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Higher Education Governance Structures and Operational Efficiency and Effectiveness of 4 -Year Public Institutions

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by

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ABSTRACT

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This study benchmarks 4-year public institutions in the Southern Regional Education Board to determine if there are significant differences between the institutions based on efficiency and effectiveness scores within the types of governance structures in operation among the states. Efficiency and effectiveness scores are also used to determine if there are significant differences between institutions based on state appropriation levels. In this quantitative study, data envelopment analysis (DEA) was used to collapse selected institutional data reported to IPEDS into effectiveness and efficiency scores which were then used as the dependent variables. The variable returns to scale (VRS) model was used with an input orientation to measure efficiency, while the output orientation was used to measure effectiveness. Multivariate analyses and Pearson correlations were then performed using the Statistical Program for Social Sciences (SPSS).

There are no significant differences in institutional efficiency and effectiveness scores compared by coordinating agency, governing board, or other state governance structural arrangement types. The relationship between efficiency and effectiveness scores is strongest for those institutions governed by other structural arrangements. Institutions in lower levels of state appropriations tended to score significantly higher in efficiency than their counterparts in the mid-range and highest levels of state appropriations.

The accountability for institutional efficiency and effectiveness seems to rest primarily within the institutions governed. The significance of the study applies to state legislatures, state governance structures, and the leadership of public institutions who want to improve institutional performance through identifying optimal levels of inputs and outputs related to the efficiency and effectiveness metrics presented in this study.

DEDICATION

This effort is dedicated to God and my family, both have brought me this far by faith. Posthumous acknowledgements to my Mom, who sacrificed to make opportunities for exposure to higher education generationally, access to the school district with the 10th rated U.S. high school, encouragement, financial support, and for enduring my rebellion. To my Gram Mable for being endearingly supportive, for being there when it counted, for the history, and motivational incentives.

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TABLE OF CONTENTS

Page

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

CHAPTER 1

INTRODUCTION

There has been a consistent emphasis for public colleges to demonstrate their effectiveness in meeting their missions to policy-influencing constituents. The general public, boards of governors, legislatures, postsecondary governance systems, and tuition paying students all have an influence on policy in higher education (Zumeta, 2001). This push has been evidenced in funding initiatives to institutions contingent upon enrollment based formulas and performance-based funding strategies, both of which are principally concerned with inputs: access and enrollment. The shift in paradigm to output measures that include student retention and persistence to graduation, degrees awarded, and graduation rates can be attributed to the work of former U.S. Secretary of Education Margaret Spelling (Cook & Pullaro, 2010). The public conversation about higher education accountability has forever changed to include outputs as part of the discussion about institutional effectiveness.

Student outcomes are embedded in the missions of institutions as they accomplish their purposes of educating a broad spectrum of society. Accomplishment is termed effective when it meets the expectation of stakeholders. Institutional accomplishment regardless of the level or degree of efficiency and effectiveness is a function of production. Production in and of itself can be deemed effective and demonstrate varying levels of efficiency. Efficiency, or the ability of an entity to maximize production output while reducing inputs, is a challenge faced in all sectors.

This study benchmarks 4-year public institutions in the Southern Regional Education Board to determine if there are significant differences between the institutions based on efficiency and effectiveness scores within the types of governance structures in operation among

the states. Efficiency and effectiveness scores are also used to determine if there are significant differences between institutions based on state appropriation levels.

It is important to understand the theoretical framework that drives expenditures and change in higher education when using expenditure-based models to measure institutional performance. The revenue theory of costs states that institutions in seeking to achieve their dominant goals of educational excellence, prestige, and influence will seek to raise all the money they can and will spend all the money they raise with the cumulative effect of ever increasing expenditures (Bowen, 1980). The acquisition of normatively defined practices and structures will gain greater prestige and influence for an institution. Acquiring the defined practices and structures is perceived to be more important for the survival of the institution than are practices that enhance the efficiency of the technical core that includes teaching (Morphew & Huisman, 2002). The movement toward normatively defined practices and structures relates to institutional theory. When this occurs among higher education institutions with varying classifications, as a result of environmental pressure, it is known as isomorphic organizational behavior and academic drift (Birnbaum, 1983; Morphew, 2009; Rogers, 2003). The revenue theory of costs and institutional theory have an influence on decisions made related to state-level governance and the levels of operational efficiency and effectiveness found within institutions.

State level governance systems bear the primary accountability for funding and measuring the performance of public postsecondary institutions. Higher education governing boards, coordinating agencies, and other governing structures were designed to serve in an intermediary or buffering role between state educational institutions and state legislatures (Tandberg, 2013). State level governance systems and political perspectives among state

decision makers often have an effect on policy outcomes by favoring access, affordability, and accountability policies for institutions (Heller, 2001).

Finney, Perna, and Callen (2014) advanced the study of the role of governance by considering state policies to improve higher education performance. Their study took a comprehensive look at the decline in Americans accessing training and education beyond high school, particularly among low-income and minority populations. Findings indicate that states struggle to develop policies in three general areas: using fiscal resources strategically, aligning educational opportunities to student needs, and easing student transitions between educational sectors. Recommendations from the study included developing political consensus for clear goals related to educational opportunity and attainment, methods to monitor and implement policies to achieve goals, link finance policies to increased institutional productivity, and link tuition to the income of the population to be served.

