culture is the quadrant in which the mean score is the highest. Whereas the first set of regressions (Quantitative Study 1) used the continuous, quantitative numerical score for each of the competing values framework quadrants, the second study (Quantitative Study 2) converted the numerical scores to dummy variables indicating a singular, primary culture quadrant. For example, if an institution scored the values illustrated in Table 35, the quadrant with the highest numerical value would be classified as the "primary" quadrant and

Table 35. Example 1 - Competing Values Mean Scores for ID#1

Dummy Variable Names	Mean Competing Values Score (Used in Quantitative Study 1)	Assigned Dummy Value (Used in Quantitative Study 2)
Collaborate	14	0 = no
Create	43	1 = yes
Complete	30	0 = no
Control	13	0 = no

n = 1

coded as 1 (yes). Quadrants that did not receive the highest score, regardless of the mean score, were coded as 0 (no). The remaining three quadrants are not counted within the analysis for Quantitative Study 2. Table 36 shows a second example which has a primary culture of Create, based on the dummy variable classification. In spite of the fact that the Create score (40) and the Control score (39) are only one point apart and both are twice as large as the Control (13) and Collaborate (14) quadrants, this institution would be classified as a Create culture. As described here, the key difference between Quantitative Study 1 and Quantitative Study 2 is that secondary, tertiary and quaternary culture preferences are not factored into the analysis for Quantitative Study 2.

Table 36. Example 2 – Competing Values Mean Scores for ID #51

Organizational Culture Variables	Mean Competing Values Score	Assigned Dummy Value
Collaborate (primary culture)	40	1 = yes
Create (tertiary culture)	13	0 = no
Complete (quaternary culture)	8	0 = no
Control (secondary culture)	39	0 = no

n=1

Using only the primary culture preference from the competing values framework (Cameron & Quinn, 2011b) quadrant preferences, a duplicate series of regression analyses were completed. Quantitative Study 1 - Regression 1 was rerun with dummy variables as Quantitative Study 2 - Regression 1. Additionally, the Quantitative Study 1 - Regression 2 series was re-evaluated with the primary culture variable as Quantitative Study 2 - Regression 2. This duplication of analyses is important as, "replications under conditions that exactly repeat the original study are most useful for establishing reliability. When conditions vary, successful replication contributes to generalizability as similar results under different conditions illustrate the robustness of the finding" (Firestone, 1993, p. 17). By rerunning the analysis with a second set of variables it was hoped that initial results would be confirmed. Variables used in Quantitative Study 2 are presented in Table 37:

Table 37. Listing of Variable Labels

Variable Label	Variable Definition
adhere	Index responses from Question 5, categorized as yes(1)/no(0) as follows: 0 – Not aware 0 – No plan 0 – Plan but not implemented 1 – Outsource to consultant 1 – Staff internally
Collaborate	Primary culture (Yes = 1, No = 0)
Create	Primary culture (Yes = 1, No = 0)
Compete	Primary culture (Yes = 1, No = 0)
Control	Primary culture (Yes = 1, No = 0)
age	2013 - Year of first online program (x)
prog	Number of online programs typed into field

Variable Label	Variable Definition
Enrollments	Number of total students enrolled in the institution as identified by the Carnegie Foundation for the Advancement of Teaching
Public	Carnegie designation as Public institution (Yes = 1, No = 0)
Private	Carnegie designation as Private institution (Yes = 1, No = 0)
Community	Carnegie designation as 2 year institution (Yes = 1, No = 0)
For-Profit	Carnegie designation as 2 year institution (Yes = 1, No = 0)
East	Location in Eastern United States (Yes = 1, No = 0)
Midwest	Location in the Midwestern United States (Yes = 1, No = 0)
West	Location in the Western United States (Yes = 1, No = 0)

Mirroring Quantitative Study 1, Quantitative Study 2 is comprised of two probit regression models. Quantitative Study 2 – Regression 1 replicates Quantitative Study 1 – Regression 1 but substitutes a primary culture designation for the quantitative numerical scores from the competing values framework (Cameron & Quinn, 2011b) variables. Quantitative Study 2 – Regression 2 is, like Quantitative Study 1 – Regression 2, a series of individual analyses which adds institutional variables related to experience, location, type, and size (Quantitative Study 2 – Regression 2a) and then isolates individual variables related to 1) experience (Quantitative Study 2 – Regression 2b), 2) regional location (Quantitative Study 2 – Regression 2c), 3) type (Quantitative Study 2 – Regression 2d), and 4) size (Quantitative Study 2 – Regression 2e). In this way, the initial analysis is replicated providing a robustness check to support the overall findings. These individual analyses are presented in Sections 4.1.1 and 4.1.2.

4.1.1 Study 2 - Regression 1 – Primary Culture and Adherence

The first regression analysis in Quantitative Study 2 (Quantitative Study 2 – Regression 1) sought to explain the influence of organizational culture on regulation adherence. While Quantitative Study 1 found that preferences for Collaborate and Compete were statistically significant when compared to the Control preference, findings from Quantitative Study 2 –

Regression 1 did not confirm these relationships. This lack of confirmation may be related to the differing approaches that were used for organizational culture preference. Quantitative Study 2 neglects the influence of secondary, tertiary and quaternary culture preferences as it is based solely on the primary culture designation. As some institutions do not have a strong primary culture preference, this may be an important distinction.

As with Quantitative Study 1, the first regression in Quantitative Study 2 (Quantitative Study 2 - Regression 1) focused solely on an institution's organizational culture preference to explain regulation adherence. For this regression, the Control variable was omitted, as the assumption is that more structured cultures are more likely to comply. Quantitative Study 2 - Regression 1 looked at the cultures of Collaborate, Compete and Create in relation to Control. Using this approach we can develop the following binomial probit regression model: Pr(adhere = 1) = F (β_0 + β_1Collaborate + β_2Create + β_3Compete). Following the probit analysis, the marginal effects calculation was executed. Marginal effects is appropriate for this model as the "adhere" variable is based on the dichotomous responses of yes (1) and (0). The results of the probit regression model (Quantitative Study 2 - Regression 1) are provided as Table 38:

Table 38. Study 2 – Regression 1: Primary Competing Values Quadrant and Adherence

Probit regression — Number of obs = 87
LR chi2 (4) = 1.62
Prob > chi2 = 0.655
Log likelihood = -44.852 — Pseudo R2 = 0.018

Adhere	Coefficient.	Standard. Error.	Marginal Effects
Collaborate	.417	.369	.121
Create	.109	.447	.031
Compete	1.310	.580	0
Control	base		
_cons	.566	.290	

Marginal effects after probit
y = Pr(adhere) (predict)
= .786

In Quantitative Study 1 - Regression 1 it was identified that organizational culture quadrants of Collaborate and Compete are statistically significant predictors of regulation adherence. Quantitative Study 2 – Regression 1 however, did not confirm that the Collaborate and Compete cultures are statistically significant ($p > .10$). Quantitative Study 2 – Regression 1 instead suggests that none of the primary organizational culture preferences are statistically significant related to regulation adherence, when compared for the Control culture preference.

This robustness test was completed by replacing the competing values (Cameron & Quinn, 2011a) mean scores with a singular primary culture designation. The differences in the use of the competing values culture variables may have contributed to these differences in results. Quantitative Study 2 – Regression 1 suggests that, when looking at institutions solely related to their primary culture, one cannot determine the approach to regulatory requirements. This conflicts with findings from Quantitative Study 1 – Regression 1 that suggested that culture preferences for Collaborate and Compete are statistically related to regulation adherence, as compared to the Control culture coefficient. As with Quantitative Study 1 the overall model here in Quantitative Study 2 – Regression 1, evaluating only organizational culture preference is not statistically significant at $p > .10$. The likelihood ratio chi-square of 1.62 with a p-value of 0.66 tells us that our model as a whole is not statistically significant, and it does not fit better than a model with no predictors. This model would not help us to determine the influence of organizational culture preference on likelihood to comply with regulatory requirements.

These findings may also indicate that secondary, tertiary and quaternary organizational preferences do influence behavior. Quantitative Study 1, which included these additional culture preferences, identified Collaborate and Compete culture coefficients as statistically significant but Quantitative Study 2, which included only primary preferences, did not. Although this

second test did not align with the results of the first, this study confirms the work of higher education and organizational culture scholars (Bergquist & Pawlak, 2008; Birnbaum, 1988; Cameron & Freeman, 1991; Schein, 2010) who suggest that institutions are often a complex mix of different culture types and that primary organizational culture alone may not be a predictor of actual policy or process within an institution of higher education. The findings of Quantitative Study 1 – Regression 1 may be related to the diverse groupings of culture preferences, primary and otherwise, which are not utilized in Quantitative Study 2, suggesting that primary culture alone, is not related to regulation adherence. Additionally, since the overall models in both Quantitative Study 1 – Regression 1 and Quantitative Study 2 – Regression 1, was not found to be statistically significant relationships between organizational culture and regulation adherence may be weak, at best.

Section 4.1.1 provided an overview of findings from Quantitative Study 2 – Regression 1. These results contrast with findings from Quantitative Study 1 – Regression 1, which highlighted the Collaborate ($p < .10$) and Compete ($p < .05$) cultures as being statistically related to regulation compliance, when compared to the Compete culture. The next section (Section 4.1.2) provides an overview of the Quantitative Study 2 - Regression 2 series. Quantitative Study 2 – Regression 2 again mirrors the approach taken in Quantitative Study 1, but with a primary culture designation, rather than the mean, numerical scores from all quadrants. In Study 2 – Regression 2 the influence of secondary, tertiary, and quaternary organizational culture preferences is not considered as only the primary culture is used as an independent variable.

4.1.2 Study 2 – Regression 2 Series – Influence of Experience, Location, Type and Size

The Quantitative Study 2 - Regression 2 series is presented in Sections 4.1.2.1 through 4.1.2.5. This analysis sought to confirm the findings of the Quantitative Study 1 - Regression 2 series, which identified relationships between the Collaborate and Compete cultures and regulation adherence and found that experience related to age of online programs, location in the Western region, and size of institution were statistically significant. Quantitative Study 2 – Regression 2 aligned with the first study in that experience, location in the Western region, and institutional size were statistically significant related to regulation adherence. The Collaborate and Compete culture were not found to be statistically significant in any of the Quantitative Study 2 models. Additionally, location in the Eastern region was found to be statistically significant in Quantitative Study 2 – Regression 2c but this relationship was not evident in the first study, Quantitative Study 1 – Regression 2c. These divergent results are most likely the result of the two different approaches to the use of the organizational culture variables. Secondary, tertiary and quaternary culture preference influenced the findings in Quantitative Study 1, while Quantitative Study 2 relied solely on the primary organizational culture preference. As often institutions do not have a strong primary organizational culture preference, these differences may have resulted in different results.

As with Quantitative Study 1, Quantitative Study 2 - Regression 2 added institutional attributes (experience, location, type, and size) to determine the influence on regulation adherence, when controlling for organizational culture (Quantitative Study 2 – Regression 2a). Next the analysis isolated the specific variables of experience (Quantitative Study 2 – Regression 2b), regional location (Quantitative Study 2 – Regression 2c), type (Quantitative Study 2 – Regression 2d), and enrollment (Quantitative Study 2 – Regression 2e) to determine if these

factors influence regulation adherence, when controlling for primary organizational culture. Findings from the Quantitative Study 2 – Regression 2 series are summarized in Table 39:

Table 39. Summary of Quantitative Study 2 Findings

Regression Analysis	Findings of Statistical Significance	Variables that are not Statistically Significant
Regression 1 – Organizational Culture Only		Collaborate
		Compete
		Create
Regression 2a – All Institutional Characteristics and Organizational Culture		Collaborate
		Compete
		Create
		Private
		Community
		Age of Online Programs
		Number of Online Programs
	Western Region (p<.10)	
	Eastern Region (p<.10)	
Regression 2b – Experience and Organizational Culture		Collaborate
		Compete
		Create
	Age of Online Programs (p<.05)	Number of Online Programs
Regression 2c – Regional Location and Organizational Culture		Collaborate
		Compete
		Create
	Western Region (p<.05)	Eastern Region
		Midwest
Regression 2d – Type of Institution and Organizational Culture		Community
		Private
		Compete
		Collaborate
		Create
Regression 2e – Size of Institution and Organizational Culture		Collaborate
		Compete
		Create
	Size of Institution (p<.01)	

The next sections (Section 4.1.2.1 through 4.1.2.5) discuss the approach and findings related to these additional institutional attributes as indicators of regulation adherence.

4.1.2.1 Study 2 – Regression 2a – All Institutional Characteristics

The first analysis in the Quantitative Study 2 – Regression 2 series, Quantitative Study 2 – Regression 2a, seeks to identify statistically significant predictors of regulation adherence related to multiple institutional characteristics (experience, location, type, and size). Data from the initial analysis (Quantitative Study 1) was utilized. As with previous analyses, the dependent variable was adherence (yes/no) and the independent variables were based on the primary organizational quadrant and data collected from survey questions 1 and 2 and from the Institutional Lookup provided by the Carnegie Foundation for the Advancement of Teaching.

To investigate these relationships, the STATA 12 probit analysis, "probit adhere Collaborate Create Compete age prog East West Private Community Enrollments," was run, followed by the marginal effects calculation. As with Quantitative Study 1, the variable Control was omitted from the calculation, as were Midwest and public designations. The following probit model was executed: $\Pr(adhere = 1) = F(\beta_0 + \beta_1 Age + \beta_2 prog + \beta_3 East + \beta_4 West + \beta_5 Private + \beta_6 Community + \beta_7 Enrollments + \beta_8 Collaborate + \beta_9 Create)$. Results of the probit analysis and marginal effects calculations are provided in Table 40:

Table 40. Results of Probit Analysis for Enrollments

Probit regression — Number of obs = 84
LR chi2 (11) = 22.17
Prob > chi2 = 0.0231
Log likelihood = -31.223 — Pseudo R2 = 0.2620

adhere	Coefficient.	Standard. Error.	Marginal Effects
Collaborate	.478	.441	.085
Create	-.149	.598	-.028
Compete	-1.178	.867	-.339
Control	base		
Age	.058	.037	.010
Prog	.021	.017	.004
East*	-.997*	.583	-.190
Midwest	base		
West*	-1.180*	.642	-.292
Public	base		
Private	.326	.469	.054
Community	-.508	.539	-.112
Profit	-.617	1.490	-.152
Enrollments x1000	.04	.026	7.14
_cons	.166	.696	

Marginal effects after probit
y = Pr(adhere) (predict)
= .898

Note: *denotes statistical significance at .10%.

When factoring in all institutional variables (Quantitative Study 2 – Regression 2a) findings from Quantitative Study 2 reveals that both Eastern ($p < .10$) and Western ($p < .10$) regional locations are statistically significant related to regulation adherence but experience, type, and size are not. As with Quantitative Study 2 – Regression 1, organizational culture preference is also not statistically significant, when compared to the Control preference. The marginal effects calculation suggests that institutions in the East are 19% less likely and those with a Western location are 29% less likely than a Midwestern institution to comply, controlling for all other factors. As an overall model, the model is statistically significant at $p < .05$ which suggests that regional location is a valid approach to the evaluation of regulation adherence. The likelihood

ratio chi-square of 22.17 with a p-value of 0.02 tells us that our model as a whole is statistically significant, that is, it fits better than a model with no predictors.

This robustness test provides differing results from the initial analysis provided in Quantitative Study 1 – Regression 2a. First, in the initial analysis (Quantitative Study 1 – Regression 2a), only location in the Western region was identified as statistically significant. Secondly, Quantitative Study 1 - Regression 2a also found a statistically significant relationship related to the size of an institution and the Collaborate culture. These relationships are not present in the second analysis (Quantitative Study 2). As with Quantitative Study 1, the attributes of institutional type and experience with online programs, are also not statistically significant, when evaluated based on primary organizational culture preference.

The explanation for this variation is perhaps that the difference in variable attributes of the competing values framework (Cameron & Quinn, 2011a) preferences influenced the results. In Quantitative Study 2, only primary institutional quadrants are used. Quantitative Study 1 presents a more nuanced approach in that quantitative numerical scores are included from each of the competing values framework (Cameron & Quinn, 2011b) quadrants. This approach allowed secondary, tertiary, and quaternary preferences to influence the analysis. The approach in Quantitative Study 2 may have classified some institutions into a singular primary quadrant when their actual preference may have been better described as a combination of multiple cultures (Cameron & Freeman, 1991, p. 36). These differences in findings confirm that work of organizational culture and higher education scholars who suggest that culture is not always a driver of behavior and that organizational culture is based on a variety of institutional factors (Birnbaum, 1988; Bergquist & Pawlak, 2008; Schein, 2010). Institutions are often a mix of cultural attributes, as is evidenced by the results of this survey. For some schools, the primary

culture preference may not be strong enough to drive organizational behavior as secondary, tertiary and quaternary cultures may also be influential. The next analysis (Quantitative Study 2 – Regression 2b) evaluates the influence of experience with online program delivery.

4.1.2.2 Study 2 - Regression 2b – Experience, Primary Culture, and Adherence

Quantitative Study 2 - Regression 2 is a duplicate series of analyses that investigate the influence of institutional characteristics (experience, location, type, and size) on approach to regulation adherence. As discussed previously, factors such as experience with online delivery, location, type, and size may contribute to regulation adherence. This idea is the focus of Quantitative Study 2 - Regression 2b. Quantitative Study 2 - Regression 2b mirrors the analysis from the first study (Quantitative Study 1 – Regression 2b) in that it adds two additional variables to the initial regression equation. The first additional variable is age of online programs as determined by year of first offering. This variable was determined by response to Question 1 on the survey instrument and calculated as a numerical value (2013 – x). The second variable is the number of online programs as determined by the write-in response to Question 2.