Higher education systems are affected and influenced by external and internal environmental pressures (Budig, 1977; Dar, 2012; NCHEMS, 2013). Budig studied the responses of state governors in relationship to higher education governance during economic recession and inflation. The findings indicated during periods of economic recovery it is more likely that governors will consider greater accountability, increased efficiency, and tighter budgetary controls as policy priorities. During recession reducing the number of government employees including reductions to higher education were options most likely to be considered. According to Dar (2012) student enrollment is volatile during periods of inflation and recession. When the job market is tight with higher levels of unemployment, students are more likely to stay in school longer, while leaving school prior to obtaining a postsecondary degree is more likely when there are lower levels of unemployment and attractive job opportunities exist.

Enrollment-based funding policies add to and continue to impact the available operating revenues for 4-year public institutions. Within higher education budgets across states spending levels are much more likely to be protected during recessions for 2-year colleges (NCHEMS, 2013). According to Dar (2012) the 2-year college is viewed as an access point to higher education and social mobility for lower-income students, and a cost-effective method of workforce development.

Institutional decision-making is affected by national policy directives, decisions made by state legislatures and postsecondary governance systems, political perspectives, and economic conditions. How academe responds is filtered by the decision-makers' perceptions of the urgency of need for organizational change and embedded organizational culture beliefs (Bergquist & Pawlak, 2008; Heaney, 2010).

Complete College America is one of the most recent national policy directives reverberating across public higher education systems in the United States (CCTA, 2010). At the close of the 2008 G-20 Summit, the United States ranked ninth among the 20 leading nations of the world in academic preparation of citizens (Kanter, 2011). McKinsey and Company (2009) calculated that the impact of the achievement gap on the country's Gross Domestic Product was greater than the effect of the current recession, and without change there is a risk of "the economic equivalent of a permanent national recession" (p.6). With the passing of the 2010 Health Care and Education Reconciliation Act and the introduction of the 2010 Pell Grant Protection Act, significant changes occurred in federal student financial aid. Incentives to states to propel the nation's access, quality, and completion agenda became available (OECD, 2014).

State initiatives to increase the number of graduates with postsecondary certificates, 2-year, and 4-year degrees soon followed. The initiatives include increased institutional reporting

requirements to the governor and state legislature in Massachusetts; improved transfer processes and articulation agreements between 2- and 4-year institutions in states including New Jersey, South Dakota, New York, Florida, and North Carolina; and setting student success as a policy priority with implications for institutional funding in Arkansas, Illinois, South Carolina, and Tennessee (Bautsch & Williams, 2010). As of June, 2014 the United States ranked 12th in the world among G-20 nations (OECD, 2014).

There are factors that have an effect on production in higher education including internal and external environmental conditions, organizational culture, and institutional perspectives related to change in a shifting policy environment. The organizational policy diffusion process, multiple layers of decision-making, along with organization culture filters have an effect on the ability of institutions to produce in a rapidly changing environment.

The recent financial crisis has created a unique period for higher education and is impacting institutional governance. Changing economic and political environmental influences have affected governance and the administration of higher education in the United States. According to McLendon, Hearn, and Mokher (2009), increasing unemployment rates are associated with declining levels of state appropriations. States with governors who hold significant influence through line-item veto and broad appointment powers tend to fund higher education at relatively lower levels. Principally because of the stability in the types of postsecondary governance structures and the infrequency of structural change, there was no evidence found that indicated postsecondary governance structures influenced state appropriations to higher education.

Miller (2011) found governing board members in the two state governance structures studied unanimously indicated that the recent financial crisis has created a unique period for

higher education and is impacting institutional governance. Policy decision-making has evolved at the state and federal levels from concerns for greater student affordability and accessibility to mandates for institutional accountability in achieving measurable student outcomes through methods deemed operationally efficient and effective (Parsons, 2004; Powell, Gilleland, & Pearson, 2012). The role and influence of state higher education governance systems and the level of resource dependency institutions may be experiencing make a significant difference in the level of operational efficiency and effectiveness achieved (Bowen, 1980; Brown & Gamber, 2002; Sloan-Brown, 2009).

Pressures often emanate from state level governance bodies as a result of external advocacy initiatives related to the availability and appropriation of limited financial resources for support of state funded higher education institutions (Brown & Gamber, 2002). The extent to which an organization is able to internally generate the needed resources and is determined to be resource dependent on the external environment is most prevalent in public higher education institutions (Hoy & Miskel, 2008). The level of resource dependence is evidenced in the institutional financial data and is based on the types and sources of income and revenues.

State higher education governance bodies were designed to serve a conditioning role as a buffer between external advocate bodies and the institutions they are created to govern. The policy responses developed by these groups are filtered by the multiple cultural perspectives unique to the higher education community and the demands for economic development and growth within the states (Bergquist & Pawlak, 2008; Tandberg, 2013). With increasing pressure over an extended period of economic instability, higher education's governance mechanisms are responding from multiple cultural perspectives unique to the higher education community.

The environmental pressure for market responsiveness is principally coming from a managerial culture perspective requiring a greater emphasis on measurability at the student, faculty, administrative, and institutional levels; more so than from the traditional collegial culture perspective that provides greater autonomy and protections for the control of institutional decision-making by tenured academicians (Bergquist & Pawlak, 2008; Lingenfelter & Mingle, 2014; Zumeta, 2001). The managerial culture perspective has a greater affinity toward change and organizational development theories and practices, while the collegial culture is perceived to have a greater preference for stability and continuity. Finding the balance between market forces and academic professional values is the persistent challenge during changing environmental conditions (Richardson, Bracco, Callen, & Finney, 1998).

The historical perspectives on organizational change and the unique cultures of academe also have an influence on the decisions that impact institutional efficiency and effectiveness. Institutions and the postsecondary sector rarely implement total organization or transformative change strategies. Incremental methods have the purpose of moving the single institution to a more developed stage while maintaining the status quo in the overall sector. So the more things change in single institutions and in the external environment, the more likely it is they will really stay the same across the sector in the types of institutions and at the exosystem level (Birnbaum, 1983; Morphew & Huisman, 2002). Ecological systems theory includes the context of college student development and refers to the exosystem as the realm containing federal financial aid policy, immigration policy, faculty curriculum committees, institutional policy makers, and parents' or spouse's workplaces (Evans, Forney, Guido, Patton, & Renn, 2010).

Change in individual higher education institutions is isomorphic (Birnbaum, 1983; Morphew, 2009). Higher education institutions superimpose the same models used by business

to affect strategic change within structures and the deployment and management of its human resources. Often the institutional response to the external environment and attempts to control political influences diverge from the business model and become what makes academia unique from other institutional types.

Because higher education has institutionalized elements like highly professionalized special actors and hard to define technologies and goals, changes are made with greater concern for meeting the demands of internal constituents as opposed to affecting change to meet the demands of external markets or environments as is done in business (Morphew, 2009). As a result change within a single institution tends to be motivated by a desire for prestige that can be attained by the movement of an institution into a form or stage of development that emulates another like higher education institution perceived to be at a more developed institutional stage. The global effect of this isomorphism effectually yields no change in the types and characteristics of higher education institutions or in academe in general over time in spite of rapid changes in the external and internal environments. So the more things change at the institutional level, the more things will really stay the same across the sector in the types of institutions and at the exosystem level.

Organizational culture provides a framework for creating order out of the complex and often baffling dynamics of organizational life. In this context organizational culture is a pattern of shared basic assumptions that institutions have learned as they solves problems of external adaptation and internal integration. The pattern of shared assumptions have worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. A culture helps define the nature of reality for individuals who are part of that culture. According to Bergquist and Pawlak (2008),

there are six cultures within academe. They are collegial, managerial, developmental, advocacy, virtual, and tangible cultures. The mixture of all six cultures is present in most academic institutions.

A culture does not exist for itself; rather it exists to provide a context within which the primary intentions of the organization are fulfilled (Kezar & Eckel, 2002). The containment of anxiety is the fundamental purpose for the formation and maintenance of organizational culture. Anxiety can be created when the assumptions of one culture collide with those of other cultures and these collisions are particularly prevalent when an academic institution is confronted with demands from changing internal and external environments. If the assumptions on which the culture is based are challenged either through an external or internal situation or an organizational change process, people tend to resist the challenges.

Resistance to change is a leading reason for deviation in the policy diffusion process. A change in core beliefs always precedes a transformative change in structure and strategy. Transformative change in structure is often impeded by the institution's internal inter-dependent resource relationships (Hayes, 2010). The effectiveness of any intervention strategies will be influenced by a higher education system's ability to strategically engage the operative cultures and effectively diffuse policy changes throughout its institutions' operations (Bowen, 1980; Bergquist & Pawlak, 2008; Volkwein & Tandberg, 2008).

Statement of the Problem

This quantitative study is designed to determine if there are significant difference in the means of scores achieved for institutional efficiency and effectiveness between the three state governance structure types: governing boards, coordinating boards, and other state governance

structures. Linear relationships between efficiency and effectiveness scores are also measured for each structure type. Efficiency and effectiveness scores are also used in comparing for significant difference in institutional performance between three state appropriation levels: low, mid-range, and high.

Research Questions

The following research questions were designed to evaluate significant differences and linear relationships in efficiency and effectiveness scores within governance structure types and state appropriation levels for 4-year public institutions. The relationship between efficiency and effectiveness scores for each governance structure type is also addressed.

Research Question 1: Are there significant differences in effectiveness and efficiency scores (or a linear combination of these scores) for public institutions operating under coordinating, governing, or other state governance structures?

Research Question 2: Is there a significant relationship between effectiveness and efficiency benchmarks for public institutions operating under coordinating agency state structures?

Research Question 3**:** Is there a significant relationship between effectiveness and efficiency scores for public institutions operating under governing boards?

Research Question 4: Is there a significant relationship between effectiveness and efficiency scores for public institutions operating under other state governance structures?

Research Question 5**:** Is there a significant difference in effectiveness and efficiency scores (or a linear combination of these scores) for public institutions with the same levels of state appropriations: lowest, middle, and high ranges?

Significance of the Study

The significance of the study is its contribution to the body of knowledge and practice for higher education administrators and statewide governance bodies. This premise is based on the knowledge that the type of statewide governance structure can influence how the state handles financial aid policy, whether a state adopts accountability measures or not, and whether or not and how a state measures institutional performance (e.g. Bone, 2008; Doyle, 2006; Hearn & Griswold, 1994; Lowry, 2001; McLendon, Deaton, & Hearn, 2007; Volkwein & Tandberg, 2008; Zumeta, 1996). While some other researchers have examined the connection between governance structures and state fiscal support of higher education (e.g. McLendon et al., 2009; Nicholson-Crotty & Meier, 2003; Tandberg, 2008, 2010a, 2010b; Tandberg & Ness, 2011), Tandberg (2010a) went on to theorize the predictability of centralized state governance structures on state fiscal support of higher education.

It is still questionable why like institutions with the same levels of resources are performing with great variability in relationship to standards established in the benchmark model for efficiency and effectiveness. The Powell et al. (2012) benchmark model, which influenced the research design of this study, has not been tested in relationship to institutional performance based on type of statewide governance structures. This researcher sought to determine if the type of governance structure impacts the performance of institutions in relationship to the benchmark model's standards for efficiency and effectiveness.

Definitions of Terms

The following definitions of terms are provided to aid the reader in developing clarity and understanding of this study.