To determine the robustness of the initial findings from Quantitative Study 1, Quantitative Study 2 - Regression 2b utilizes a primary culture designation as determined through the creation of dummy variables. For this robustness test, organizational culture is based on a singular primary culture, which was determined by the quadrant with the highest numerical score. This is different from the initial analysis (Quantitative Study 1 – Regression 2b) as Quantitative Study 2 - Regression 2b utilized a primary culture preference rather than the numerical values for organizational culture within each of the four organizational types. To understand these relationships, the STATA 12 probit analysis "probit adhere Collaborate Create Compete prog age," was run, followed by the marginal effects calculation to determine the effect

of each variable. The Control variable was not included as the assumption here is that more formal organizational cultures are more likely to adhere. The following probit model was executed: Pr(adhere = 1) = *F* (β_{0+} $\beta_1$age + $\beta_2$prog+ β_3Collaborate + β_4Create). Table 41 shows the regression analysis for Quantitative Study 2 - Regression 2a:

Table 41. Study 2 - Regression 2a - Primary Culture and Experience

Probit regression — Number of obs = 85
LR chi2 (5) = 11.96
Prob > chi2 = 0.0353
Log likelihood = -37.903 — Pseudo R2 = 0.136

Adhere	Coefficient.	Standard. Error.	Marginal Effects
Collab	.413	.404	.101
Create	-.122	.511	-.031
Compete	-.712	.683	-.221
Control	base		
age**	-.061**	.030	.015
Prog	.022	.015	.005
_cons	-.319	.471	

Marginal effects after probit
y = Pr(adhere) (predict)
= .839

Note: **denotes statistical significance at .05%.

The findings from this secondary analysis (Quantitative Study 2 – Regression 2b) confirm the results of the first (Quantitative Study 1 – Regression 2b) as both analyses revealed a statistically significant relationship between age of online programs and regulation adherence. This second analysis (Quantitative Study 2 – Regression 2b) suggests that for every additional year of experience, institutions are 1.5% more likely to comply, holding other variables constant. As with Quantitative Study 1 – Regression 2b this effect size is small. The first study (Quantitative Study 1 – Regression 2b) suggested that for every year of experience, institutions are 1.7% more likely to comply, so the findings are similar.

This second review of the influence of experience (Quantitative Study 2 – Regression 2b) confirms that number of online programs continues to be statistically significant related to likelihood to comply ($p < .05$). Number of online programs is again not statistically significant related to regulation adherence. Relationships between the Collaborate and Compete culture coefficients, which were identified in Quantitative Study 1 – Regression 2b, were not confirmed in Quantitative Study 2 – Regression 2b. This may again be related to the fact that non-primary (secondary, tertiary, and quaternary) organizational culture preferences were not considered in Quantitative Study 2. The likelihood ratio chi-square of 11.96 with a p-value of 0.04 tells us that, our model as a whole is statistically significant, that is, it fits better than a model with no predictors. As an overall model, experience is an appropriate way to evaluate regulation adherence ($p < .05$).

This robustness check confirms that the duration of time online programs have been offered, regardless of the number of programs delivered, is statistically significant related to regulation adherence holding other factors constant. The next analysis in the series, Quantitative Study 2 - Regression 2c, seeks to confirm the findings of Quantitative Study 1 - Regression 2c that suggests that institutions in the Western region are less likely to be compliant than those in the Midwest. Quantitative Study 2 - Regression 2c is presented in Section 4.1.2.3.

4.1.2.3 Study 2 - Regression 2c – Regional Location, Primary Culture, and Adherence

Quantitative Study 2 seeks to confirm the analysis provided in Quantitative Study 1 which suggests that experience, location, size of institution, and the Collaborate and Compete cultures are related to regulation adherence, when compared to the Control culture preference. Section 4.1.2 provides an overview of the third regression in the Quantitative Study 2 - Regression 2

series. Quantitative Study 2 – Regression 2c sought to determine if the institutional attribute of regional location could explain approach to regulation adherence.

Quantitative Study 2 – Regression 2c found that location in the Western region is statistically significant, but did not confirm findings from Quantitative Study 1 – Regression 2c related to the Collaborate and Compete culture preferences. Additionally, Quantitative Study 2 – Regression 2c did not align with Quantitative Study 2 – Regression 2a in that location in the East was not found to be statistically significant related to lower compliance in the first study, while Quantitative Study 1 – Regression 2a identified only the Western region to be statistically significant. Recall that Quantitative Study 2 uses the single, preferred organizational culture preference while Quantitative Study 1 used the mean culture scores across all four competing values framework (Cameron & Quinn, 2011b) quadrants.

To determine the influence of regional location, Quantitative Study 2 – Regression 2c used the independent variables of "East," and "West." The variable "Midwest" was omitted as this region was most highly correlated to adherence to regulatory requirements. For this robustness check, Quantitative Study 2 - Regression 2c, the competing values framework (Cameron & Quinn, 2011b) variables were again computed as dummy variables with a yes (1) or no (1) designation. As mentioned previously, this changed the culture score from a continuous, quantitative variable, which was evident across all cultures, to an individual dichotomous designation of one primary culture. The variable Control was omitted, as the assumption is that more controlling cultures are more likely to comply with regulatory requirements. The dependent variable was again, "adhere," based on the dichotomous variable adhere, coded as yes/no (1/0) based on responses to Question 5. The STATA 12 probit analysis "probit adhere Collaborate Create Compete West East," was run, followed by the marginal effects calculation.

The following probit model was executed: Pr(adhere = 1) = F (β_0 + β_1West + β_2East + β_3Collaborate + β_4Create + β_5Compete). The analysis for Quantitative Study 2 - Regression 2c is included as Table 42.

Table 42. Probit Analysis of Regional Location, Culture and Adherence

Probit regression — Number of obs = 87
LR chi2 (5) = 6.98
Prob > chi2 = 0.222
Log likelihood = -42.173 — Pseudo R2 = 0.074

Adhere	Coefficient.	Standard. Error.	Marginal Effects
Collaborate	.375	.377	.104
Create	.137	.461	.037
Compete	-.149	.615	-.044
Control	base		
East	-.660	.434	-.188
Midwest	base		
West**	-1.016**	.460	-.327
_cons	1.217	2.72	

Marginal effects after probit
y = Pr(adhere) (predict)
= .803

Note: **denotes statistical significance at .05%.

As illustrated in Table 42, the robustness test for influence of regional location (Quantitative Study 2 - Regression 2c) confirms findings from the initial study (Quantitative Study 1 - Regression 2c) that institutions in the West statistically less likely to be compliant than institutions in the Midwest ($p < .05$). Marginal effects suggest that Western schools are 33% less likely to comply than their colleagues in the Midwest. This is a stronger relationship than was exhibited in the first regression (Quantitative Study 1 - Regression 2c), which found that Western institutions are 30% less likely to comply than the Midwesterners. Recall that in Quantitative Study 1, quantitative culture means, rather than singular primary culture preferences, were applied. In contrast to Quantitative Study 2 – Regression 2a, which evaluated all variables, this

analysis (Quantitative Study 2 – Regression 2c) did not identify regional location in the East to be a predictor of regulation adherence. Additionally, the Collaborate and Compete culture coefficients were not found to be statistically significant in this second analysis. That statistically significant relationships related to the Collaborate and Compete cultures were identified in Quantitative Study 1 – Regression 2c but not Quantitative Study 2 – Regression 2c, may be related to the inclusion of secondary, tertiary and quaternary culture preferences in the first study. The likelihood ratio chi-square of 6.98 with a p-value of 0.22 tells us that our model as a whole is not statistically significant, that is, it does not fit better than a model with no predictors. This suggests that regional location would not be an effective way to evaluate regulation adherence as $p > .10$.

The first three regressions in the Quantitative Study 2 - Regression 2 series (Quantitative Study 2 - Regressions 2a, 2b and 2c), have provided an affirmation for the robustness of the initial findings from Quantitative Study 1 related to location in the Western region. The robustness test did not confirm the significance of the Eastern region, which was identified in Quantitative Study 2 – Regression 2a, nor that Collaborate and Compete cultures are statistically significant related to compliance approach when compared to the Control culture (Quantitative Study 1 – Regression 2c). The next regression in the Quantitative Study 2 - Regression 2 series (Quantitative Study 2 – Regression 2d) investigated the relationship between institutional type (public, private, and community), in relation to regulation adherence, when controlling for primary organizational culture preference.

4.1.2.4 Study 2 - Regression 2d – Type of Institution, Primary Culture and Adherence

Quantitative Study 2 - Regressions 2b and 2c investigated the influence of the factors of experience (Quantitative Study 2 – Regression 2b) and location (Quantitative Study 2 –

Regression 2c) on regulation adherence, when those variables were isolated. The results confirmed the findings from Quantitative Study 1 (Regression 2b and 2c) related to the significance of experience and Western regional location but did not confirm relationships related to organizational culture. The Collaborate and Compete cultures, which were statistically significant in Quantitative Study 1, have not been confirmed in Quantitative Study 2. Following the same approach from initial analysis (Quantitative Study 1 – Regression 2d), Quantitative Study 2 - Regression 2d sought to determine if type of institution is related to regulation adherence. Quantitative Study 1 found that type is not a statistically significant indicator of regulation adherence but that the Collaborate and Compete cultures are statistically significant. Again, this disparity may be the result of the differing ways that the organizational culture variables are used in each study. Secondary, tertiary and quaternary culture preferences were not considered in Quantitative Study 2 as only the primary culture preference is used in the analysis. Descriptive statistics suggest that public institutions are most often in compliance while community colleges are least likely. These relationships, illustrated in Table 43, shows that public institutions are the most likely to comply, followed by private.

Table 43. Type of institution by Regulatory Approach

Type of Institution	No	%	Yes	%	TOTAL
Public	7	15%	40	85%	47
Private	7	25%	21	75%	28
Community	5	33%	10	67%	15

n = 90

As outlined in Chapter 3, institutional classifications were found on the Carnegie Foundation for the Advancement of Teaching website, Institution Lookup section.

To determine the influence of type, the STATA 12 probit analysis, "probit adhere Collaborate Create Compete Private Community" was run, followed by the marginal effects calculation. As with Quantitative Study 1 – Regression 2d the public variable was omitted as

this was the largest segment of institutions, and Control was omitted due to the inference that more rigid cultures are more likely to comply. For-profit institutions were not included as only three institutions of this type participated in the study. The following probit model was executed: $Pr(adhere = 1) = F(\beta_0 + \beta_1 Private + \beta_2 Community + \beta_3 Collaborate + \beta_4 Create + \beta_5 Compete)$. Following the probit analysis the marginal effects calculation was executed. Table 44 shows the analysis of type of institution and regulation adherence, while controlling for primary culture type.

Table 44. Probit Analysis, Type of Institution, Culture and Adherence

Probit regression — Number of obs = 87
LR chi2 (5) = 3.86
Prob > chi2 = 0.570
Log likelihood = -43.382 — Pseudo R2 = 0.042

Adhere	**Coefficient.**	**Standard. Error.**	**Marginal Effects**
Collaborate	.379	.381	.108
Create	.025	.466	.007
Compete	.015	.591	.004
Control	base		
Public	base		
Private	-.356	.352	-.108
Community	-.569	.413	-.185
_cons	.827	.348	

Marginal effects after probit
y = Pr(adhere) (predict)
= .791

As illustrated in Table 44, the robustness check for the influence of institutional type on likelihood to comply, finds no relationships between type of institution and regulation adherence. These findings are similar to those in the initial analysis (Quantitative Study 1 – Regression 2d), which also did not find a statistically significant relationship between type of institution and regulation adherence, but did identify the Collaborate and Compete organizational culture coefficient preferences to be statistically significant. As with Quantitative Study 1 – Regression

2d, the overall model of organizational culture preference and type is not a statistically significant predictor of regulation adherence as $p > .10$. The likelihood ratio chi-square of 3.86 with a p-value of 0.57 tells us that our model as a whole is not statistically significant, that is, "it does not fit better than a model with no predictors" (UCLA Institute for Digital Research and Education, 2013, n.p.). This model would not provide an appropriate way to evaluate likelihood to comply with regulatory requirements.

The differing results here may have been caused by the change from continuous, quantitative variable to singular, primary classification. Quantitative Study 1 - Regression 2d used a numerical approach which assigns value across all of the competing values framework quadrants. Quantitative Study 2 - Regression 2 used dummy variables to assign value to only one cultural quadrant (Table 44). This difference in approach may be responsible for the disparity of results in Quantitative Study 2 – Regression 2d. For example, the institution presented in Table 45 has a primary preference of Collaborate (40) but its secondary preference for Control (39) is only one point lower and would most likely also contribute to behavior.

Table 45. Example of Dummy Variable Approach - ID#51

Organizational Culture Variables (Dummy)	Mean Competing Values Score	Assigned Dummy Value
Collaborate	40	1 = yes
Create	13	0 = no
Complete	8	0 = no
Control	39	0 = no

n=1

Quantitative Study 2 - Regression 2d sought to confirm the robustness of the similar analysis detailed in Chapter 3 (Quantitative Study 1 - Regression 2d). The robustness check confirmed that type of institution is not a statistically significant predictor of compliance. The final regression in the Quantitative Study 2 - Regression 2 series is Quantitative Study 2 -

Regression 2e that sought to confirm a statistically significant relationship between size of institution and compliance. This relationship, as identified by both Quantitative Study 1 and Quantitative Study 2 in Regression 2e, suggests that size is statistically significant related to regulation adherence.

4.1.2.5 Study 2 - Regression 2e – Size of Institution, Primary Culture and Adherence

The final regression in the Quantitative Study 2 - Regression 2 series looks at the influence of institutional size on regulation adherence. The last analysis in the series (Quantitative Study 2 – Regression 2e) seeks to confirm the relationship between size of an institution, as measured by enrollment, and regulation adherence, when controlling for organizational culture. Quantitative Study 1 – Regression 2e identified size and the Collaborate and Compete cultures as statistically significant predictors of regulation adherence, when compared to the Control culture. Quantitative Study 2 – Regression 2e confirmed institutional size as statistically significant but did not find that the Collaborate or Compete cultures were statistically significant.

The size of the institution is based on the number of students identified by the Carnegie Foundation through the Institution Lookup. The dependent variable remained the same as from Regression 1 and was "adherence," based on the dichotomous variable adhere, coded as yes/no (1/0) based on responses to Question 5. Organizational culture variables for this analysis are again the dummy variables for culture quadrants, which designate a single primary culture preference. The STATA 12 probit analysis, "probit adhere Collaborate Create Compete Enrollments," was run, followed by the marginal effects calculation. The following probit model was executed: $\Pr(\text{adhere} = 1) = F(\beta_0 + \beta_1\text{Enrollments} + \beta_2\text{Collaborate} + \beta_3\text{Create} +$

β_4Compete). Table 46 shows the probit equation and marginal effects calculation for Quantitative Study 2 - Regression 2e.

Table 46. Results of Probit Analysis for Enrollments

Probit regression — Number of obs = 86
LR chi2 (4) = 11.36
Prob > chi2 = 0.022
Log likelihood = -38.442 — Pseudo R2 = 0.129

adhere	Coefficient.	Standard. Error.	Marginal Effects
Collaborate	.579	.398	.137
Create	.127	.482	.029
Compete	.092	.616	.021
Control	base		
Enrollments x1000***	.05***	.020	.012
_cons	-.077	.385	

Marginal effects after probit
y = Pr(adhere) (predict)
= .845

Note: ***denotes statistical significance at .01%.

This robustness check (Quantitative Study 2 - Regression 2e), confirms that enrollments are a statistically significant predictor of adherence, when controlling for primary organizational culture, at a level of .01 ($p < .01$). The marginal effects calculation for both studies suggests that for every 1,000 enrollments an institution is 1.2% more likely to comply, when holding other variables constant. As with previous analyses in Quantitative Study 2, organizational culture preference was not found to be statistically significant. Quantitative Study 1 – Regression 2e, found that in addition to a statistically significant relationship with enrollments, the Collaborate and Compete cultures were also statically significant. Institutional size is strongly related to regulation adherence as the overall model is also statistically significant at $p < .05$ and the model is a good predictor of regulation adherence. The likelihood ratio chi-square of 11.36 with a p-value of 0.02 tells us that our model as a whole is statistically significant, that is, it fits better

than a model with no predictors. This is consistent with findings from Quantitative Study 1 – Regression 2e, which also proved to be a statistically significant model.

This robustness check sought to confirm the findings of Quantitative Study 1 - Regression 2e and identified the same relationship, between enrollment size and regulation adherence when controlling for organizational culture. Quantitative Study 2 – Regression 2e confirmed results from Quantitative Study 1 – Regression 2e and both analyses revealed the same relationship between size and compliance. The two studies differ in that Quantitative Study 1 also identified the Collaborate and Compete cultures as statistically significant but Quantitative Study 2 did not. These differences in findings are most likely related to the differing uses of the competing values framework quadrants. Quantitative Study 2 only uses an institution's primary culture to evaluate regulation adherence. This approach may be neglecting the influence of non-primary (secondary, tertiary, and quaternary) organizational culture attributes. Secondary, tertiary and quaternary characteristics are important as many institutions may not have a strong primary preference but rather be a combination of a number of different cultures. All of the institutions in this study were comprised of more than one organizational culture preference as evidenced by the fact that none of the competing values framework quadrants (Cameron & Quinn, 2011b) received a 100 score in a single quadrant.

4.1.3 Summary

In summary, two approaches were used to explain the influence of organizational culture on likelihood to adhere to regulatory requirements. Quantitative Study 1 utilized mean scores across all competing values framework (Cameron & Quinn, 2011b) quadrants. Quantitative Study 2 was completed as a robustness check of the findings from the initial analysis and

classified institutions into a primary organizational culture quadrant, based on their highest mean score. This approach (Quantitative Study 2) resulted in a single primary culture variable. The main difference here is that Quantitative Study 2 did not take into account the influence of secondary, tertiary, and quaternary organizational culture characteristics. This difference in use of the competing values framework variables most likely contributed to the differing results that were developed between Quantitative Study 1 and Quantitative Study 2.