Academic Drift: The effect of incremental change methods moving the single institution to a more developed stage by conforming to an existing higher level institution within the same sector (Morphew & Huisman, 2002).

Accreditation: A public recognition that an institution or program maintains standards requisite for its graduates to gain admission to other reputable institutions of higher learning or to achieve credentials for professional practice (Commission on Colleges, 2012; USDE, 2014). It is also used to establish an institutions eligibility to participate in Title IV programs (USDE, 2014).

Benchmarks: Expenditure levels used to predict efficiency and effectiveness and to identify the minimal amount of expenditures needed to provide quality outcomes (Powell et al., 2012).

Contingent Faculty: Part-time or adjunct faculty members, full-time non-tenure track faculty members, and graduate student teaching assistants (USDE, 2014).

Coordinating Board: Board similar to a governing board but with very limited or no role in personnel and institutional operations; duties of coordinating boards include planning, budgeting, authorizing, and /or review of new programs (SHEEO, 2014). These functions are the full responsibility of the institution's local boards of trustees (SHEEO, 2014; Tandberg, 2013).

Effectiveness: The degree to which an effort produces a result that is wanted: having an intended effect: producing a decided, decisive, or desired effect (Agnes, Neufeldt, & Guralnik, 1996). The institutions' 6-year graduation rate, 4-year graduation rate, and full-time retention rate are considered when assessing effectiveness (Powell et al., 2012).

Efficiency: The degree to which something is produced without wasting materials, time, or energy: the quality or degree of being efficient (Agnes et al., 1996). Efficiency is the ratio of output produced to physical inputs used (Salerno, 2003).

Expenditures: The act of spending funds; the amount that is spent on something (Agnes et al., 1996).

Expenses: The outflow or other uses of assets and or the incurrence of liabilities from delivering or producing goods, rendering services, or carrying out other activities that constitute the institution's ongoing major or central operations or in generating revenues. Alternatively expenses may be thought of as the costs of goods and services used to produce the educational services provided by the institution. Expenses result in a reduction of net assets (USDE, 2014).

Governance (of institution): A classification of whether an institution is operated by publicly elected or appointed officials (public control) or by privately elected or appointed officials (private control) (USDE, 2014).

Governing Board: An entity that ensures on behalf of the public the performance of an institution or a group of institutions. Responsibilities of the board may include appointing, supporting, and monitoring the president of the institution; reviewing educational and public service programs; strategic planning; and, ensuring good management and adequate resources. Institutional appropriation requests go to the governing board where they are aggregated and submitted to the governor and/or legislature (SHEEO, 2014; USDE, 2014)

Government Appropriations: Revenues received by an institution through acts of a legislative body except grants and contracts. These funds are for meeting current operating expenses and not for specific projects or programs. The most common example is a state's

general appropriation. Appropriations primarily to fund capital assets are classified as capital appropriations (USDE, 2014).

Institutional System: Two or more postsecondary institutions under the control or supervision of a single administrative body (USDE, 2014).

Isomorphic Organizational Behavior: The propensity of institutions to adapt to environmental pressure through like means (Morphew, 2009). Also see Academic Drift.

Delimitations and Limitations

This study is delimited to 4-year public postsecondary institutions within states that hold membership in the Southern Regional Educational Board (SREB): Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia (SREB, 2014). In addition institutions studied were regionally accredited.

The study is limited to public institutions that report data through the Integrated Postsecondary Education Data System (IPEDS) (NCES, 2014a), National Center for Higher Education Management Systems (NCHEMS) (NCHEMS, 2013), and the National Center for Education Statistics National Study of Postsecondary Faculty (NCES, 2014b). Institutional cases with missing data from these public reporting agencies have been eliminated from the study.

The institutional and regional HEPI indices hold constant six cost factors while substituting appropriate data for faculty salaries and fringe benefits in the regression equation. Weightings are kept the same in the regional HEPI because there is no standard source of information to serve as a guide to how these measures might be appropriately adjusted for each region (Commonfund Institute, 2014).

Limitations surface as a result of efficiency being estimated relative to other institutions. The efficiency measures derived in any given analysis are only valid in as much as they reflect how efficient decision-making units are relative to others in a particular sample (Salerno, 2003). If substitutions of institutions are made, results of analyses will change. Using the DEA method to compute efficiency will not produce measures of absolute efficiency. The constructed frontier bound by the isoquant and isocost line, does not represent the absolute minimum input use possible in the production of the outputs specified. It is relative only to the decision-making units in the sample. Outliers in the data may alter the shape of the best practice frontier and distort the efficiency scores of institutions using similar input-output proportion because the DEA method constructs a frontier from the data itself. DEA also makes no allowance for the possibility of random errors in the data (Salerno, 2003).

There are also limitations related to the quality of institutional outputs, particularly with stochastic frontier analysis (SFA) the predecessor of Data Envelopment analysis (DEA). "Lack of consensus on the part of researchers over how to adequately account for quality and the substantial costs, in both time and resources, of obtaining meaningful data has left this issue largely unresolved. This has led many research efforts to follow the lead of Nelson and Hevert (1992) by 'bowing to tradition' and using traditional measures while simply recognizing that the limitation exists" (p. 474). This challenge was resolved, along with researcher bias in applying weights to measures with the development of DEA (Johnes, 2006).

Critics of teaching and learning practices often refer to inefficiency and ineffectiveness as arguments emerging from spiraling costs (Bowen & Douglass, 1971). Financial data, revenues and expenditures, enrollments, certificates and degrees awarded, and faculty productivity based on teaching load have historically been some of the measures used to assess institutional

performance by governing bodies and accrediting agencies (Bowen & Douglass, 1971; Commission on Colleges, 2012). Financial reporting and the assessment of sufficient resources to deliver on the institution's mission are considered aspects of institutional effectiveness (Commission on Colleges, 2012). Federal concerns in the national accreditation process focus on student achievement consistent with the institutions mission, which is also an aspect of effectiveness. Some of the criteria used to assess characteristics of effectiveness include enrollment data, retention, graduation, course completion, job placement rates, and the results of state licensing examinations.

Efficiency as a construct is measured as a ratio between costs and outputs. The point at which outputs increase as costs remain constant or costs are reduced is considered to be more efficient. Cost reductions that do not produce a negative qualitative difference in output are considered more desirable (Bowen & Douglass, 1971). Effectiveness and efficiency are measured by institutional revenues and expenditures. As with any other productive operation, efficiency and effectiveness are based on levels of inputs and outputs. In the case of higher education institutions in a fiscal year inputs assessed are revenues and expenditures and outputs are education and research.

Data envelopment analysis (DEA) was used to collapse selected institutional data reported to IPEDS into effectiveness and efficiency scores that were used as the dependent variables. The variable returns to scale (VRS) model was used with an input orientation to measure efficiency, while the output orientation was used to measure effectiveness. Using the input orientation, outputs are assumed to be fixed and the possibility of proportional reduction in inputs is explored. In the output orientation inputs are assumed to be fixed while proportional output expansion is explored (Johnes, 2006). In this study efficiency is determined for each

institution by the costs of labor and nonlabor expenditures as inputs and FTE enrollments, grant and contract income as outputs. Effectiveness is determined by the institutions' state appropriations, tuition and fees, and student financial aid as inputs and degrees awarded and credit hours produced as outputs.

Cost and revenue data are the basis of the analyses for 4-year institutions, within states that are affiliated with the Southern Regional Educational Board (SREB) with identifiable governing board, coordinating agency, or other governance structures as determined by SHEEO and the Education Commission of the States (ECS). In addition institutions included in the analyses must be regionally accredited. The study should be generalizable only to institutions within the governance structure types and levels of operational efficiency and effectiveness. The benchmarks established are relative only to the decision-making units or institutions in the study's population (Cooper, Seiford, & Tone, 2006). In the Powell et al. (2012) study findings it is determined that expenditures and institutional characteristics were predictors of both efficiency and effectiveness. This study measures efficiency by using expenditures as system inputs and education and research as outputs. Effectiveness is measured by using revenues as inputs and credit hours produced and degrees awarded as outputs.

Researcher bias is also considered as a limitation to this study. As a researcher my principal motivation and interest in the topic is driven by a desire to uncover the intricacies of higher education governance and administration. The concepts of efficiency and effectiveness are pubic administration values and are ingrained as a result of the Master of Public Administration degree program experience. I have served over 30 years in the private not-for-profit sector, the last 17 years as chief executive officer for a regional 501-c-3 organization. A transition to higher education professionally has required additional development and

socialization to the culture of academe. The need for a broad understanding of institutional operations, leadership, and governance has motivated my participation in the Educational Leadership and Policy Analysis degree program, with a concentration in postsecondary and private sector leadership.

There is limited personal interest in the results or implications of the analysis of this study beyond discovering if state level governance has a significant positive relationship to the outcomes achieved at the institutional level. The roles and influence of significant policy players, e.g. the governors, governing bodies, the legislatures, institutional presidents, leadership teams, and accrediting bodies combined are rarely discovered in a context separate from the discussion of higher education finances.

Prior organizational leadership experience undoubtedly will serve as a filter in the discussion of organizational culture and the implications of the impact of leadership on operational efficiency and effectiveness. However, it is my hope that the knowledge gained from this research initiative combined with prior organizational leadership experience will enhance my ability to serve as an effective, contributing, higher education administrator. To serve higher education in that capacity is the primary purpose of attaining the Educational Leadership and Policy Analysis, Ed.D. degree.

Overview of Study

This study is arranged and presented in five chapters. Chapter 1 contains the introduction, context and history of the issue, statement of the problem, and research questions. Also included is the significance of the study, definition of terms, delimitations and limitations. Chapter 2 includes a review of relevant literature that focuses on revenue cost theory, and

institutional theory as a theoretical context. Governance structures, organizational culture, and isomorphic change in higher education policy diffusion are also reviewed. Chapter 3 provides an explanation of the methods used for each of the research questions, data collection and analyses, validity and reliability, as well as ethical considerations. Chapter 4 contains the quantitative data analyses and findings. Chapter 5 includes the discussion of each hypotheses, conclusions drawn, as well as implications for future practice and research.

CHAPTER 2

LITERATURE REVIEW

Literature reviewed for this study is presented thematically and includes a review of applicable theories, governance priorities in higher education, and the economic and political environmental conditions that impact governance of higher education institutions. Organizational change theories and the effects of organizational culture in academe are also considered as they relate to policy diffusion and the effects on institutional effectiveness and efficiency.

Revenue Theory of Costs

Bowen's Revenue Theory of Costs, sometimes called Bowen's Law or the Bowen Rule, applies to the study of effectiveness and efficiency in higher education institutions (Bowen, 1980; Bowen & Douglass, 1971). The revenue theory of costs has been cited by other researchers on the topic of finance and budgeting in higher education (Barr & McClellan, 2011; Brown & Gamber, 2002; Harvey et al., 1998; Powell et al., 2012).