Robustness checks can be useful in quantitative research as they confirm findings by looking at the data in a new way. Scholars (Firestone, 1993; Hortaçsu & Nielsen, 2010) suggest that this type of supporting analysis helps to validate initial findings. While the initial analysis included values within every quadrant of the competing values framework, this robustness check looked solely at the primary culture by creating dummy variables that classified the variables as yes (1) or no (1) in relation to primary culture. The culture quadrant with the highest score was designated as primary. The findings here from Quantitative Study 2 - Regression 1 and the Regression 2 series both confirm that some institutional attributes are statistically related to regulation adherence, when controlling for organizational culture. However, Quantitative Study 2 conflicted with Quantitative Study 1 in several ways. Quantitative Study 2 did not confirm findings from Quantitative Study 1 that suggest that the organizational culture preferences of Collaborate and Compete are also statistically significant, when compared to the Control culture coefficient.

Additionally, Quantitative Study 2- Regression 2a identified that location in the Eastern and Western regions are both statistically significant while Quantitative Study 1 – Regression 2a in the first study found that only the Western region was statistically significant. Quantitative Study 2 confirmed findings from Quantitative Study 1 in that experience with online delivery

related to age of online programs (Quantitative Study 2 – Regression 2b), location in the Western region (Quantitative Study 2 – Regression 2c), and size (Quantitative Study 2 – Regression 2e) are statistically significant when these characteristics are isolated. A comparison of the results is presented in Table 47:

Table 47. Comparison of Statistically Significant Findings Quantitative Study 1 and Quantitative Study 2

Regression Analysis	**Findings of Statistical Significance**	
	Study 1	**Study 2**
Regression 1 – Organizational Culture Only	Collaborate (p<.10) Compete (p<.05)	
Regression 2a – All Institutional Characteristics and Organizational Culture	Collaborate (p<.05) Western Region (p<.10) Size of Institution (p<.10)	Western Region (p<.10) Eastern Region (p<.10)
Regression 2b – Experience and Organizational Culture	Collaborate (p<.05) Compete (p<.10) Age of Online Programs (p<.05)	Age of Online Programs (p<.05)
Regression 2c – Regional Location and Organizational Culture	Collaborate (p<.10) Compete (p<.10) Western Region (p<.05)	Western Region (p<.05)
Regression 2d – Type of Institution and Organizational Culture	Collaborate (p<.10) Compete (p<.05)	
Regression 2e – Size of Institution and Organizational Culture	Collaborate (p<.05) Compete (p<.10) Size of Institution (p<.01)	Size of Institution (p<.01)

As illustrated in Table 47, many of the findings from Quantitative Study 1 are supported by Quantitative Study 2 and some new findings are identified as well. One key difference is that in Quantitative Study 1 the organizational culture preferences of Collaborate and Compete are identified as statistically significant in Quantitative Study 1 – Regressions 2b, 2c, 2d and 2e, whereas these relationships were not found in any of the Quantitative Study 2 analyses. Finally, institutional size is found to be statistically significant in both Quantitative Study 1 – Regression

2a and 2e but in Quantitative Study 2 this relationship is only identified in Quantitative Study 2 – Regression 2e. These differences may be related to the primary organizational culture designation used in Quantitative Study 2. Quantitative Study 2 classified institutions solely based on their primary designation although all schools in the study were a composite of multiple organizational culture types.

Additionally, when looking at the influence of non-primary organizational culture preferences it is clear that often secondary, tertiary and quaternary characteristics are influential. Table 48 illustrates that the most frequent secondary preference is Control, followed by Create. Additionally, Collaborate cultures most frequently have a secondary preference for Control followed by Create. It is interesting to see that institutions with a Control primary preference often have a secondary preference for the Collaborate culture. This may indicate, as scholars suggest (Bergquist & Pawlak, 2008; Birnbaum, 1988; Schein, 2010) that institutions are a mix of organizational types and that primary culture alone may not be a predictor of behavior.

Table 48. Secondary Culture Preferences

Primary	**Secondary**			
	Control	**Compete**	**Create**	**Collaborate**
Collaborate	22	3	21	0
Create	1	5	0	7
Compete	5	0	4	0
Control	0	5	0	15
TOTAL	28	13	25	22

n=88

It is valuable to also consider the overall strength of the models. Table 49 provides an overview of the statistical significance levels of overall regression models from Quantitative Study 1 and Quantitative Study 2.

Table 49. Statistical Significance of Regression Models

Regression Model	Level of Significance	
	Quantitative Study 1	**Quantitative Study 2**
Regression 1 – Organizational Culture Only	Model Not Statistically Significant	
Regression 2a – Experience, Location, Type, Size and Organizational Culture	Model Statistically Significant at $p < .05$	
Regression 2b – Experience and Organizational Culture	Model Statistically Significant at $p < .05$	
Regression 2c – Location and Organizational Culture	Model Statistically Significant at $p < .10$	Model Not Statistically Significant
Regression 2d – Type and Organizational Culture	Model Not Statistically Significant	
Regression 2e – Size and Organizational Culture	Model Statistically Significant at $p < .01$	Model Statistically Significant at $p < .05$

In conclusion, this study found that organizational culture preferences and institutional characteristics do influence regulation adherence, depending on the empirical model that is used. Additionally, findings related to the competing values framework (Cameron & Quinn, 2011a) confirm the findings of previous scholars related to organizational culture preferences in higher education (Berrio, 2003; Cameron & Freeman, 1991; Smart & St. John, 1996). Quantitative Study 1 found relationships between organizational culture and regulation adherence, but the overall model is not statistically significant. Quantitative Study 2 did not find a relationship between organizational culture and regulation adherence. This may suggest that secondary, tertiary and quaternary organizational preferences influence regulation adherence, as Quantitative Study 2, which did not include non-primary culture, did not find organizational culture to be statistically significant. Additionally, Quantitative Study 1 found that Collaborative cultures, which are informal, and Compete cultures, which are structured, are both statistically significant when compared to the Control culture. Therefore, the model suggests that multiple organizational culture types are statistically significant related to regulation adherence. This

suggestion was also inferred by higher education scholar Birnbaum (1988), who noted that an institution's culture might not drive its policy approach.

Findings from the quantitative analysis suggest that: a) institutions have a clear culture preference which is most often the Collaborate culture, b) experience in relation to length of time that programs have been offered online is statistically significant related to regulation adherence, c) institutions in the Western region are statistically less likely to comply than institutions in other regions, d) institutional size is statistically significant regulation adherence. These findings suggest that there are relationships between primary organizational culture preferences (Quantitative Study 2) and institutional attributes that influence regulation adherence. Findings from Quantitative Study 1 suggest that organizational culture is statistically significant in relation to regulation adherence, when considering the influence of secondary, tertiary and quaternary culture traits. Perhaps most importantly, the variances between Quantitative Study 1 and Quantitative Study 2 show the influence of non-primary organizational culture preferences.

These findings are important for a number of reasons. First, this study confirms previous research related to organizational culture preferences within higher education institutions and by institutional type (Bergquist & Pawlak, 2008; Berrio, 2003; Birnbaum, 1988, Cameron, 1978; Czerniewicz & Brown, 2009; Kosma, 2012; Smart, 2003; Smart & St. John, 1996). Secondly, this study identified statistically significant relationships between regulation adherence and experience, regional location, and size. Finally, this study confirmed the influence of secondary, tertiary and quaternary culture traits in support of findings from previous organizational culture scholars who suggest that institutions are a mix of cultures rather than solely having the traits of one approach over all others (Bergquist & Pawlak, 2008; Birnbaum, 1988; Cameron & Quinn, 2011a; Schein, 2010). This represents a new area of research, as the influence of these attributes

on regulation adherence has not been previously investigated. Additionally, this study investigates organizational culture specifically related to online programs and the topic of compliance, both of which are new areas of study. Findings presented here in Chapters 3 and 4 represent the quantitative components of this study. Supporting Qualitative Findings are presented in Chapter 5.

5.0 CHAPTER 5 - SUPPORTING QUALITATIVE METHOD

Chapters 3 and 4 provided an overview of the two quantitative analyses (Quantitative Study 1 and Quantitative Study 2) that comprised the primary research approach for this study. Quantitative methods were used to examine the relationships between organizational culture, institutional attributes, and regulation adherence. In support of these quantitative findings, qualitative commentary is presented here in Chapter 5. Both Quantitative Studies 1 and 2, found that institutional attributes of experience with online delivery, location, and institutional size are statistically significant depending on the empirical model that is used. Additionally, Quantitative Study 1, which included secondary, tertiary and quaternary culture preferences, found that the Collaborate and Compete cultures were statistically significant, when compared to the Control quadrant. Chapter 5 presents the triangulation of qualitative data to the quantitative findings. Qualitative comments support the quantitative results but also uncovered additional insights related to online program organizational culture traits and perhaps future trends.

As this study is a quantitative analysis rather than a mixed methods study, qualitative data is used solely to provide supplemental support for numerical findings. To accomplish this goal, unstructured, informal interviews were completed simultaneously with the delivery of the online survey. As the approach was unstructured, questions were not prearranged but rather general topics were discussed, based on the role of the participant and to support the goal of understanding state authorization requirements and organizational culture. This is an appropriate

approach for this study as unstructured interviews are often used when the topic is relatively new and qualitative data can be helpful when little research has been done on a topic (Creswell, 2009; Firmin, 2008). Informal interviews are appropriate for this study as these inputs "will not be the primary data source" (Hatch, 2002, p. 92). A number of scholars suggest that quantitative surveys are limited in their ability to capture sensitive and tend to overlook the nuances that are often present in qualitative studies (Bamberger, 2000; Creswell, 2009; Gay, Mills & Airasian, 2009; Hastings, 2010; Hatch, 2002; Mertens, 2010). Typologies, like the competing values framework, might not always provide an accurate categorization (Schein, 2010) and so the use of supporting qualitative inputs for this study is valuable. The inclusion of qualitative data is important for this study not only as it provides detail to support numerical findings but also because organizational culture is often influenced by both internal and external factors which can be difficult to measure numerically.

In mixed method studies, quantitative and qualitative data are often integrated via a process called triangulation. Triangulation refers to an approach that integrates multiple sources of data to enhance the credibility of a research study (Campbell & Fisk, 1959; Hastings, 2010; Jick, 1979). Some scholars view triangulation as a way to support quantitative findings, and others focus on its value as a way to provide multiple points of reference "to enrich the understanding of a research question" (Hastings, 2010, p. 1538). In this study, triangulation supports both goals in that it is used to further validate and explain results from the quantitative analysis and also enrich understanding of the topics related to the research questions, state authorization and organizational culture within online program groups. Campbell and Fisk (1959) represented this approach in relation to organizational traits, like organizational culture as a way to ensure validity. The approach to triangulation was a process which entailed mapping

qualitative comments, gained from the survey, emails and interviews to the quantitative findings from Quantitative Study 1 and Quantitative Study 2. The data sources are outlined in Table 50:

Table 50. Data Source for Quantitative and Qualitative Triangulation

Relationship	Quantitative Data	Qualitative Data	Overlap Between Quantitative and Qualitative
Organizational Culture and Regulation Adherence (Regression 1)	• Quantitative Study 1 – Regression 1 • Quantitative Study 2 – Regression 1	• Survey Questions 3, 6 and 13 • Email Correspondence • Unstructured Interviews	Described in Section 5.1.1
Experience with Online Delivery and Regulation Adherence (Regression 2b)	• Quantitative Study 1 – Regression 2b • Quantitative Study 2 – Regression 2b	• Institutions with 6+ years experience • Survey Questions 3, 6 and 13 • Email Correspondence • Unstructured Interviews	Described in Section 5.1.2.1
Regional Location (East, Midwest & West) and Regulation Adherence (Regression 2c)	• Quantitative Study 1 – Regression 2c • Quantitative Study 2 – Regression 2c	• Survey Questions 3, 6 and 13 • Email Correspondence • Unstructured Interviews	Described in Section 5.1.2.2
Institutional Type (Public, Private, & Community College) and Regulation Adherence (Regression 2d)	• Quantitative Study 1 – Regression 2d • Quantitative Study 2 – Regression 2d	• Survey Questions 3, 6 and 13 • Email Correspondence • Unstructured Interviews	Described in Section 5.1.2.3
Institutional Size and Regulation Adherence (Regression 2e)	• Quantitative Study 1 – Regression 2d • Quantitative Study 2 – Regression 2d	• Institutions 25,000+ enrollments • Survey Questions 3, 6 and 13 • Email Correspondence • Unstructured Interviews	Described in Section 5.1.2.4

As described previously in Chapter 3, qualitative data were collected in three ways. First open-ended questions were included in the survey questionnaire. Secondly, informal email communications, resulting from the initial request for participation, led to informal dialog with participants and prospective participants. Finally, a series of informal interviews were completed. Recall that quantitative responses have been coded in a way that protects the identity of the participant. Interviews, email exchanges and interpersonal communications were also coded to ensure anonymity and in APA style as ID#, personal communication and date. An example of this approach would be: (personal communication, ID#1, December 2, 2012). Qualitative responses from the online survey questionnaire are coded by question number then by survey monkey numerical identifier. For example, a response to Question 5 would be coded as follows: (Question 5, Response 6). In this way the identity of the participants is protected.

Unstructured interviews were completed with variety of types of individuals. The purpose of these interviews was to better understand issues related to state authorization and organizational cultures that currently support online program delivery. Table 51 presents a summary of characteristics from interview participants. These details are also included throughout the study findings when information from specific participants is used:

Table 51. Participants for the Informal Interviews (Email & Phone)

	Type	Location	Size	Communication Type
1.	Public University System	Northeast	Large	Phone Conversation
2.	Private	East Coast	Small	Phone Conversation
3.	Public Research University	Southeast	Large	Phone Conversation
4.	Private, Religious Affiliation	Northeast	Small	Phone Conversation
5.	Private University System	West	Large	Phone Conversation
6.	Individual influential in higher education policy	Midwest	N/A	Phone Conversation

	Type	Location	Size	Communication Type
7.	Multi-campus System Branch	West	Large	Email Exchange
8.	Public	West	Small	Email Exchange
9.	Private	West	Small	Email Exchange
10.	Career College	Northeast	Small	Email Exchange
11.	Private	West	Small	Email Exchange
12.	Private, Multi-campus System	East	Large	Email Exchange
13.	Private	Midwest	Large	Email Exchange
14.	Private	Southeast	Small	Email Exchange

Qualitative findings suggest that, although structured cultures do not appear to be preferred exclusively in this analysis, some institutions are planning for more structured approaches in the future. Generally, this refers to a centralization of online program groups. Qualitative commentary appears to align with key themes from the literature review related to relationships between structured organizational cultures and structured processes, like federal regulatory requirements. This would be a valuable area for future scholarship as this study looks only at current organizational culture preference. It is important to recognize that Quantitative Study 1 identified both structured (Compete) and flexible (Collaborate) cultures as being statistically significant related to regulation adherence. This may be interpreted as an indicator that multiple culture types can be effectively aligned with regulations or perhaps as Schein (2010) suggests that "the weakness of culture typologies is that they oversimplify complexities and may provide us categories that are incorrect in terms of relevance to what we are trying to understand" (p. 175). Whatever the reason, tomorrow's organizational culture requirements may differ from those presently identified and that will be a challenge for future higher education researchers to consider.

The qualitative findings presented in Chapter 5 provide valuable context regarding distance education administrators' perceptions as related to organizational culture preferences and regulation adherence. As discussed in the literature review, organizational culture has a

strong influence on behavior and this study seeks to determine if regulation adherence is affected by organizational culture preference. The key idea was that institutions that are adhering to requirements might be more likely to fall within the structured quadrants of the competing values framework (Cameron & Quinn, 2011a) - the Control and Compete quadrants. A summary of key triangulated findings based on quantitative and qualitative inputs is included in Table 52:

Table 52. Triangulation of Key Findings

Relationship	Quantitative Data	Qualitative Data	Overlap Between Quantitative and Qualitative
Organizational Culture and Regulation Adherence (Regression 1)	Collaborate and Compete Statistically Significant in Quantitative Study 1	Some qualitative support	Aligned
Experience with Online Delivery and Regulation Adherence (Regression 2b)	Duration of Time Statistically Significant in Quantitative Study 1 & 2	Some qualitative support	Aligned
Regional Location and Regulation Adherence (Regression 2c)	Location in the West Statistically Significant in Quantitative Study 1 & 2	Some qualitative support	Aligned
Institutional Type and Regulation Adherence (Regression 2d)	Not Statistically Significant in Quantitative Study 1 & 2	Some qualitative support	Not Aligned
Institutional Size and Regulation Adherence (Regression 2e)	Size is Statistically Significant in Quantitative Study 1 & 2	Some qualitative support	Aligned

In summary, the literature review and recent studies point to the idea that structured organizational cultures and structured organizational processes are often aligned. Quantitatively, some institutional attributes such as experience with online delivery, location, and size are

statistically significant in relation to regulation adherence. Additionally, both structured (Compete) and organic (Collaborate) cultures were statistically significant related to regulation adherence in Quantitative Study 1. Quantitative Study 2 did not confirm this relationship, which suggests that primary culture alone may not be the key driver of compliance and that non-primary (secondary, tertiary, and quaternary) organizational culture characteristics may be influential. Qualitative inputs provide support for these conclusions but also allude to a push for more structure related to online program organizational culture. Section 5.1.1 provides the qualitative data that aligns with Regression 1 (Quantitative Study 1 and Quantitative Study 2) and delves more deeply into perceptions related to organizational culture preferences. Section 5.1.2 highlights similarities between quantitative and qualitative findings related to experience with online delivery, regional location, type, and size, as well as organizational culture preference in relation to regulation adherence.