The Revenue Theory of Costs consists of five laws. The theory simply states that the dominant goals of institutions are educational excellence, prestige, and influence. In seeking these goals there is virtually no limit to the amount of money an institution could spend. Each institution raises all the money it can through various means, and each institution spends all it raises. The cumulative effect of the preceding four laws is toward ever increasing expenditures. Bowen provides evidence that higher education institution's educational cost per student unit is determined by the revenues available for educational purposes. And there is an insatiable desire for more revenue, and as revenues increase costs increase. "The higher educational system itself

provides no guidance of a kind that weighs costs and benefits in terms of the public interest. The duty of setting limits thus falls, by default, upon those who provide the money, mostly legislators, students, and their families" (Bowen, 1980, p.20). When the pendulum of economic environmental conditions swings to recession and the economic outlook is poor, government resources are shifted to other priorities. And higher education institutions find themselves searching for approaches to examine their expenses and revenues and are focused on ways to generate new revenue and on making strategic cost savings (Brown & Gamber, 2002).

Sloan-Brown (2009) found diminishing budgets for postsecondary education dictate the need for greater efficiency in the use of resources. However, a lack of correlation between spending and enrollment indicates that it is not the amount of money that is spent but the ratio of the funds allocated among interventions that impact enrollment and therefore institutional efficiency and effectiveness.

It is well known that in most public institutions educational revenues are derived largely from tuitions and from state appropriations based on enrollment driven formulas (Aghion et al., 2006; Barr & McClellan, 2011; Bien, 2009; Blekic, 2011; Bowen, 1980; Buddy, 1999). Perceived institutional needs may necessitate internal adjustments to improve efficiency. Often these changes occur without altering overall unit costs but will impact the internal allocation of resources therefore altering the overall performance of the institution (Bowen, 1980).

Institutional Theory

Institutional theory is a framework for understanding academic drift and the effects of policy diffusion as a function of governance in higher education system environments (Morphew & Huisman, 2002). Universities are identified as institutional organizations because they have

ambiguous technologies and hard to define goals (Birnbaum, 1988; Hoy & Miskel, 2008). Isomorphic organizational behavior is the propensity of institutions to adapt to environmental pressure through like means (DiMaggio & Powell, 1983; Morphew, 2009; Rogers, 2003). Berdahl (1985) referred to this trend as academic drift. Specifically he was referring to the tendency of lower status colleges and universities to adopt the structures and norms of their more prestigious counterparts. Through processes of isomorphism organizations and their activities become homogenous over time (Birnbaum, 1983; DiMaggio & Powell, 1983).

> A college is a college only when those inside and outside the organization view it as a legitimate version of such. As a result, the acquisition of normatively defined practices and structures is more important for the survival of institutional organizations than are practices that enhance the efficiency of their technical processes or the quality of their organizational outputs. And, when these "correct" practices and structures are then adopted by all institutional organizations within a specific field, isomorphic processes are the necessary result, and homogeneity within the field can be expected to increase. (Morphew & Huisman, 2002, p. 496)

DiMaggio and Powell (1983) argue that coercive, mimetic, and normative forces produce homogeneity within a certain organizational field. Coercive isomorphism results from pressure applied by other organizations on which the organization is dependent and by cultural explanations, e.g. governmental control, laws, and technical requirements. Coercive isomorphism might be used to explain why organizations that receive budget allocations from the same source exhibit many of the same organizational practices and structures.

Mimetic processes stem from uncertainty caused by poorly understood technologies associated with teaching methods, the ambiguous goal of knowledge creation, and the symbolic

environment that includes status and prestige, all combining to produce modeling behaviors. As lower prestige organizations emulate organizations they perceive to be more prestigious, isomorphism occurs. Normative pressures toward isomorphism function as a result of professionalization; the homogenizing effect of the growth of professional networks fosters communication and similar practices and procedures (DiMaggio & Powell, 1983). "Institutional conformity promotes the apparent success and long-term survival of the organization, independent of any effects that conformity might have on [the level of] technical productivity" (Hoy & Miskel, 2008, p. 274).

Schultz and Stickler (1965) investigated the phenomenon of academic drift, which was known then as vertical extension. This study is foundational to the study of institutional theory in higher education and is often cited by researchers on the topic (Birnbaum, 1983; Morphew & Huisman, 2002). It was found that smaller colleges and universities were more likely to undergo vertical extension of academic programs than were larger colleges and universities. An inverse relationship existed between enrollment and vertical extension. Colleges with fewer than 1,000 students were more likely to make the transition to offer graduate degrees than were colleges with greater than 2,500 students. Small numbers of students enrolled in the institution did not deter vertical extension of academic programs. Vertical extension did not increase enrollment. It was found that for several years after the transition, virtually all students in new programs came from within the institution. The study further suggested that governing boards were generally not apprised of essential facts related to the additional costs, facilities, staff, and library resources prior to making the decision to approve vertical extensions of programs. DiMaggio and Powell (1983) stated that laws and regulations increase homogeneity, which is consistent with Birnbaum's (1983) findings in his study of diversity in the types of higher education

institutions. However, according to Morphew and Huisman (2002), policies and regulations can constrain organizations and increase homogeneity, while governmental policies using specific instruments may guide institutions or other actors in specific directions decreasing homogeneity. Because postsecondary institutions are in competition with one another for status, prestige, and resources (Oplatka, 2004), isomorphism and the effectiveness of methods of policy diffusion impact the ability of state level higher education governance structures to influence the operational efficiency and effectiveness of postsecondary institutions.