5.1.1 Organizational Culture and Regulation Adherence

The key idea behind this study was revealed through the literature review, presented in Chapter 2. Organizational culture and higher education scholars (Berquist & Pawlak, 2008; Birnbaum, 1988; Burns & Stalker, 1961; Fayol, 1949; Schein; 2010) suggest that structured organizational processes are often supported by structured organizational cultures and that organizational culture can be measured. Both Quantitative Study 1 and Quantitative Study 2 identified relationships between institutional characteristics of experience with online delivery, regional location, and institutional size. The similarities between the two studies ends there. Quantitative Study 1 found that organizational culture preferences (Collaborate and Compete) are statistically

significant related to regulation adherence but the second analysis (Quantitative Study 2) did not identify a relationship.

These differences in findings are most likely related to differences in approach between Quantitative Study 1 and 2. Quantitative Study 2 did not identify organizational culture as statistically significant which may be related to the fact that this second analysis did not include non-primary culture preferences. Quantitative Study 1 included secondary, tertiary and quaternary organizational culture characteristics and found that organizational culture preferences for Collaborate and Compete are statistically significant. This finding is relevant as most institutions are a combination of a number of different cultures. Additionally, this may indicate that not all institutions have a primary preference that is strong enough to be an indicator of behavior.

Qualitative comments alluded to a potential alignment between organizational culture and regulation adherence. Comments related to adherence often matched up to comments related to plans for creating centralized distance education units, which could be viewed as a more structured approach. The question of centralized versus decentralized structure is one that presented itself frequently. However, it is difficult to integrate these comments into the quantitative findings as the survey did not measure centralized and decentralized approaches but rather culture was assessed based on the four quadrants identified by the competing values framework (Cameron & Quinn, 2011a). The triangulation of qualitative inputs to quantitative findings related to organizational culture and regulation adherence is presented in Table 53:

Table 53. Triangulation of Regression 1 and Qualitative Data

Relationship	Quantitative Data	Qualitative Data	Overlap Between Quantitative and Qualitative
Organizational Culture and Regulation Adherence (Regression 1)	Collaborate (Flexible) and Compete (Structured) Statistically Significant in Quantitative Study 1	Participants alluded to moves to more centralized support for distance education	Centralized would be a structured approach but may not map to the competing values framework.

Informal communications highlighted the perception of participants that organizations may be moving towards more structured cultures and that increased regulatory requirements were influencing change in order to be compliant. This aligns with findings of historical scholars who have suggested that more structured cultures may be best suited for more mechanistic and structured tasks (Burns & Stalker, 1961; Cameron & Freeman, 1991; Fayol, 1949; Zummato & Krakower, 1991). This finding has also been presented in more recent scholarship. For example, Moore and Kearsley (2012) refer to distance education as a system - a system that is constantly changing related not only related to technology but also to "how educational institutions are organized" (p. 283). Additionally, Bischel (2013) found that structured organizational approaches are often aligned with large well established online programs and that community college often have centralized online learning support groups.

Participants from this study suggested that separate divisions and more centralization of services appear to be an intended direction for the future. As one distance education administrator suggested, "When you are leading online learning there are things you must look within your organization, and say 'how do we make this different for online'?" (ID#4, personal communication, December 17, 2012). What this means is that all of the traditional student support services that are available on campus must be re-envisioned to allow virtual, and often

24/7 access. Another statement that alluded to a need for more structured approaches suggests that structure is helpful but must be balanced with creativity and innovation:

> We tend to be a competitive, risk-taking culture. However, at the end of the day, it's about meeting student needs. That means delivering the high-quality courses and program they want on a very predictable and stable schedule -- which does require that we stick to some basic processes that are efficient and work for us. We are always open to new ideas and new approaches -- yet it is also important that we know what we do well and we have some discipline about keeping that focus in balance with the innovation and risk taking. (Question 13, Response 14)

This comment highlights the need to balance multiple organizational culture traits, as both flexible organizational cultures (Collaborate and Create), which are more aligned with creative tasks like online course development and formal rubrics for measuring course quality. This aligns with findings from Quantitative Study 1 which found that both Collaborate (Flexible) and Compete (Structured) cultures were statistically significant. What these comments may indicate is that formalization may be occurring but as the comments are future focused, structured organizational culture preferences, as measured by the competing values framework, may not yet be evident.

These trending topics suggest consistent areas of focus for online program administrators. Qualitative data, gathered in this study, suggests that there may be changes taking place that could influence organizational culture preferences in the future. For example, related to centralization, one school suggested that they "are currently in the process of changing the management from a district office to a separate and independent virtual campus" (Question 6, Response 80) and another suggested "the creation of a division/department for online education"

(Question 6, Response 17). These types of responses were common responses. For example, the overall revamp of online delivery as reported by one participant.

> Formalization of the online program structure into a distinct "online campus" as we have grown the proportion of hours offered online dramatically and focused increased attention on online student success as part of overall institutional efforts. This will be accomplished by a separate online student support services unit or by increased demands on existing support structures (Question 6, Response 27)

Schools appear to be moving away from the Lone Ranger (Bates, 2004) strategy, which entailed managing online programs within individual departments. Supporting this conclusion, another participant alluded to more change in the future as "possibly a more centralized organizational structure that places responsibility for online education in one entity, rather than a decentralized approach" (Question 6, Response 16) would be implemented at their institution. "Right now programs reside within each school that developed them," suggested another participant, "but distance learning degrees will most likely eventually become a separate school with more centralized oversight" (Question 6, Response 36). Similarly another suggested, "Possibly a more centralized organizational structure that places responsibility for online education in one entity, rather than a decentralized approach" (Question 6, Response 16). These responses perhaps illustrate a common drive towards centralization. Centralization is in many ways a more structured organizational culture which may align with the idea the online programs are adopting more formal cultures to align with more formal work requirements, however, this study did not evaluate centralization versus decentralization so the two concepts may not be connected.

Another participant implied that centralization was a natural path as online programs mature. "Our online program is young, but soon we will develop a leadership hierarchy similar

to a brick and mortar campus (campus director, human resources staff, faculty director, student support staff, etc.)" (Question 6, Response 52). Bischel (2013) alluded to this as well and noted that many mature online programs are supported by a centralized model. Clearly a number of institutions are thinking about ways to formalize distance education, which may influence the organizational culture preferences of these groups. "Generally, higher education administrators view having a centralized center for eLearning to be a good thing due to increased efficiency" (J. Bischel, personal communication, October 17, 2013). As data requests related to online education from federal and state regulators continue to increase, online administrators may be required to report their regulation adherence with increasing levels of accuracy and precision. Quantitative results suggested that institutions with both formal and informal organizational culture preferences were statistically related to compliance (Quantitative Study 1). Qualitative perceptions from this study matched with recent findings of ECAR's 2013 report on online learning (Bischel, 2013), which identified trends related to more centralization within online programs. Moore and Kearsley (2012) also highlighted the value of a systems approach to distance education administration. Although the quantitative sections of this study suggested that multiple types of cultures can successfully align with regulatory requirements, the reported trend towards centralization may signal a move towards a more mechanized culture (Burns & Stalker, 1961; Cameron & Freeman, 1991; Fayol, 1949; Zummato & Krakower, 1991) for future online program groups. The organizational culture preferences of online program groups as they move towards centralization would be a valuable area for future research.

From findings unveiled in the literature review, formalized structures, identified by the competing values framework as Compete or Control, are often aligned with formal processes (Burns & Stalker, 1961; Fayol, 1949) such as regulatory requirements. Quantitative results also

found that institutional characteristics of location, experience, and size are statistically significant in regulation adherence. What this suggests is that depending on the empirical model that is used, there is some evidence that institutional characteristics (experience, location, and size) are related to regulation adherence. Qualitative data related to experience with online delivery, regional location, institutional type, and size is explored in Section 5.1.2. As online learning continues to evolve future online administrators may benefit from consideration of the organizational culture preference to ensure effective management of online learning programs. For example, Smart and Hamm (1993) suggested that certain types of management approaches are more effective with specific organizational cultures. Knowledge of an institution's organizational culture preference can allow leaders to either seek to change the culture or apply the appropriate management technique.

5.1.2 Influence of Institutional Attributes on Regulation Adherence

Quantitative Studies 1 and 2 found that certain institutional attributes are statistically related to regulation adherence, depending on the empirical model that is applied. Both quantitative studies (Quantitative Study 1 and 2) suggest that experience with online delivery and the size of an institution are positively related to compliance, while location in the Western region of the United States is related to a lower compliance rate. The first study (Quantitative Study 1) identified the Collaborate and Compete cultures as statistically significant while Quantitative Study 2 did not confirm these relationships. Most likely these differences are related to the differing uses of the competing values framework quadrants. Qualitative responses, presented here, in Chapter 5, revealed support for some of these findings.

Write-in responses and informal interviews provide some confirmation for the quantitative findings from Chapter 3 and 4, but also revealed nuances related to organizational culture. For example, experience with online delivery is perhaps an indicator that the focus of the administration has moved from a reactionary view, implementing basic support structures, to a proactive view, working to ensure compliance and policy at institutional levels. Related to the finding Eastern and Western regions have lower rates of compliance than those in the Midwest, comments from schools in the West appeared to reveal less familiarity with state authorization requirements. Quantitative evidence suggests that size is related to compliance and qualitative inputs suggest that larger institutions are moving towards centralization, which could be considered a more structured approach. Finally, quantitative analysis investigated type of institution and while a statistically significant relationship was not identified consistently across Quantitative Study 1 and 2, some qualitative inputs seem to suggest that different types of institutions do approach regulatory requirements in different ways. As suggested by previous scholars, different types of institutions have different preferences regarding organizational culture. These relationships are presented in Sections 5.1.2.1 through 5.1.2.4.

5.1.2.1 Experience with Online Delivery and Regulation Adherence

The first relationship identified by the quantitative analysis, related to institutional attributes, is the finding that experience with online program delivery, as related to the duration of time that programs have been in place, is related to regulation adherence (Quantitative Studies 1-Regression 2b and Quantitative Study 2 - Regression 2b). The other variable tested - experience related to the number of programs being offered - was not statistically significant related to adherence to regulatory requirements in any of the regression models. This suggests that

duration of time that an institution has been involved with online education may lead to more mature policy and organizational culture approaches.

ECAR's study (Bischel, 2013) found that institutions with more mature online programs are more likely to comply with policy requirements like ADA and state authorization. Descriptive statistics from this study align with ECAR's finding and suggest that 90% of institutions that have had online programs for over 15 years have an ADA policy. Similarly, 86% of these mature institutions have a state authorization policy. Qualitative inputs provided some support for these findings and the triangulated findings are presented in Table 54:

Table 54. Triangulation of Regression 2b and Qualitative Data

Relationship	Quantitative Data	Qualitative Data	Overlap Between Quantitative and Qualitative
Experience with Online Delivery and Regulation Adherence (Regression 2b)	Duration of Time Statistically Significant in Quantitative Study 1 & 2	Institutions with longer duration of experience with online delivery appear more likely to have specialized roles to support regulatory requirements.	Aligned

Qualitative comments indicated that more established programs often have organizational structures and roles that are specifically devoted to online support. In some cases this is a centralized approach, while in other cases individual roles are associated with online program policy. For example, a large state institution in the Southeastern United States has an e-Learning Policy Manager whose role is to sure compliance related to state authorization and other regulatory policy (personal communication, ID#2, December 6, 2012). The designation of a specialized policy role may indicate greater maturity of online learning or may be related to the size of the institution. Other institutions with well-established online presences have similarly defined roles within their institutions. For example, institutions from this study with mature

online programs (those with more than 6 years of experience) often have executive level positions to manage eLearning. For example, a school with the role of "Dean of Graduate and Online Programs" offers 6 online programs and has done so for 8 years (ID#16) and an institution with 17 years of experience has a "Dean, Virtual Campus" (ID# 17). Similarly a program with 14 online programs and 13 years of experience has a Dean of Online Learning (ID#18). Two institutions have a role of "Associate Vice President" one with 13 programs and 15 years of experience (ID#20) and another with 5 years of experience and 22 programs (ID#19). These high level roles suggest that schools with more experience have formalized positions to provide oversight for online education, which may lead to greater levels of regulation adherence. This was confirmed by findings from a recent report sponsored by EDUCAUSE which found in the ECAR study that high level institutional roles for support of online learning were common within mature institutions (J. Bischel, personal communication, October 17, 2013).

In contrast, institutions that are just beginning to offer online programs may still be struggling to implement regulation adherence policy, as they have not yet formalized roles and responsibilities for online education support. A lack of role clarity related to who would be responsible for online learning policy and adherence could be related to lower compliance. For example, a representative from a Western institution in Utah suggested that he was waiting for an institutional decision and relied on the Provost's office to handle regulatory requirements (ID#13, personal communication, November 19, 2012). This evidence supports that the relationship found in the quantitative analysis, which found that experience with online programs is statistically significant related to compliance when controlling for organizational culture. The next section (Section 5.1.1.2) describes qualitative findings related to regional location.

5.1.2.2 Regional Location and Regulation Adherence

The second area of statistical significance that was identified in the qualitative analysis is regional location. Both Quantitative Study 1 and Quantitative Study 2 found that institutions with a location in the Western region are statistically less likely to comply than institutions in the Midwest. Midwestern institutions have the highest compliance (92%) followed by institutions in the East (78%), then the West (65%). Table 55 illustrates compliance level by geographic region.

Table 55. Regional Location and Compliance to State Authorization

	East		Midwest		West	
Adhere	n	%	N	%	n	%
No	9	22%	2	8%	9	35%
Yes	32	78%	24	92%	17	65%
TOTAL	41	100%	26	100%	26	100%

n = 93

Qualitative responses to the survey and interpersonal email exchanges appear to support the finding that Western institutions are slower to comply with regulatory requirements related to state authorization. The triangulation of the qualitative and quantitative findings is presented below in Table 56:

Table 56. Triangulation of Regression 2c and Qualitative Data

Relationship	**Quantitative Data**	**Qualitative Data**	**Overlap Between Quantitative and Qualitative**
Regional Location and Regulation Adherence (Regression 2c)	Location in the Western Region Statistically Significant in Quantitative Study 1 & 2	Less awareness of state authorization requirements from Western participants. Less progress on planning for implementation.	Aligned

For example, one participant suggested, “I am particularly interested in this (study) because I participate in the California Community College’s Distance Ed Coordinators group and we are addressing the state authorization issues in DE here” (ID#6, personal communication, December 5, 2012). This participant, a member of the California Community College System, indicated that the institution did not currently have an approach for dealing with state authorization requirements but was discussing the topic. A participant from a branch campus of a large California university system in suggested his involvement and knowledge of compliance was limited as “policy decisions are made centrally” (ID#8, personal communication, December 6, 2012). Another participant from a West Coast institution, also located in California, suggested that they “follow University of (omitted) policies and practices and don’t really think in terms of state or federal regulations” (ID#8, personal communication, December 6, 2012). These comments, from Western regional institutions, suggest a lower level of involvement with regulation adherence and perhaps less informed views at the director level.

Institutions in the Midwest and East were generally more aware of requirements and suggested that they were working towards a solution while Western institutions seemed more to be in initial stages of consideration. For example, the Associate VP of Online Learning at a large university in the Northeast with an extensive online program suggested that they were “very familiar with the regulations” (ID#15, personal communication, December 5, 2012). Another participant from a large East Coast research institution suggested that they were highly “engaged in state authorization at a national level” (ID#15, personal communication, December 5, 2012). This supports the idea both that Eastern and Midwestern institutions are familiar with regulatory requirements and that more experienced programs are more likely to comply. No research is available related to regional differences and approach to regulatory requirements so this finding

represents new information. Quantitatively, location is a contributor to regulation adherence and these comments appear to qualitatively affirm that conclusion. Section 5.1.1.3 provides insight into comments shared in relation to type of institution and regulation adherence.

5.1.2.3 Type of Institution and Regulation Adherence

The third institutional characteristic studied through the quantitative analysis is the institutional characteristic of type. Type of institution was not found to be a statistically significant indicator of compliance to regulation adherence in either Quantitative Study 1 or Quantitative Study 2. However, organizational culture scholars suggest that there is some evidence that type of institution influences organizational culture preferences. Most commonly the conclusion is that community colleges exhibit different cultural traits than other types of institutions in relation to the competing values framework classifications (Smart, 2003; Smart & Hamm, 1993). This finding is intriguing as community colleges in this study were most likely to be aligned with the Compete culture, as secondary preference to the universally selected primary culture of Collaborate. Quantitative Study 1 found that both the Collaborate and Compete cultures were statistically significant related to regulation compliance but did not identify any relationships related to institutional type. A summary of the triangulated findings is presented in Table 57:

Table 57. Triangulation of Regression 2d and Qualitative Data

Relationship	Quantitative Data	Qualitative Data	Overlap Between Quantitative and Qualitative
Institutional Type and Regulation Adherence (Regression 2d)	Not Statistically Significant	Private institutions appear to view themselves differently related to federal requirements. Community colleges seek to consolidate resources to address requirements.	Not Aligned

Type of institution is based on descriptions of public, private, community (2-year) and for-profit based on the Institutional Lookup from the Carnegie Institute for the Advancement of Teaching website. Within this study all types of institutions have a primary preference for the Collaborate quadrant. Community college and public institutions have a greater preference with the Control quadrant than do private or for-profit institutions. These relationships are illustrated by Figure 11.