Rogers (2003) describes diffusion as a form of social change. Social change becomes the end result of a new idea through the diffusion of the innovation to society. In this case innovation is defined as the implementation of a new or significantly improved good or service, process, or policy or a new organizational method in business practices, or workplace organization (Agnes et al., 1996; UNESCO, 2009). The paths of diffusion throughout a higher education system are not the same for policy innovations. Gerbasi's (2003) status contingent diffusion theory predicts that both status and routines affect the diffusion path of an innovation and further suggests that when an innovation is controversial, defined by a low probability of adoption within a field, the pattern of isomorphic diffusion changes. The diffusion no longer begins with high status actors. Conversely, low status actors will adopt the controversial innovation first, followed by higher status actors later.

One of the roles of statewide governing boards and coordinating agencies in the United States is to limit the ability of universities to engage in academic drift and therefore protect the institutional diversity within the states (Birnbaum, 1983). However, organizations decouple or loosely couple institutionalized procedures and structures with their behaviors and therefore affect the degree to which isomorphism is present whether it is through coercive, mimetic, or

normative pressure (Scott, 1992). The overall implication for practice according to Hoy and Miskel (2008) is that institutions do not have to be simple, passive instruments of the external environment. Buffering strategies at the institutional level can diminish environmental influences on internal institutional operations (Hoy & Miskel, 2008). And likewise, higher education systems are buffered through the role played by the governing bodies (Tandberg, 2013).

Governance

Governance refers to the means and actions by which a collective entity decides matters of policy and strategy. A governance system consists of the explicit and implicit procedures that allocate to various participants the authority and responsibility for making institutional decisions. The study of governance in higher education has principally focused on the roles and responsibilities of key players including gubernatorial powers, legislative professionalism, the influence of advocacy groups, and institutional shared governance. Two leading arguments in the research on governance are the need to preserve faculty authority and influence, and the need for decision-making systems that respond efficiently and effectively environmental pressure for change.

Kaplan (2004) asked whether governance structures matter in the study of significant relationships between shared governance structures and outcomes at 4-year institutions in the United States. The findings suggest that there are few significant relationships between how governance organizes and vests authority and the outcomes that are obtained. Faculties tend to have significant responsibility for academic and appointment matters and tend to be less involved in matters of financial and institutional planning. These results were consistent across

the education sector regardless of institution size, whether public or private, or differentiation of mission. It was further determined that faculty involvement proved to affect outcomes in one policy area. Greater faculty participation in appointments was associated with an increased likelihood that the institution adopted merit pay policies, higher faculty salaries, and lower than average teaching loads.

Governance structures at the state level were developed to buffer the state legislatures and governors from politicized advocacy on behalf of higher education. Whether a state has structured a governing board or a coordinating board competing interests for limited resources, declining state appropriations, and increased demands for institutional accountability are all prevalent. The need to fine tune strategies that match educational opportunity to the needs of the states for economic development continues to present the challenge to decision-making systems for market responsiveness.

Historically enrollment has been the driving force behind appropriation decisions, the need to realign resources to focus on student retention strategies, persistence to graduation, degree production, and articulation agreements with state 2-year postsecondary degree programs are leading the paradigm shift at the governance level toward outcomes-based funding models. These models are also driving public university funding strategies toward what some call the private school model. By placing an emphasis on future enrollment projections as a budgeting tool and subsidizing initiatives with private donor support, institutions have been able to remain solvent, and in some instances thrive. Privatization of the postsecondary education function is emerging from slow, and often nonresponsiveness of the public 2-year and 4-year institutions to provide skills training and certifications in disciplines where the immediate workforce demand exists.

One of the overarching themes in the governance literature is the application of sound measures and methods to evaluate the effectiveness of academic programs and outcomes. An expectation exists in state level governance bodies of ultimately effecting higher education's capacity as a sector to demonstrate accountability in meeting the mission and purposes of educating a citizenry in the liberal arts and technologies while achieving outcomes that will propel the economic development of the communities in which they live.

Imperative for Higher Education

In 2009, the Organization for Economic Co-operation and Development (OECD) released the report of educational attainment for G-20 nations. The USA ranked 9th in the world with 42 % of Americans in the 25-34 year old age range holding a degree from a 2-year or 4-year postsecondary institution. President Obama declared to the nation that "by 2020, America will once again have the highest proportion of college graduates in the world" (Kanter, 2011, p. 7).

The consequences of being average in a global marketplace are far greater than ever before when collaboration and competition are considered because of the rapid advances in technology, information sharing, and the accelerated pace of change. The Program for International Student Assessment (PISA) is a test given every 3 years to 15-year olds in the world's major industrialized countries. In 2010 American students ranked average in science, coming in 17th out of 34 developed countries. And the U.S. ranked below average in mathematics, ranking 25th out of 34. The United States came in 23rd or 24th in most other subjects.

McKinsey and Company (2009) concluded that the achievement gap between American students and those in top performing nations was hurting the US economic health and calculated

the impact of the gap on the country's Gross Domestic Product. The impact is greater than the effect of the current recession, and without change there is a risk of "the economic equivalent of a permanent national recession" (p. 6). The U.S. Department of Education when following a cohort of 100 students starting in grade nine determined that 75 will graduate high school, 56 will enter college, and 33 will graduate college with at least an associate degree (Kanter, 2011).

The International Monetary Fund reported the discrepancy between the skills employers need and those that job candidates possess in 2010. This study reported that skill mismatches rose sharply during the recession of the period, with considerable variability across the states. The President and the U.S. Department of Education have placed an emphasis on increasing postsecondary access, improving quality, and accelerating college completion as the formula to help meet the President's 2020 goal (Kanter, 2011).