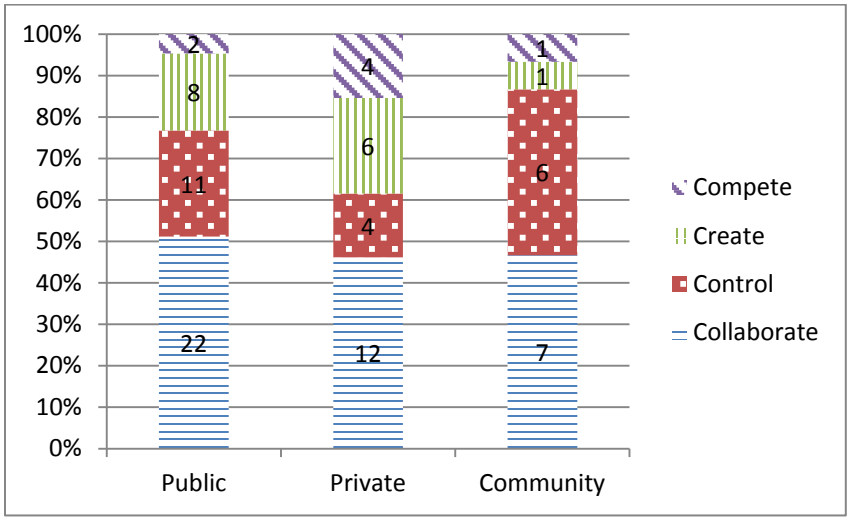


Figure 11. Primary Culture by Type of Institution

These preferences map closely with findings from the recent ECAR report (Bichsel, 2013). ECAR found that 68% of community colleges have a dedicated eLearning Center to support online education (p. 12). A dedicated center indicates a more centralized and controlled approach to online program delivery, which might be best aligned with a structured culture (Control or Compete). Moore and Kearsley (2012) suggest that "online classes may represent the only future growth in student enrollment" at most community colleges (p. 52). Additionally, research related to the competing values framework (Cameron & Quinn, 2011a) has identified differing organizational culture preferences by type (Smart, 2003; Smart & Hamm, 1993).

Qualitatively there is some support for the idea that community colleges approach regulation adherence differently.

Related to type, there were some indicators that different types of schools view regulations in different ways. Qualitative data suggests that private institutions may not always be aware of, or place a high priority on, federal regulatory requirements. The following comment from a small Catholic institution on the West coast exemplifies this: "as a private school, we don't have a real connection between governmental regulations and what we offer" (ID#7, personal communication, December 11, 2012). This view was not widespread; however, 75% of private institutions responded that they are currently adhering to state authorization requirements as illustrated in Table 58. Public institutions reported that 85% of online program groups have a policy for state authorization. Community colleges and for-profits reported that 67% have a state authorization policy in place.

Table 58. State Authorization Policy by Institutional Type

Type of Institution	No	%	Yes	%	TOTAL
Public	7	15%	40	85%	47
Private	7	25%	21	75%	28
Community	5	33%	10	67%	15
For-Profit	1	33%	2	67%	3

n = 93

Qualitative comments also supported this perspective. Of the fifteen community colleges that participated in the study, four (27%) alluded to impending moves to centralized online organizations. For example, this comment from an East Coast community college: "We may have to hire additional staff to oversee the implementation and support of these courses, the faculty who teach them, and to ensure that we are meeting our accreditation standards" (Question 6, Response 92). Two institutions mentioned a potential of sharing central online support services. One mentioned, that "consolidation with other community colleges for offering both

programs and student support services" (Question 6, Response 93), while another suggested that "more partnerships with other colleges in the state system" (Question 6, Response 81) would occur in the near future. Like public and private institutions community college online program leaders see that more centralized management of online programs may be occurring. "Right now, programs reside within each school that developed them. DL (Distance Learning) degrees will most likely . . . become a separate school with more centralized oversight" (Question 6, Response 38). These comments may suggest that community colleges, like other types of organizations, may be moving towards more structured approaches. What is interesting is that community colleges have the highest secondary preference for the Control culture. The next section (5.1.1.4) provides an overview of qualitative insight regarding the influence of institutional size on regulation adherence.

5.1.2.4 Institutional Size and Regulation Adherence

Finally, the quantitative studies investigated the attribute of institutional size and likelihood to comply based on organizational culture preference. Quantitatively, size was related to regulation adherence in that larger institutions were more likely to be compliant. Qualitative comments from schools with enrollment size of over 25,000, based on the Carnegie Institutional Lookup, also seemed to confirm that larger schools are more likely to be focused on regulation adherence. Qualitative comments suggest that larger institutions are moving towards more structured approaches. Table 59 shows primary organizational culture by institutional size:

Table 59. Institutional Size by Primary Organizational Culture Preference

Enrollment Size	Collaborate		Create		Compete		Control	
<1000	2	5%	0	0%	1	14%	1	5%
1000 - 2999	4	10%	3	19%	0	0%	2	10%
3000 - 9999	**16**	**38%**	**4**	**25%**	**3**	**43%**	4	19%
10,000 - 19999	7	17%	**4**	**25%**	2	29%	**9**	**43%**
20,000 - 29999	9	21%	**4**	**25%**	0	0%	4	19%
>30,000	4	10%	1	6%	1	14%	1	5%

n=86

The triangulation of qualitative and quantitative data is presented in Table 60:

Table 60. Triangulation of Regression 2e and Qualitative Data

Relationship	Quantitative Data	Qualitative Data	Overlap Between Quantitative and Qualitative
Institutional Size and Regulation Adherence (Regression 2e)	Size is Statistically Significant in Quantitative Study 1 & 2	Institutions with larger enrollments appear to be moving towards centralization, including increased staffing.	Aligned

Participants who represented larger institutions often commented that their projected approach for the next five years included increased levels of centralization to address state authorization and other regulatory and competitive factors. For example, a participant from a large, private institution in the Northeast suggested that an increased focus on centralized development efforts. "We have developed a staff of about 15 instructional designers (up from three since 2009), but we may engage a third party to enhance these efforts" (Question 6, Response 38). In support of this statement, a large public institution in the East suggested that "they would be dedicating additional resources (such as capital, space, personnel) to online" development (Question 6, Response 40). Another East Coast, public institution mentioned, "We are currently in the process of changing the management from a district office to a separate and

independent virtual campus. Currently in the process of hiring full-time faculty just for the new campus, additional staff to support students, and will hire an academic/student dean (besides current staff of 9)" (Question 6, Response 49). A large Midwestern community college suggested that they "have been in the process of moving towards more centralized operations regarding our online program delivery for quite some time" (Question 6, Response 31). Similarly, a West Coast public institution suggested they were moving in the direction of "state system control" (Question 6, Response 15). All of these comments were from schools with enrollments of 25,000 or higher, which may indicate that size has an influence on institutional approach.

Smaller institutions may be having a more difficult time with regulation adherence. A representative at a small Midwestern institution suggested that they are, just beginning to develop online programs would be "meeting with University officials to discuss this topic within the next two weeks." This distance education representative suggested that they would "have nothing to contribute" to this study as the issue has not been resolved (ID#14, personal communication, December 10, 2012). An alternate view was expressed by a survey participant at a school that had been offering online courses since 1989. This participant suggested that "processes were pretty much in order. However due to changes in the external environment, "the culture has been changing recently so hopefully we will revisit and revamp our online programs in their entirety" (Question 13, Response 17). Smaller institutions often have fewer specialized personnel who might be assigned at larger institutions to monitor regulations such as state authorization.

In summary, qualitative findings related to perceptions of regulation adherence based on institutional characteristics, support the quantitative findings related to experience with online

education and regional location influence compliance. The literature review pointed to the alignment between formalized cultures and processes (Burns & Stalker, 1961; Cameron & Freeman, 1991; Fayol, 1949; Zummato & Krakower, 1991) which suggests that institutions with a preference for the Compete and Control quadrants might be more likely to be compliant. Although both formal (Compete) and informal (Collaborate) cultures were identified as indicators of regulation adherence in this study, qualitative comments may indicate that online program managers envision movement towards more formal managerial styles and cultures. This would be a valuable area for future study. Moore and Kearsley (2012) suggest that change is not just related to technology advancements but also to "how institutions are organized" (p. 283). Quantitatively, institutions are currently aligned with both structured (Control and Compete) and flexible (Collaborate and Create) organizational cultures. Respondents suggested that more structured approaches may appear in the future and institutions of all types, locations, sizes and experience levels mentioned that momentum is currently directed towards developing centralized support. Currently, as the quantitative studies suggest institutions with a variety of culture preferences can be successful at regulation adherence and that primary, secondary, tertiary, and quaternary organizational culture traits influence behavior.

5.1.3 Summary

In summary, a survey research methodology was employed in this quantitative study to help explain the relationship between organizational culture preference and adherence to federal regulatory requirements for online programs. The assumption, based on the literature review, was that structured processes, like federal requirements, might require more structure cultures such as the Compete and Control cultures outlined by the competing values framework

(Cameron & Quinn, 2011a). Quantitative Study 1 and Quantitative Study 2 utilized a series of probit regression analyses to determine if organizational culture could be used as a way to predict regulation adherence. Quantitative analysis was supported by qualitative data, which was presented here in Chapter 5. Quantitative results revealed both structured (Compete) and flexible (Collaborate) cultures can be successful in a regulated environment.

Additionally, the differences between Quantitative Study 1 and Quantitative Study 2 highlighted the importance of non-primary (secondary, tertiary and quaternary) culture preferences. Quantitative Study 1 identified Collaborate and Compete cultures as statistically significant but Quantitative Study 2, which evaluated culture only on primary culture preference, did not. Both quantitative studies found that institutional characteristics of experience, location, and size are related to regulation adherence and supporting qualitative commentary provided confirmation for some of these findings.

Participants suggested that regulatory requirements are a concern and that organizational change is underway to address regulations, facilitate the expansion of online programs and to better support student requirements for access and accessibility. Key findings suggest that institutions are most often developing centralized organizations to support eLearning and that additional staffing is needed to support both regulatory requirements and centralized organizations. There appears to be a clear perception that online learning will be a focus for the higher education leaders in the future. This finding is suggested by recent scholarship (Bischel, 2013; Moore & Kearsley, 2012) as well as by participants of this study. Qualitative findings, presented in Chapter 5, provided supporting detail to the main quantitative analysis which found that organizational culture preferences and institutional characteristics such as experience, regional location, and size are related to regulation adherence, when controlling for

organizational culture, depending on the empirical model that is used. The key idea behind this study was that more formal organizational structures might be aligned with institutions that are currently compliant with complex regulatory requirements.

This study was grounded in this idea that an increasingly complex regulatory environment might be related the organizational culture preferences of online programs in that, compliant organizations might be more structured. This idea is supported by organizational culture research, which suggests that organizational culture and effectiveness are closely aligned and that rigid processes are often aligned with structured organizational cultures. In reality, organizational culture is a complex network of influences, which include but are not limited to external forces. Schein (2010) suggests that organizations are influenced by both internal and external factors (p. 73) both of which must be considered. Qualitative responses suggest that organizational culture within online programs may be becoming more structured however that change may not be directly related to regulatory requirements. This study did not evaluate organizational change but rather current organizational culture preferences of online program groups. Qualitative comments also allude to a move towards centralized support for online programs. This may be an organizational culture change, however centralized versus decentralized structures were not evaluated in this study. This would be a valuable area of research for future scholars.

Quantitatively, this study found that organizational culture preferences for Collaborate and Compete cultures are statistically significant and that institutional factors (experience, location, and size) do appear to influence regulation adherence, depending on the empirical model that was used. Qualitative inputs support the findings from the regression analysis and participants implied that more structured approaches, mostly in the form of centralized

organizations, may be imminent. Recent scholarship (Bischel, 2013; Moore & Kearsley, 2012) alludes to rapid growth of online programs, the need to compete nationally and globally as factors in organizational change. Participants frequently suggested that the future at their institution might be centralized online learning offices, support services and processes, an approach, which is related to a more structured approach to online learning delivery.

There are many factors influencing organizational culture related to online program groups. Organizational culture within higher education institutions continues to be collaborative in nature although secondary, tertiary and quaternary organizational traits also have an influence on organizational behavior. Berquist and Pawlak (2008) suggest that, "culture provides guidelines for problem solving" (p. 10) and recommend that to engage with organizations it is valuable to "appreciate the underlying purposes being served by these cultures" (p. 11). What this may indicate is that culture and function are often aligned in that an institutional goal can perhaps be best achieved by aligning the appropriate culture with the appropriate task. This idea aligns with the key goal of this study to investigate whether the organizational culture preference of an online program group was related to its approach to regulation adherence. This study is important as organizational culture and higher education scholars suggest that, "the management and change of that culture are paramount responsibilities of college leaders" (Smart & St. John, 1996, p. 236). Additionally scholars suggest that leaders can be most effective when they align managerial approach with the organizational culture of an institution (Cameron & Quinn, 2011a). For these reasons higher education administrators will benefit from these findings.

The future may lead to more structured cultures for online programs groups but today we find that institutions can have a preference for a number of different organizational cultures. Additionally, as indicated by historical scholars online program groups align with institutional

preferences and do have a primary organizational culture, which continues to be Collaborate. Future studies may find that more structured organizational cultures (Control and Compete) preferences may be prevalent, but this study shows that currently a variety of cultures can be successful in the delivery of online programs and align with regulatory requirements. This study also confirms the work of previous scholars in the suggestion that higher education administrators can benefit from understanding the organizational cultures that are present in their institutions. For example, Cameron and Freeman (1991) suggest that "managers should be sensitive to the variety of cultures that exist in their organizations . . . For example, attributes of a clan and a market may exist in the same organization" (p. 53). Higher education institutions are comprised of a number of priorities and organizational cultures, which are often in conflict, and as this study demonstrates, a variety of organizational cultures can be effective. As this study represents a new area of inquiry, additional scholarship would be useful. Suggestions for future research and additional discussion about the findings presented here are provided in Chapter 6.

6.0 CHAPTER 6 – STUDY CHALLENGES, IMPLICATIONS AND FUTURE RESEARCH

"Is there a relationship between adherence with regulatory requirements and the organizational culture of online program groups within institutions of higher education?" Themes uncovered in the literature review suggested that structured organizational cultures are often most effective when organizational processes are formal (Burns & Stalker, 1961; Cameron & Freeman, 1991; Fayol, 1949; Zummato & Krakower, 1991). Federal requirements for online programs are structured in nature, which leads to the conclusion that regulation adherence and structured organizational culture may be related. Based on this perspective, organizational culture preference was determined to be an appropriate way to explain likelihood to comply with regulatory requirements. To evaluate organizational culture, the competing values framework (Cameron & Quinn, 2011a) was used. The competing values framework is a way to determine organizational culture preferences based on a continuum of flexible to rigid structure (Compete and Control quadrants) and internal versus external focus (Collaborate and Create quadrants). The key idea behind this study was that institutions with a preference for the Compete or Control quadrants would be most likely to adhere to regulatory requirements, as they are more rigid in nature.

This study is important for several reasons. First, it represents a new area of inquiry. Secondly, rapid growth in any area causes change to organizational culture and culture is

important in organizations as it provides "meaning and context for a specific group of people" (Berquist & Pawlak, 2008, p. 9). Scholars suggest that administrators must "become conscious of the cultures in which they are embedded" as cultural understanding is "essential for leaders if they are to lead" (Schein, 1992, p. 15). This research provides information for current administrators of higher education and also provides a benchmark for organizational culture and higher education researchers, as it is the first to investigate organizational culture within online program groups.

Rapid growth is often associated with organizational culture change and online education represents an area of rapid growth and rapid change (Moore & Kearsley, 2012). What this means is that organizations, and individuals within that organization, are driven by organizational culture norms and standards that allow them to perform certain organizational tasks. When organizational culture and tasks are not aligned, conflict may result and may in turn influence effectiveness (Bergquist & Pawlak, 2008; Burns & Stalker, 1961; Fayol, 1949; Schein, 2010). Culture is a shared understanding of meaning that allows organizations to function based on shared norms and beliefs (Berquist & Pawlak, 2008; Cameron & Quinn, 2011a; Schein, 2010). Therefore this research is valuable for future online program administrators as they seek to support efficient and appropriate organizational cultures within environments of rapid change.

The intent of this study was to explain relationships between organizational culture and adherence to regulatory requirements within online program groups to determine if the regulatory environment had resulted in more structured organizational cultures (Compete and Control). This study found statistically significant relationships between organizational culture and regulation adherence in that the Collaborate and Compete cultures were statistically significant when compared to the Control culture, when primary, secondary, tertiary, and

quaternary culture preferences were included in the model (Quantitative Study 1). Secondly, this inquiry sought to determine if organizational influences such as experience with online delivery, regional location, type of institution, and size influenced regulation adherence. Quantitative Study 1 and Quantitative Study 2 both supported this idea and found that experience with online delivery and institutional size are positively related to regulation adherence, while location in the Western region is statistically related to lower compliance.

The key idea gained from the literature review is that more formal work processes are often best supported by more structured organizational approaches. Fayol (1949) describes these as mechanistic cultures, while the competing values framework (Cameron & Quinn, 2011a) defines structured approaches at Control and Compete organizational culture quadrants. Scholars have also noted that higher education institutions are a complex network of multiple organizational subcultures (Birnbaum, 1988; Cameron & Freeman, 1991) and this research found that both primary and non-primary culture preferences influence behavior. Quantitative Study 1, which evaluated organizational culture based on mean scores from all quadrants, found that Collaborate and Compete cultures were statistically significant, when compared to the Control culture. When evaluating the influence of only the primary culture preference (Quantitative Study 2) organizational culture was not found to be statistically significant. What this may indicate is that primary culture preference is not always an indicator of behavior as secondary, tertiary and quaternary preferences are also influential. Additionally, this study confirmed the work of previous scholars (Berrio, 2003; Fjortoft and Smart, 1994, Hassan, et al, 2011; Smart, 2003; Smart & St. John, 1996; Zammuto & Krakower 1991) who found that institutions do have preferences for organizational culture quadrants and most frequently that the preference has been for the Collaborate culture.

This study is important for several reasons. First, it is one of the first to investigate culture as it relates specifically to online program groups. Secondly, this scholarship is valuable as the topic of regulatory requirements in relation to online program management approaches represents a new field of study. Finally, findings supported the work of previous scholarship related to organizational culture preferences in higher education (Cameron & Freeman, 1991; Hassan et al., 2011; Smart & St. John, 1996) related to preferences for the Collaborate culture and the influence of multiple culture traits, primary and non-primary. Higher education scholars suggest that knowledge of organizational culture can be helpful to institution leaders (Bergquist & Pawlak, 2008; Birnbaum, 1988; Moore & Kearsley, 2012; Schein, 2010), which further confirms the value of this work.

This study illustrates how external influences, such regulatory requirements, may signal a need for organizational cultures to be aligned with organizational processes. This idea would be in agreement with findings from the literature review, which indicate relationships between structured cultures, like Control and Compete, and structured processes like complex regulatory requirements. Schein (2010) suggests that the rapid rate of change in higher education is causing anxiety. This anxiety may ultimately result in organizational culture shifts, but as "cultures in the academic institution are even more resistant to than other sectors of society" (Schein, 2010, p. 226), this change may be slow to occur.

In summary, this work provides new insights into organizational culture in online program groups and confirms the previous work of organizational culture scholars. These findings are important to higher education leaders who are increasingly invested in online learning and are faced with complex regulatory and process requirements. Chapter 6 provides an

overview of study challenges and key areas of interest related to organizational culture and regulatory requirements, as well as areas for future discussion.

6.1.1 Study Challenges

This study was challenging in a number of ways. First, as a new area of study, it was difficult to predict expected results. Existing literature and industry publications highlighted the need for more formal organizational approaches, but it was difficult to determine exactly how this could be measured and to make predictions about the findings. Secondly, terminology and unclear definitions may have contributed to confusion among study participants. For example, online programs can be delivered in a variety of formats but not all are governed by state authorization policies. Finally, the study elucidated the need to consider state authorization and potentially to develop policy, which may have resulted in social desirability response bias. Study design may have also influenced the results as, a) the specific wording of key questions may have contributed to the perception that there was a preferred response and, b) study participants expressed discomfort related to the competing values framework (Cameron & Quinn, 2011b) questions. These issues presented challenges and are described in more detail in the Section 6.1.1.1 through Section 6.1.1.3.

6.1.1.1 Lack of Clear Definitions of Key Terms

Every study can benefit from a retrospective look at areas for improvement. A challenge for this study was that key terms were not clearly defined. As discussed in the Chapter 2, inconsistent terminology is problematic when reviewing research related to online programs. In this study, a lack of specificity related to distance education terminology may have caused confusion. In

retrospect, this survey would have benefited from a more clear definition of both the terms "compliance" and "online programs." A more concrete definition of "compliance" would have helped to ensure that participants were interpreting the questionnaire in a way that led to more consistency in their responses. Additionally, as highlighted in the literature review, distance education terminology is used inconsistently, and hence a clear definition of "online programs" would have been useful.

Additionally, perhaps due to the unclear survey response options related to "compliance," participants may have indicated "compliance" when in fact they may not be 100% compliant. Due to the inconsistent definition of "adhering" in Question 5, institutions may have reported that they are adhering when they may not actually be in compliance. In regard to the responses related to adherence, the option that was selected by 79% of participants was "internally staff to meet requirements." WCET's survey (2013) was completed at about the same time and found that 67% had applied at one or more states and 15% had approval from all states. Upon reflection, this response option is worded in a way that implies a "future" action rather than a "current" status. As a result participants may have selected this response; however, it does not clearly illustrate whether or not they are currently in compliance.

A second concern is that the definition of "online programs" may not have been self-evident. As discussed in the literature review, terminology for online education is inconsistent (Bernard, et al., 2004; Guri-Rosenblit & Gros, 2011; Moore, et. al, 2011; Sangrà, et al., 2011). This study would have benefitted from a stated definition of online programs as distance, hybrid and off-campus programs, as well as other types of web-enhanced programs that could be considered online programs. This is important, as not all types of programs would be required to apply for state level approval. As one participant suggested, "not all states require an application

or approval so the definition was confusing" (Question 5, Response 4). Another participant wrote back and commented, "just so we will be on the same page, define 'online program'" (ID#9, personal communication, November 20, 2012). Research on the topic of distance education benefits from a clear typology of delivery approaches (Bernard, et al., 2004; Moore, et. al, 2011; Rumble, 2001), which would have been beneficial for this survey. As identified in the literature review, inconsistent terminology in the field of distance education contributes to difficulty in correlating findings across studies (Bernard, et al., 2004; Guri-Rosenblit & Gros, 2011; Moore, et al., 2011; Sangrà, et al., 2011). As a result of unclear meaning related to the terms "compliance" and "online programs," responses may have been skewed.

6.1.1.2 Perception that State Authorization Policy is Needed

In addition to the lack of clear descriptions related to "compliance" and "online programs," a second challenge for this study may have been the perception among participants that compliance was the preferred response to the survey questionnaire. Respondents self-reported their approach to adherence, and as organizational researchers (Hugh & Feldman, 1981; Hugh, Feldman & Purhboo, 1985; Moorman & Podsakoff, 1992) have identified, there is a tendency to search for the correct answer in relation to organizational responses. "A problem with such self-report measures is their potential susceptibility to social desirability response bias, that is, a tendency for subjects to overestimate the importance to them of socially desirable job and organizational characteristics" (Hugh & Feldman, 1981, p. 377). Moorman and Podsakoff (1992) suggest that researchers should "take impression management into consideration in the scale development and refinement stages of their research" (n.p.). This issue may have influenced survey responses and participants may have desired to represent their institutions in a more favorable light.

The possibility of response bias was identified as a potential risk in the dissertation proposal (along with a suggested mitigation approach); however, it was clear from some responses and personal interactions with participants, that there was stress around not having an approach to state authorization. An example of this perception is the fact that two potential participants from a large research institution in the northeast both responded with the same abrupt message: "After considering your invitation further and given the current situation at (institution name) concerning online education, I respectfully decline to participate in your survey" (ID#10 & 11, personal communication, November, 19, 2012). While no other details were provided, this may indicate hesitancy to provide a response if no policy is in place. Participant ID#92 exemplifies this with a "no" response to all the policy questions and a subsequent abandonment of the remainder of the survey. A second participant from a large public institution in the northeast (ID#1, personal communication, December 7, 2012) requested a telephone call to discuss state authorization requirements, and then did not complete the survey.

This desire to provide the correct answer may be present in many self-reported responses. Researchers suggest that when questions are related to job performance, the problem of response bias may be more common (Hugh & Feldman, 1981; Hugh, Feldman & Purhboo, 1985; Moorman & Podsakoff, 1992). Additionally, a survey from WCET on the topic of state authorization was received by participants at about the same time which may have contributed to the confusion. This study was delivered in November and December, 2012, and the WCET study was deployed in December, 2012. The close proximity of the delivery of these two similar surveys may have triggered the perception that policy is important. This might indicate to participants that having a policy would be the appropriate response to the study questionnaire.

The issue of state authorization is one that has evolved over time and although many institutions are working towards compliance, other approaches are also in place. Higher education regulators are currently working on reciprocity agreements, which would ease the requirement to apply in all states individually. In WCET's 2011 survey, they found that 67% of participating schools did not have a policy in place related to state authorization (WCET Study, 2011). A year later, WCET's 2012 survey found that only 32% of institutions do not have a policy in place - a change of 35%. This study found that only 26% of institutions report that they do not have a policy in place. This high level of compliance may be partly due to the fact that the study itself highlighted the need for compliance.

Finally, some response bias may be related to leading questions (Creswell, 2013, p. 60) suggesting that there was one correct answer, "compliance." As a result of the questions' wording and order, a high instance of an affirmative response to the questions related to adherence may be due to participants' realization that state authorization might require acknowledgement and the development of a specific policy. "Some questions seem to encourage particular responses" and bias is related to "any property of questions that encourages respondents to answer in a particular way" (Babbie, 2013, p. 259). This response and the high positive affirmative response to the question of compliance may be partially related to this unintentional bias in question wording.

6.1.1.3 Perceptions of the Conceptual Framework Questionnaire

Finally, in addition to the need for improved descriptive terminology related to online programs in relation to compliance and potential response bias, the definitiveness of the statements in the competing values framework questionnaire (Cameron & Quinn, 2011b) may have created some stress among participants. As a result responses may have been selected based on what is

viewed as most appropriate for higher education (Collaborate) rather than responses that are a reflection of the true nature of the online program group. The survey did not clearly state that the responses should be related to the online program team rather than the institution and, in some cases, it may have been difficult to separate the two entities in response to the competing values framework questions.

Like all organizations, online program groups are a combination of many types of cultures depending on the situation and context. The competing values framework (Cameron & Quinn, 2011a) statements may have been confusing for some participants due to the requirement to evaluate and rank very specific statements. One participant suggested that "as of today, I don't see online learning as fitting neatly into any of the categories in part 2" (Question 13, Response 17). Write-in responses to Question 13 of the online survey (Please enter any additional comments regarding this study) were almost exclusively related to the competing values framework statements. One participant from a small private institution in the northeast decided not to participate based on the competing values framework statements, suggesting that "it (the competing values framework questions) did not present an option that I felt characterized the leadership here and I felt disloyal providing answers to what was asked without being able to present the more positive side of it" (ID#3, personal communication, December 14, 2012). These examples illustrate the point that requirement to classify culture within the boundaries of the competing values framework questions caused stress among some participants.

While a number of the participants suggested that the statements were too negative, other respondents felt that the statements developed for the competing values framework were too positive in relation to their work environment. For example, the following statements allude to

the perception that the competing values framework (Cameron and Quinn, 2011a) question responses were not always perceived as appropriate:

- "The choices were all positive and often did not reflect where I work" (Question 13, Response 2).
- "My organization is currently in a state of quiet crisis caused by decades of failure to come to grips with changes in its academic market and sources of external support. There was no option to describe a management whose idea of success is merely getting through to the end of the fiscal year with a balanced budget, a faculty that has not revised its general education requirements in decades, or an organization whose most binding policies are unwritten, informal bureaucratic habits" (Question 13, Response 5).

These statements confirm the findings of previous researchers (Cameron & Quinn, 2011a; Schein, 2010) that higher education institutions are a complex network of organizational behaviors. This reality may have made it difficult for participants to evaluate and rank statements in order of appropriateness due to the variety of competing and conflicting organizational cultures that are often present within one institution.

Finally, some felt that the diverse nature of responsibilities for online program managers requires more than one cultural approach, which was difficult to evaluate within the constraints of four specific questions. The questions that comprise the competing values framework (Cameron & Quinn, 2011a) are intentionally, focused and precise. As one participant suggested:

> Our organization is very 'user friendly' and we like working together to create something unique and academically sound. The differences noted in the model you used are very distinct from each other, whereas in reality most workplace environments are probably more fluid - depending upon the circumstance and activity. I'm interested in seeing the

intersection between the two very different parts of the questionnaire (Question 13, Response 19).

The fact that some of the responses indicated that the competing values framework questionnaire was not appropriate for higher education was an interesting and unexpected insight as this approach has been used extensively to measure higher education culture (Arnd-Caddigan, 2012; Berrio, 2003; Cameron, 1978; Cameron & Freeman, 1991; Fjortoft and Smart, 1994; Hassan, Shah, Ikramullah, Zaman & Khan, 2011; Hofstede, Neuijen, Ohayv & Sander, 1990; Kezar & Eckel, 2002; Smart & St. John, 1996; Smart, 2003; Trivellas & Dargenidou, 2009; Vilkinas & Ladyshewsky, 2012).

In this study, online administrators explained that they feel that the uniqueness of online program administration responsibilities also translates into more than one organizational culture and the need to be knowledgeable in a variety of different managerial approaches. As one participant mentioned, it may be that "the nature of online education requires a variety of approaches and cultures given the ever changing nature of technology" (Question 13, Response 7). As another participant suggested, "the team composition involves a mesh of traits and personalities that contribute their strengths to the goal at hand" (Question 13, Response 10). These responses may suggest that online programs are different and more difficult to measure than traditional higher education institutions as a whole. Qualitative results of this study led to the conclusion that regulatory requirements may be influencing the future direction of online program management approaches. Quantitatively, both structured (Compete) and flexible (Collaborate) cultures were found to be statistically significant related to regulation adherence, as measured by the competing values framework (Cameron & Quinn, 2011a). Additionally,

quantitative findings suggest that primary culture preference alone is not a core driver of institutional behavior.

In summary, this study faced a number of challenges. Some participants found the competing values framework questionnaire to be difficult. Secondly, social desirability response bias may have influenced compliance responses as the survey itself and the particular wording of questions may have led to the conclusion that "compliance" was the correct answer. Additionally, the lack of definitive descriptive narrative around "compliance" and "online programs" may have caused inconsistent responses. Section 6.1.1 reviewed the challenges that influenced this study. The predicted areas of difficulty and the mitigation approach are presented in Chapter 3. In spite of these challenges this study revealed that there is quantitative and qualitative evidence that multiple types of organizations can be successful in a highly regulated environment. Additionally, institutional traits such as experience, regional location, and size were found to influence regulation adherence, depending on the empirical model that was used. This study highlights potential future organizational changes, shared through qualitative inputs, which may be measureable for higher education researchers. The next section (Section 6.2) provides insights related to the implication of these findings and potential areas for future scholarship.

6.2 IMPLICATIONS & FUTURE RESEARCH

As distance education continues to grow exponentially (Allen & Seaman, 2013), this study suggests that institutional leaders and online program administrators may be considering ways to manage and build online programs within the constraints of federal, state and other regulatory

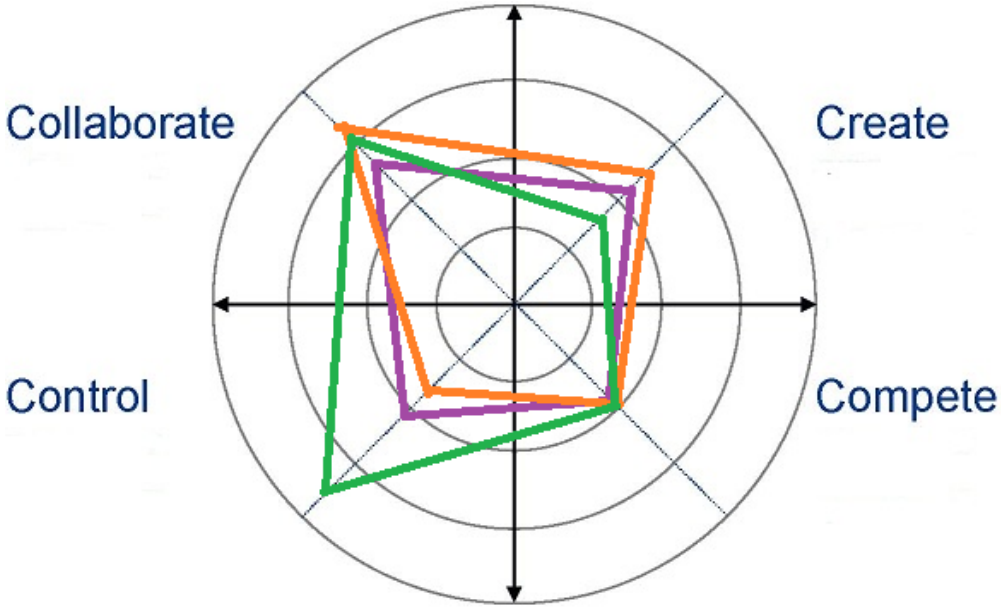
requirements. The key idea behind this study was that structured organizational cultures may be needed to adhere with these requirements as structured cultures and tasks are often aligned. This would be a change in culture, as historically and within this study, most higher education institutions have been primarily Collaborative. The complexity of this task is compounded by the fact that well-established organizational norms can make change difficult (Schein, 2010). Additionally, higher education leadership scholars suggest that there is "evidence that the performance of colleges and universities is linked to their organizational culture types" (Smart & St. John, 1996, p. 236). The management and change of that culture are paramount responsibilities of college leaders. For this reason, ongoing analysis of organizational culture in relation to online program management will be an important area for future research. This study highlights the need for additional scholarship in three main areas:

1. Organizational culture preferences of online program groups.
2. Organizational structures (centralized versus decentralized) to support online learning delivery.
3. The influence of regulatory requirements on distance education programs.

Additional scholarship related to organizational culture preferences of online program groups, organizational structures to support online delivery, and the evolving influence of regulatory requirements would help to fill a gap within current higher education literature. Given the highly visible nature of online education in the United States, higher education administrators will benefit from this benchmark study, which identifies current organizational culture preferences, and perhaps future trends, within online program groups. As this is a new area of inquiry, additional scholarship related to ways to effectively delivery online programs within institutions of higher education may be a valuable addition to this field of knowledge.

6.2.1 Organizational Culture and Online Program Groups

This study sought to understand the relationship between organizational culture, as defined by the competing values framework (Cameron & Quinn, 2011a), and adherence to federal regulatory requirements. At the base of this inquiry is the idea that organizational culture and effectiveness are closely aligned (Gregory, Harris, Armenakis & Shook, 2009; Lukas, et. al, 2013; Quinn & Cameron, 1983; Smart & St. John, 1996; Zammuto, 1984) and that certain cultures are appropriate for certain tasks (Burns & Stalker, 1961; Fayol, 1949). This study confirmed efforts of previous researchers (Cameron & Freeman, 1991; Hassan et al., 2011; Smart & St. John, 1996) in that it identified the Collaborate culture as the current primary preference for higher education institutions of all types. Figure 16 presents a map of the mean scores of the competing values framework quadrants based on responses by different institutional types. This graphic reveals that the mean scores of community colleges are different than those of either public or private institutions.



Organizational Culture	Public (Purple)	Private (Orange)	Community (Green)
Collaborate	27	32	31
Create	21	25	17
Compete	17	18	18
Control	21	22	36

Figure 12. Means of College by Type Mapped to the Competing Values Framework Grid

This graph, of the means of each institutional type by cultural quadrant (Figure 12), illustrates that public and private institutions are relatively similar in regards to organizational culture quadrant preferences. Community colleges differ in that they show a higher likelihood of preference for the Control quadrant and a lower preference for the Create quadrant than the other groups.

Historically competing values researchers (Berrio, 2003; Cameron & Freeman, 1991; Smart & St. John, 1996) have found a consistent preference for the Collaborate culture, above all others. Smart and St. John (1996) suggested that "the most prevalent type of organizational culture in contemporary American higher education remains the Clan form (Collaborate), with

nearly two thirds of the institutions participating in the current study exhibiting a predominantly Clan (Collaborate) culture (210 of 332)" (p. 234). Table 61 illustrates primary culture preferences of study participants, directors of online programs:

Table 61. Primary Organizational Culture Preference

Primary Organizational Culture	Freq	Percentage
Collaborate	43	49.43
Control	21	24.14
Create	16	18.39
Compete	7	8.05

n = 87

This finding is also consistent with the work of Cameron and Freeman (1991) who found that 'Clans' (Collaborate) turned out to be the most frequent type, followed by 'hierarchies' (Control), 'adhocracies' (Create) and 'markets' (Compete) (p. 52). Table 62 and Figure 13 illustrate the culture preferences for all study participants. In all cases, institutions indicate that the Collaborate culture is the most prevalent primary culture. The second most favored culture is Control, which is heavily favored by community colleges and public institutions. Private institutions most often have a secondary preference for the Create culture. Quantitative analysis indicated that non-primary organizational culture traits are also important as some institutions may not have a strong enough primary preference to drive behavior. Qualitative analysis revealed that primary culture alone is not statistically significant related to regulation adherence (Quantitative Study 2), however when secondary culture preferences are included in the analysis (Quantitative Study 1) the Collaborate and Compete cultures are statistically significant related to regulation adherence, when compared to the Control culture.

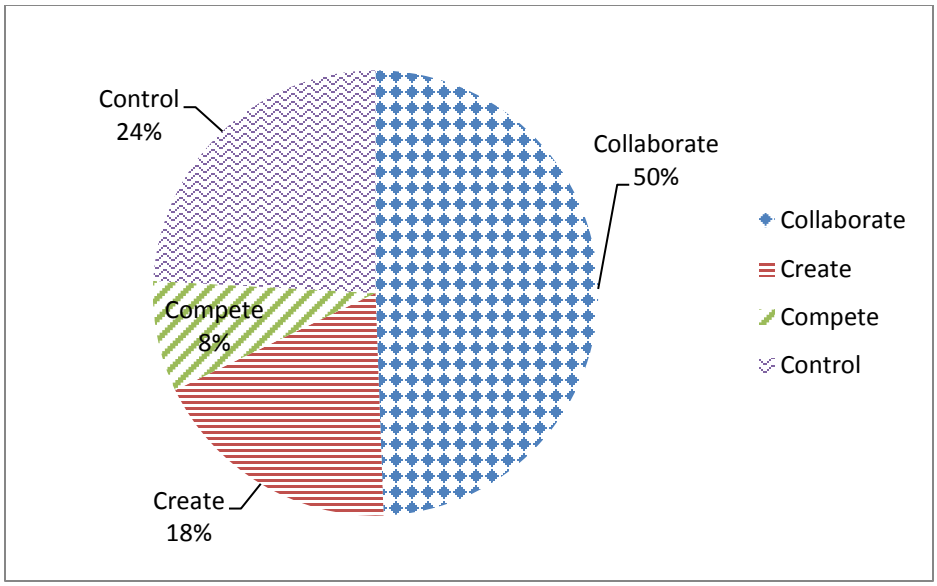


Figure 13. Primary Culture Preference among Surveyed Schools.

Similar studies have found that organizational culture is a statistically significant predictor of organizational effectiveness and confirm that the Clan culture (Collaborate) is preferred in higher education (Hassan et al., 2011, p. 108). Most often and as illustrated by this study and others, institutions do have a clear cultural preference for the Collaborate quadrant rather than a tendency to be equally divided between all cultures. This is a confirmation of previous scholarship in this area. Organizational culture, of course, is created and driven by a number of factors and as one study participant suggested "Organizational culture for distance learning is driven primarily by our Dean's desires" (ID#8, personal communication, December 6, 2012). This study suggests that online program groups may not have different culture preferences than the overall institution.

The finding that online program groups have similar cultures to the overall institution may change in the future as qualitative responses allude to a shift to separate organizations for the management of online programs. Institutional versus online program culture preferences were not directly compared here but that additional research may be a valuable area for future

study. This information is important for higher education administrators as "effectiveness is linked to dominant organizational culture type" (Fjortoft & Smart, 1994, p. 443) and scholars (Bergquist and Pawlak, 2008; Birnbaum, 1988; Cameron & Freeman, 1991; Schein, 2010) suggest that administrators can benefit from knowledge of organizational culture and ways to operate within that culture and influence cultural change, when needed.

Descriptive statistics confirm that institutions have a preference for one type of cultural quadrant but that does not mean that they have attributes of only one type of culture. This finding is illustrated in this study as primary culture was not statistically related to regulation adherence but the analysis that included secondary, tertiary and quaternary preferences did reveal statistically significant relationships. Also, almost all institutions had a primary culture that had a mean score that was higher than the score within the other three quadrants. This important because it suggests that rather than having equal preferences for the four quadrants, institutions as a whole have a preference for one of the quadrants more so than the others. This finding supports the work of previous scholars who found that institutions, although comprised of a variety of behaviors, do have a primary cultural preference (Berrio, 2003; Cameron & Freeman, 1991; Smart & St. John, 1996).

One way of thinking about this is to consider institutions' scores on the four quadrants. While average scores on the Collaborate quadrant were the highest as a whole across all institutional types (public, private and community), average scores were generally not equal to 0 on any of the other quadrants, thus suggesting that institutions are comprised of a mix of all cultural attributes. This is consistent with previous findings suggesting that all institutions possess attributes of several quadrants and no institutions "were characterized by only one culture type" (Cameron & Freeman, 1991, p. 52). Cameron and Freeman (1991) also found that

some institutions have a more dominant culture type (p. 52), therefore suggesting that the preference for one primary culture varies based on any number of organizational factors. Findings from this study revealed that primary culture alone is not related to compliance but when also considering the influence of secondary, tertiary and quaternary cultures statistically significant relationships are revealed.

This study also revealed that institutional characteristics of experience, location, type, and size are related to likelihood to comply. Additionally, qualitative responses suggest that organizational culture preference may be changing within online program groups. It would be valuable to have a more in-depth understanding of higher education culture in relation to changing approaches to distance delivery. A longitudinal study of online program organizational culture change over time would be valuable to assess if online program groups are, in fact, becoming more structured. Industry publications continue to suggest that formalized online learning organizations are being developed within higher education institutions (Bichsel, 2013). A version of this study completed at 5 and 10-year increments might provide very different results and would offer a valuable historical perspective about the evolution of distance delivery.

6.2.2 Organizational Structures to Support Online Learning Delivery

Organizational structures often influence organizational culture and effectiveness. This study did not specifically investigate the organizational structure of online programs but qualitative findings revealed that perceptions of organizational structure changes in the next five years. Participants shared plans to move towards more centralized approaches, which may in turn influence organizational culture preferences. Participants suggested that they are looking to gain efficiencies through centralization and this idea was also suggested in the ECAR study (Bischel,

2013). Although this study did not specifically address costs, rising costs are an issue in higher education in general. In some ways, administrators may be looking to create efficiencies with online learning delivery that help to contain costs. Research suggests that centralized approaches create efficiencies for large online programs (Bischel, 2013) and a systems approach (Moore & Kearsley, 2012) may help to improve efficiency and effectiveness of online delivery. If more centralization is implemented, future higher education scholars may find that the organizational cultures of online programs have become more structured as well. This is a task for future organizational culture and higher education researchers.

Perhaps an indicator of this shift is the recent trend toward hiring non-academic leaders within the upper echelons of higher education institutions. Recently, the University of Virginia selected "Patrick D. Hogan, a business executive with extensive background in finance, operations and health care, to be the University of Virginia's new executive vice president and chief operating officer" (Anderfuren, 2012). Similarly, Virginia Commonwealth University (VCU) hired an ex-Disney executive to be the Dean of the Business School (VCU Business, 2012). Mr. Grier was the first non-academic to hold this position. This may signal a desired change in the organizational cultures of higher education institutions as "the most powerful mechanisms that founder, leaders, managers, and parents have available for communicating what they believe in . . . is what they systematically pay attention to" (Schein, 2010, p. 237). This changing focus on bringing in external, corporate leadership may be signaling a desired culture change and would be a valuable area for future inquiry. Additionally, the issue of approaches to support structures to effectively and efficiently support online program delivery would be a valuable area for further study. Centralization of distance education structures appeared to be a common theme among survey participants and it would be valuable to understand if

centralization helps to improve efficiency and secondly if centralization results in more structured organizational cultures (Control and Compete).

6.2.3 The Influence of Regulatory Requirements on Distance Delivery

This study sought to examine the relationship between the organizational culture preferences of online program groups in relation to regulation adherence. Further inquiry related to organizational culture of online programs (Section 6.2.1), organizational structures for online delivery (Section 6.2.2) and the influence of federal regulations (Section 6.2.3) would be valuable. Although there are groups seeking to resolve the difficulties with state authorization through reciprocity agreements, state authorization is just one of the many regulatory requirements that online administrators face. Compliance with ADA, copyright, identity verification and others will also be important as accrediting agencies take on greater responsibility and oversight for online program regulation adherence. It would be valuable to have greater understanding of the influence of these requirements on organizations and the role of organizational culture in supporting effective delivery of online programs.

The issue of increasing regulatory complexity is one that is of high concern for online program management and higher education institutional leaders. Question 3 of the survey (What regulations are you aware of related to distance education?) asked administrators to recall the regulatory issues of which they are aware. A number of issues, including state authorization, were identified. Clearly, the list is extensive and will influence online higher education. The regulatory requirements in Table 62 were identified by survey participants.

Table 62. Regulatory Requirements Identified by Online Program Managers

Regulatory Requirement	# Times Mentioned	% of Respondents
State Authorization	76	77%
Accrediting	31	32%
ADA/Section 508	23	23%
Financial Aid	17	17%
Identify Verification	14	14%
Attendance Verification	12	12%
FERPA	13	13
Copyright	10	10%
Complaint Procedures	9	9%
Gainful Employment	8	8%
Credit Hour Requirements	6	6%
Distance Ed vs. Correspondence	4	4%
GI Bill	4	4%
Program Integrity	3	3%
Student Support Requirements	3	3%
Teach Act	3	3%
Recruiting Practices	3	3%
Faculty Credentialing/Continuing Ed	2	2%
HIPPA	2	2%
State Requirements (within own state)	2	2%
Outcomes	1	1%
Cost of Attendance	1	1%
Academic Progress	1	1%
Student/Student & Student/Faculty Interaction	1	1%
Digital Millennium Act	1	1%

n = 99

This extensive list suggests that this is an area where additional research would be valuable. As regulatory requirements continue to expand, the organizational cultures needed to support effective online delivery may continue to evolve. A longitudinal study of organizational culture and regulation adherence would be useful to accomplish several goals. First it would be valuable to determine if the concerns expressed here continue to persist into the future. Secondly, qualitative comments suggested a move towards centralized support for online program delivery.

It would be interesting to understand if centralization has indeed occurred and if centralization has resulted in more formal organizational structures (Compete and Control).

6.3 CONCLUSION

In conclusion, this study sought to identify relationships between organizational culture and adherence to federal regulatory requirements for online programs. Findings from the two quantitative studies suggest that primary organizational preference alone is not related to regulation adherence but when non-primary (secondary, tertiary, and quaternary) culture preferences are considered statistically significant relationships (Collaborate and Compete) are revealed. Additionally, the institutional characteristics of experience, location, and size are related to regulation adherence when controlling for organizational culture, depending on the empirical model that is used.

Regulation adherence is statistically significant related to experience with online delivery in that the more years an institution has offered online programs, the greater the likelihood of compliance. Findings also suggest that institutions in the Western region are less likely than those in the Midwest to adhere to regulatory requirements. Finally, institutional enrollment size is statistically significant related to compliance with state authorization requirements. In confirmation of prior scholarship, this study found that online program groups, like higher education institutions overall, do have a primary organizational culture quadrant, which continues to be the Collaborate quadrant. Views related to online program administrators and new approaches to online education delivery and organizational structures were also uncovered.

Quantitatively, this study identified statistically significant relationship between organizational culture, as defined by the competing values framework (Cameron & Quinn, 2011a), and approach to regulatory requirements. Quantitative Study 1 found that the Collaborate and Compete cultures were statistically significant across most models. This relationship was not identified in Quantitative Study 2, which used primary culture only as the predictor variables. It is important to note that primary culture alone does not drive this relationship. When evaluating primary organizational culture preferences in relation to regulation adhere, no statistically significant relationships were revealed (Quantitative Study 2). The analysis that included secondary, tertiary and quaternary organizational culture preferences (Quantitative Study 1) did identify relationships in that Collaborate and Compete cultures are statistically significant. The institutional characteristics of experience, location, and size are also statistically significant across both quantitative studies.

This study accomplished several valuable tasks in that it: a) identified that secondary, tertiary, and quaternary organizational culture preferences can be influential, b) confirmed the work of previous scholars related to organizational culture preferences in higher education, c) identified relationships between experience with online program delivery, regional location, and size in relation to regulation adherence, d) provided baseline research related to organizational culture preferences of online programs, and e) identified the need for additional scholarship related to online program administrative models, adherence to regulatory requirements and cultural differences related to regional location. As one participant suggested, “I would be happy to complete the survey, as I do see your topic as one that is increasingly relevant” (ID#12, personal communication, January 31, 2013).

First, this work revealed that non-primary organizational culture preferences are important. Secondly, this study confirmed the findings of previous organizational culture and higher education researchers in that it identified the Collaborate quadrant as the primary preference of higher education institutions of all types (Berquist & Pawlak, 2008; Berrio, 2003; Schein, 2010; Smart & Hamm, 1993; Smart & St. John, 1996; Zummato & Krakower, 1991). This finding is important because it provides insight into the cultural processes that influence decisions in online program groups within institutions of higher education. Write-in responses alluded to a trend towards creating a separate division for online programs, and this field of inquiry would benefit from further study. As new divisions are created, it will be interesting to determine if they continue the preference for a collaborative culture or if they move to more structured organizational cultures (Control and Compete).

Thirdly, this study identified three statistically significant relationships between: a) age of programs; b) institutions in the Western region; and c) size of institution and likelihood to adhere. Schools that have had online programs for the longest amount of time are most likely to comply with regulatory requirements (Quantitative Study 1 - Regression 2a and 2b and Quantitative Study 2 – Regression 2a and 2b). Additionally, Midwest institutions are more likely than Western and Eastern schools to comply (Quantitative Study 1 – Regression 2a and 2c and Quantitative Study 2 – Regression 2a and 2c). Finally, institutional size is related to regulation adherence (Quantitative Study 1 – Regression 2a and 2e and Quantitative Study 2 – Regression 2e). These findings are statistically significant in that they both confirm previous research and identify new knowledge.

Fourthly, this research is among the first to investigate organizational culture as specifically related to online program groups. This highlights a literature gap and one that is

beginning to capture the attention of researchers. Several recent studies have been published related to online program effectiveness and administrative approaches (Bischel, 2013; Moore & Kearsley, 2012). This newly emerging scholarship highlights an interest in scholarship related to online program management. As organizational culture is often related to organizational effectiveness, this work provides a baseline for future researchers.

Lastly, this work highlights the need for additional scholarship in this area. These findings signal a changing environment within online programs and higher education that would be valuable to investigate in more detail. Specifically, the study alluded to a shift in the way that online programs are organized and managed. The emergence of "Online Program Management" as a product offered by for-profit companies, and the stated shifts to separate online divisions may be signaling more dramatic changes in the near future. This study would benefit from future longitudinal work to determine if the pending shifts identified here truly become part of the organizational structures of higher education institutions.

In conclusion, there is a statistically significant relationship between organizational culture quadrant and likelihood to adhere to regulatory requirements for online programs and a nuanced view which includes secondary, tertiary and quaternary preferences appears to be more reflective of organizational behavior within online program groups. These findings suggest that online program managers will need to be continually vigilant as they seek to implement high quality online programs while adhering to regulatory requirements. Higher education administrators can benefit from these findings when developing their organizational structures and cultures to support online programs and regulatory requirements. Considering the influence that organizational culture can have on effectiveness and the unique attributes of higher education institutions an appropriate place to end this study on organizational culture and

regulation adherence within online program groups is to end as we began and consider this statement from noted organizational culture theorist Edgar Schein (2010): "Culture is an abstraction, yet the forces that are created in social and organizational situations derived from culture are powerful. If we don't understand the operation of these forces, we become victims to them" (p. 7).

APPENDIX A

SURVEY INSTRUMENT

Introduction

The purpose of this study is to understand the organizational culture of online program organizations and to investigate the influence of federal regulations on culture. To support the research questions, this survey was designed using a quantitative approach. Part 1 includes both qualitative and quantitative questions and seeks to understand current approaches to adherence with federal requirements for online programs. Part 2 of this study is based on the competing values framework (Cameron & Quinn, 2011b) and seeks to quantify organizational culture.

A.1 PART 1 – QUALITATIVE SURVEY QUESTIONNAIRE

1. In what year did your institution offer its first online program? (Enter 4digit year, for example, 1999)
2. How many online programs does your institution currently offer? (Enter number of programs)
3. What federal and state regulations are you aware of related to distance education? (List regulations that come to mind)
4. Does your institution have a process in place for the following federal and state requirements for distance education? (Select all that apply)
    - Copyright
    - Americans with Disabilities Act
    - Identity Verification
    - State Authorization
5. Currently, institutions are required to have authorization from each state where they have online students. How does your organization address state authorization requirements? (Select most appropriate option)
    - Am not aware of state authorization requirements.
    - No current plan to address state authorization requirements.
    - Have developed a compliance plan but no current process is in place.
    - Outsource compliance work to consultant.
    - Internally staff personnel to address state authorization requirements.
    - Other:
        - Please enter details regarding your approach
6. What organizational changes do you foresee in the next 5 years related to the approach to management of your online programs? (Open ended)

A.2 PART 2 – QUANTITATIVE SURVEY QUESTIONNAIRE

Part 2 of the survey will address the quantitative aspects of this study. Survey participants will 100 of points between four statements. Each of the statements represents one of the four quadrants as follows:

A - represents the **Collaborate** Quadrant (Upper Left Corner)
B - represents the **Create** Quadrant (Upper Right Corner)
C - represents the **Compete** Quadrant (Lower Right Corner)
D - represents the **Control** Quadrant (Lower Left Corner)

7. DOMINANT CHARACTERISTICS		ONLINE
A. The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.		
B. The organization is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.		
C. The organization is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.		
D. The organization is a very controlled and structured place. Formal procedures generally govern what people do.		
TOTAL		**100**
8. ORGANIZATIONAL LEADERSHIP		ONLINE
A. The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing.		
B. The leadership in the organization is generally considered to exemplify entrepreneurship, innovating, or risk taking.		
C. The leadership in the organization is generally considered to exemplify an aggressive, results-oriented, no-nonsense focus.		
D. The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.		
TOTAL		**100**
9. MANAGEMENT OF EMPLOYEES		
A. The management style in the organization is characterized by teamwork, consensus, and participation.		
B. The management style in the organization is characterized by individual risk-taking, innovation, freedom, and uniqueness.		
C. The management style in the organization is characterized by hard-driving competitiveness, high demands, and achievement.		
D. The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.		
TOTAL		**100**

10. ORGANIZATIONAL GLUE		
A. The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.		
B. The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.		
C. The glue that holds the organization together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.		
D. The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important.		
TOTAL		
11. STRATEGIC EMPHASES		
A. The organization emphasizes human development. High trust, openness, and participation persists.		
B. The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.		
C. The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.		
D. The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important.		
TOTAL		
12. CRITERIA OF SUCCESS		
A. The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.		
B. The organization defines success on the basis of having the most unique or the newest products. It is a product leader and innovator.		
C. The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.		
D. The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling, and low cost production are critical.		
TOTAL		

13. Please enter any additional comments regarding this study.

APPENDIX B

STATA 12 CODING SHEET

Question	Variable Name	Value Label	Code
Identification Number	id	Based on survey number	1 to 200
1) In what year did your institution offer your first online program? (Enter 4-digit year, for example, 1999)	age	Current year (2013) – year entered No answer	1 to 20 .a
2) How many online programs does your institution currently offer? (Enter number of programs)	#prog	Record Number No answer	1 to 200 .a
4) Does your institution have a process in place for the following federal and state requirements for distance education? (Select all that apply)	pol_copy pol_ada pol_id pol_sa	Copyright Americans with Disabilities Act Identity Verification State Authorization No answer	1 2 3 4 .a
5) Currently, institutions are required to have authorization from each state where they have online students. How does your organization address state authorization requirements? (Select most appropriate option)	adhere	I am not aware of state authorization requirements No current plan to address requirements Have developed a compliance plan but no current process is in place Outsource compliance work to consultant Internally staff personnel to address requirements No answer	0 = no 0 = no 0 = no 1 = yes 1 = yes .a

Question	Variable Name	Value Label	Code
5) CVF – Collaborate Score	collab	Mean of Collaborate Quadrant (Statement 1's) No response	1 – 100 .a
6) CVF – Create Score	create	Mean of the Create Quadrant (Statement 2's) No response	1 – 100 .a
7) CVF – Compete Score	compete	Statement 3 represents the Compete Quadrant No response	1 – 100 .a
8) CVF – Control Score	control	Mean of the Control Quadrant (Statement 4's) No response	1 – 100 .a
Dominant Quadrant (Dominant quadrant based on the competing values framework)	primary	Collaborate Create Compete Control No response or 2 identical quadrants	1 2 3 4 .a
Type of Institution (Based on Carnegie Classification)	Public	Yes No	1 0
Type of Institution (Based on Carnegie Classification)	Private	Yes No	1 0
Type of Institution (Based on Carnegie Classification as 2 year institution)	Community	Yes No	1 0
Type of Institution (Based on Carnegie Classification)	For-Profit	Yes No	1 0
Location of institution	East	Yes No	1 0
Location of institution	Midwest	Yes No	1 0
Location of institution	West	Yes No	1 0
Size of institution	Enrollment	Based on Carnegie Foundation Institution Lookup	0-100K

APPENDIX C

CONSENT TO ACT AS A SUBJECT IN A RESEARCH STUDY

PRINCIPAL INVESTIGATOR:	K. Holly Shiflett School of Education University of Pittsburgh 5905 Wesley W. Posvar Hall Pittsburgh, PA 15260 Phone: 412.648.7216; E-mail: hollys@pitt.edu
RESEARCH ADVISOR:	M. Najeeb Shafiq Associate Professor School of Education University of Pittsburgh 5905 Wesley W. Posvar Hall Pittsburgh, PA 15260 Phone: Email:

Hello, (INSERT NAME OF PARTICIPANT),

My name is Holly Shiflett and I am a student at the University of Pittsburgh conducting a research study entitled, "Online Program Culture Traits in Relation to Adherence to Regulatory Requirements for Online Programs." You were selected to participate in this study because of

your involvement as an administrator of individual who has a primary role is to support online programs at an institution of higher education.

I would like to request your participation in an online survey that would last between 15 - 20 minutes and consist of several open-ended and quantitative questions. Questions are related to your perceptions the culture of your online program and the processes in place to support federal and state requirements for distance education. There are no foreseeable risks associated with this project, nor are there any direct benefits to you.

Participant identifiers will not be included and all responses are confidential with study results kept in a secure location. Forty online program administrators will be asked to participate in this study. Your participation is voluntary, and you may withdraw from this study at any time. Clicking on the following link (URL to online version of the survey) and completion of the online survey indicates your consent to participate in this study.

We would be happy to answer any questions you might have and look forward to your response. If you have questions about the research study or would like a copy of the final report, please submit an email request to hollys@pitt.edu. Thank you for taking time to participate in this important work.

Sincerely, Holly

K. Holly Shiflett, University of Pittsburgh
Doctoral Student, Administrative and Policy Studies, Higher Education Management Specialization
hollys@pitt.edu

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APPENDIX D

STATA DATA FILE

id	age	pol_copy	pol_ada	pol_id	pol_sa	adhere1	adhere2	collab	create	comp	control	type	region	prog	Enrollments
1	18	No	No	No	Yes	Staff Internally	Yes	14	43	30	13	Private	East Coast	50	27537
2	2	Yes	Yes	Yes	Yes	Staff Internally	Yes	33	38	13	16	Private	Midwest	5	1336
3	5	Yes	Yes	Yes	Yes	Staff Internally	Yes	27	27	27	19	Private	East Coast	22	4783
4	13	No	Yes	No	Yes	Staff Internally	Yes	35	17	18	30	For-Profit	Midwest	39	77549
5	18	Yes	Yes	No	Yes	Staff Internally	Yes	25	25	23	27	Private	West Coast	23	11644
6	15	No	No	Yes	Yes	Staff Internally	Yes	39	31	15	15	Public	East Coast	2	26147
7	10	Yes	Yes	Yes	Yes	Unaware	No	33	23	15	29	Community	East Coast	17	3783
8	5	Yes	Yes	No	Yes	Staff Internally	Yes	26	19	24	31	Public	East Coast	10	28328
10	5	Yes	Yes	No	No	No current plan	No	18	25	29	28	For-Profit	West Coast	0	1792
11	5	Yes	Yes	No	No	No current plan	No	53	43	1	3	Private	West Coast	4	
12	1	Yes	No	Yes	Yes	Staff Internally	Yes	31	21	25	23	Public	West Coast	1	7079
13	3	No	Yes	Yes	Yes	Staff Internally	Yes	30	24	23	23	Public	West Coast	10	20619
14	13	Yes	Yes	Yes	Yes	Staff Internally	Yes	30	22	21	27	Private	Midwest	14	7385
15	24	Yes	Yes	Yes	No	Plan but not implemented	No	23	18	5	54	Public	East Coast	13	8840
16	5	Yes	Yes	Yes	Yes	Staff Internally	Yes	44	10	14	32	Public	East Coast	22	37360
17	9	Yes	Yes	Yes	Yes	Staff Internally	Yes	44	4	17	35	Community	West Coast	66	4478
18	15	Yes	Yes	Yes	Yes	Staff Internally	Yes	24	23	25	28	Community	East Coast	12	10415
19	13	Yes	Yes	Yes	Yes	Staff Internally	Yes	37	29	15	19	Public	West Coast	6	28765

id	age	pol_copy	pol_ada	pol_id	pol_sa	adhere1	adhere2	collab	create	comp	control	type	region	prog	Enrollments
22	1	Yes	No	No	Yes	Staff Internally	Yes	44	23	13	20	Private	West Coast	1	474
23	18	Yes	Yes	No	Yes	Staff Internally	Yes	30	14	18	38	Community	East Coast	4	24549
24	13	No	No	Yes	Yes	Staff Internally	Yes	38	15	25	22	Public	Midwest	14	21016
25	15	Yes	Yes	Yes	Yes	Staff Internally	Yes	24	29	31	16	Private	East Coast	19	14339
26	8	Yes	No	Yes	Yes	Staff Internally	Yes	47	21	13	19	Private	East Coast	7	3432
27	11	Yes	Yes	No	Yes	Staff Internally	Yes	58	18	6	18	Public	East Coast	5	6263
28	15	Yes	Yes	Yes	Yes	Staff Internally	Yes	20	23	31	26	Private	Midwest	56	5400
29	14	Yes	Yes	Yes	Yes	Staff Internally	Yes	10	70	14	6	Public	East Coast	20	14325
30	13	Yes	Yes	Yes	Yes	Staff Internally	Yes	17	38	34	11	Public	Midwest	21	19849
32	1	No	Yes	No	No	Plan but not implemented	No	39	25	14	22	Public	Midwest	1	1395
33	9	Yes	Yes	No	Yes	Staff Internally	Yes	10	0	30	60	Public	West Coast	23	42108
34	16	No	No	Yes	Yes	Staff Internally	Yes	34	18	16	32	Public	Midwest	66	14799
35		Yes	Yes	Yes	No	Staff Internally	Yes	55	15	15	15	Community	Midwest		7210
36	18	Yes	Yes	Yes	Yes	Staff Internally	Yes	24	18	21	37	Public	West Coast	19	15612
39	9	Yes	Yes	No	No	Staff Internally	Yes	41	28	18	13	For-Profit	Midwest	30	6037
40	26	Yes	Yes	Yes	Yes	Staff Internally	Yes	20	31	22	27	Community	Midwest	23	28004
41	18	No	Yes	No	Yes	Staff Internally	Yes	28	13	21	38	Public	East Coast	4	8119
45	3	Yes	No	Yes	Yes	Staff Internally	Yes	24	24	21	31	Public	East Coast	1	10413
46	15	Yes	Yes	Yes	Yes	Staff Internally	Yes					Public	Midwest	114	14620
47	14	Yes	Yes	Yes	Yes	Staff Internally	Yes	18	33	33	16	Public	East Coast	80	45185
50	17	Yes	Yes	Yes	Yes	Staff Internally	Yes	23	30	38	9	Private	East Coast	180	7119
51	14	Yes	Yes	Yes	Yes	Staff Internally	Yes	40	13	8	39	Private	Midwest	8	934
52	15	Yes	Yes	Yes	Yes	Staff Internally	Yes	29	41	15	15	Public	West Coast	18	4022
53	10	Yes	Yes	Yes	Yes	Staff Internally	Yes	46	22	12	20	Public	Midwest	3	14644
55	9	Yes	Yes	No	No	No current plan	No	17	57	18	8	Public	East Coast	2	2513
56	6	No	No	No	No	Plan but not implemented	No	30	30	19	21	Private	East Coast	41	9650
60	15	Yes	Yes	Yes	Yes	Staff Internally	Yes	11	12	43	34	Community	Midwest	13	99911
61	12	Yes	Yes	No	Yes	Staff Internally	Yes	32	27	21	20	Private	East Coast	6	7758
62	17	Yes	Yes	Yes	Yes	Staff Internally	Yes	16	18	23	43	Public	Midwest	8	21424

id	age	pol_copy	pol_ada	pol_id	pol_sa	adhere1	adhere2	collab	create	comp	control	type	region	prog	Enrollments
63	9	Yes	Yes	No	No	Staff Internally	Yes	43	26	13	18	Private	East Coast	4	2805
64	13	Yes	Yes	No	No	Unaware	No	38	33	11	18	Private	East Coast	2	3341
65	15	Yes	Yes	Yes	Yes	Staff Internally	Yes	28	34	23	15	Public	East Coast	25	28898
66	17	Yes	Yes	Yes	Yes	Staff Internally	Yes	37	28	17	18	Community	East Coast	8	16741
67	10	No	Yes	Yes	No	No current plan	No	48	32	15	5	Community	West Coast	0	7634
70	12	Yes	Yes	Yes	Yes	Staff Internally	Yes	42	20	15	23	Community	West Coast	16	6293
71	15	Yes	Yes	Yes	Yes	Staff Internally	Yes	26	31	25	18	Public	East Coast	13	11500
72	13	Yes	Yes	Yes	Yes	Staff Internally	Yes	38	23	14	25	Private	East Coast	14	1779
73	2	Yes	Yes	Yes	Yes	No current plan	No	0	0	33	67	Community	Midwest	3	2184
75	12	Yes	Yes	Yes	Yes	Staff Internally	Yes	34	24	16	26	Private	Midwest	3	25072
76	12	Yes	Yes	Yes	Yes	Staff Internally	Yes	12	0	0	88	Community	West Coast	27	18074
77	10	Yes	Yes	Yes	Yes	Staff Internally	Yes	32	19	13	36	Public	Midwest	22	16772
79	7	Yes	Yes	No	Yes	Staff Internally	Yes	37	15	18	30	Public	Midwest	8	15932
80	3	Yes	No	No	No	Staff Internally	Yes	24	24	24	28	Private	Midwest	2	703
81	24	No	Yes	No	No	Staff Internally	Yes	41	15	17	27	Private	Midwest	6	3070
83		No	Yes	Yes	No	Unaware	No					Public	West Coast		3119
84	11	Yes	Yes	Yes	Yes	Staff Internally	Yes	22	25	35	18	Public	Midwest	36	5157
86	10	Yes	Yes	Yes	Yes	Staff Internally	Yes					Private	East Coast	22	20352
87	7	No	No	Yes	No	Plan but not implemented	No	52	27	10	11	Public	East Coast	10	9655
88	8	No	Yes	No	No	No current plan	No	24	13	14	49	Private	East Coast	4	10573
89	8	No	Yes	Yes	No	No current plan	No	31	11	9	49	Private	East Coast	6	2279
91	15	Yes	Yes	No	Yes	Staff Internally	Yes	35	20	18	27	Public	East Coast	20	28916
92	12	No	No	No	No							Public	Midwest	4	10071
93	12	Yes	Yes	Yes	Yes	Staff Internally	Yes	36	21	18	26	Community	East Coast	16	11009
94	10	Yes	Yes	Yes	No	Plan but not implemented	No	11	20	35	34	Public	East Coast	47	16417
95	12	Yes	Yes	No	No	Staff Internally	Yes	25	35	30	10	Public	West Coast	52	27142
96	19	Yes	Yes	Yes	Yes	Staff Internally	Yes	27	32	23	18	Private	East Coast	14	15249
98		No	Yes	No	Yes	Staff Internally	Yes					Public	West Coast	0	1255
101	16	Yes	Yes	Yes	No	Staff Internally	Yes	36	21	20	23	Public	East Coast	18	5183
102		Yes	Yes	Yes	Yes	Staff Internally	Yes					Public	West Coast		29080
106	9	Yes	Yes	Yes	Yes	Staff Internally	Yes	38	13	14	35	Public	Midwest	22	18918
110	28	Yes	Yes	Yes	Yes	Staff Internally	Yes	40	32	12	16	Public	West Coast	35	21950
111	24	Yes	Yes	Yes	Yes	Staff Internally	Yes	31	17	1	51	Public	West Coast	14	18933
112	47	Yes	Yes	Yes	Yes	Staff Internally	Yes	79	9	5	7	Public	East Coast	30	53401

id	age	pol_copy	pol_ada	pol_id	pol_sa	adhere1	adhere2	collab	create	comp	control	type	region	prog	Enrollments
114	13	Yes	No	Yes	Yes	Staff Internally	Yes	28	47	13	12	Private	East Coast	12	4331
115	2	Yes	Yes	No	Yes	Plan but not implemented	No	32	34	21	13	Private	West Coast	6	8539
116	11	Yes	Yes	No	No	Plan but not implemented	No	25	25	11	39	Community	West Coast	20	14916
117		Yes	Yes	No	No	Unaware	No	42	0	0	58	Community	West Coast	0	7484
118	14	Yes	Yes	Yes	Yes	Staff Internally	Yes	30	23	19	28	Public	East Coast	3	6265
119	6	Yes	Yes	No	Yes	Staff Internally	Yes	58	25	5	12	Private	East Coast	6	2034
120	15	No	Yes	Yes	Yes	Staff Internally	Yes	50	37	9	4	Public	West Coast	10	21575
121	14	Yes	Yes	Yes	Yes	Staff Internally	Yes	11	17	36	36	Public	Midwest	114	26840
122	8	Yes	Yes	Yes	Yes	Staff Internally	Yes	28	18	27	27	Public	West Coast	7	13493
123	9	No	No	Yes	No	Staff Internally	Yes	34	17	18	31	Public	Midwest	6	22530
127	13	No	No	Yes	Yes	Plan but not implemented	No	12	17	46	25	Private	West Coast	12	781
129	8	Yes	Yes	Yes	Yes	Staff Internally	Yes	24	23	24	29	Public	East Coast	5	7538
131	17	Yes	Yes	No	No	Plan but not implemented	No	34	30	13	23	Public	West Coast	7	31280

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