If education is the key to breaking the cycle of poverty, then futures rest on the educational system and those professionals who administer and teach in public schools. As emphasized in earlier education legislation all teachers must be highly qualified in order to close the achievement gap with accountability, flexibility, and choice, so that no child is left behind (No Child Left Behind Act of 2001). In reality, a significant number of prospective teachers, graduates of teacher education programs, are not highly qualified. They are incapable of passing the most common licensure exam, Praxis II, for job placement (Gitomer & Qi, 2010). This seems to indicate a failure in teacher education programs in preparing individuals to effectively take on the role of educating children and may be an indicator of the need to reconstruct the curriculum and instruction for teacher education degree programs. Findings reported to the U.S. Department of Education indicate that changes in mean test scores over the years 1999 – 2006 for those passing the *Praxis II* were minimal.

According to Gitomer and Qi (2010), recent policy measures have not increased the content knowledge of teachers who are taking licensure tests as measured by *Praxis II* scores. For most of the tests examined the percentage of test takers who failed rose over time. This trend was the most pronounced for the Mathematics Content Knowledge exam – in 1999, 17.8% failed this exam compared to 29.1% in 2006.

State and Federal Funding Support

In 1973, the Carnegie Commission on Higher Education and the Committee for Economic Development reported recommendations to encourage states to eliminate no-to-low costs tuition policies and implement strategies to increase the share of tuition paid by students to 33% of the cost of attending (CCHE, 1973). The rationale for the recommendation was based on the expected return on investment of a higher education degree in the workplace upon graduation.

Heller (2001) points out, as do St. John and Parsons (2004) that an inverse relationship exists between the sticker price of higher education, the ability of students to pay, and enrollment. During periods of recession, state appropriations to public institutions decline as a result of changing priorities for other public services such as Medicare/Medicaid and prisons.

College tuitions have increased disproportionately to the gross domestic product per capita, yet enrollments have continued to increase (Harvey et al., 1998; St. John & Parsons, 2004) because people believe their prospects for remaining in or obtaining middle-class status are more likely with a degree than without one. In spite of challenging economic times when communities were experiencing the highest rates of inflation or the highest rates of unemployment, enrollment continued to increase during these periods because the perceived

value of a higher education degree drives enrollment and outweighs individual perceptions about affordability, even though tuition costs continue to increase.

The gross domestic product per capita can be used as an alternative to tying public tuition and fees to costs per student because it links tuition to a measure of one's ability to pay and the state's economic growth. According to St. John and Parsons (2004) affordability is also impacted by the declining levels of support for low-income students as a result of the movement toward greater state level funding for merit-based aid and declining levels of academic preparation of students coming out of the poorest high schools.

Historically policies related to accessibility have mostly come as a result of federal legislation. Accessibility has also been influenced and characterized by litigation involving class-action lawsuits and individual plaintiffs who believed their access to higher education within their states was negatively impacted by policies or practices of institutions in which they sought to enroll (e.g. Grutter v. Bollinger, 2003; Hopwood v. State of Texas, 1994; Regents of Univ. of Cal. v. Bakke, 1978).

Accountability or the drive by the public to influence the direction of higher education is a phenomenon that has existed since the beginning of public higher education (Webb, 2006). There has been a consistent emphasis for public colleges to demonstrate their effectiveness in meeting their missions to policy-influencing constituents, e.g. the general public, boards of governors or coordinating commissions, the legislature, and tuition paying students (Zumeta, 2001). This push has been evidenced in initiatives like state funding to institutions and systems contingent upon enrollment-based formulas and performance-based funding strategies (Alexander, 2000), all of which were principally concerned with inputs: access and enrollment. The shift in paradigm to output measures that include persistence and graduation rates can be

attributed to the work of former U.S. Secretary of Education Margaret Spelling (Cook & Pullaro, 2010). The public conversation about higher education accountability has forever changed to include graduation rates as part of the discussion about institutional effectiveness.

Heller (2001) recommended considering a funding strategy at the state level based on average costs to serve, with consideration for higher cost degree programs – or fee differentiation strategies instead of the current enrollment formulas in use. Another recommendation was to tie public tuitions to a formula based on the gross domestic product per-capita (St. John & Parsons, 2004).

The efficacy of these strategies in today's economy with accelerated periods of economic recession is yet to be known. St. John and Parsons (2004) offered as a strategy to increase revenues by accelerated tuition increases that will increase the need-based aid to institutions from the federal government, high-tuition high-need, and at the same time warned of the conditions of state funding instability associated with major shifts in enrollment that are controlled by factors outside of the university setting. The effectiveness of any intervention strategies will be influenced by a higher education system's ability to strategically diffuse the policy change throughout its institutions operations (Bowen, 1980; Volkwein & Tandberg, 2008).

Weerts and Ronca (2012) sought to understand the differences in state support for higher education through a 20-year longitudinal study of 1,053 degree granting public higher education institutions spanning all 50 states. They wanted to know if the variance in state appropriations could be explained at the state or institutional level. There were significant variances 1.6E-06 at the state level and institutional level 1.69E-11. Suggesting that while the majority of the total variance remained unexplained, there was almost no variation among institutions within the

same state relative to the degree of variation that occurs among states or even within institutions over time. Variance in state funding for higher education is better explained at the state level.

Comparatively like institutions in different states have a greater difference in funding support than at the institutional level where the variance is insignificant among institutions in the same state from year to year. This finding led to the recommendation for future studies to use averaging of appropriations to institutions by states in order to provide a more informative picture about variables that explain variations in support by institutional type and factors that predict whether states are likely to support some types of campuses over others (Weerts & Ronca, 2012).

State context, or those factors that contribute to the economic conditions within states, is a greater predictor of higher education support. Contextual factors include state fiscal health, demographic factors, competing state priorities, political climate and state culture, and institutional characteristics. A state's fiscal health is a strong predictor. And while it would be easy to assume that the wealthier states would provide the greatest support, in fact the opposite is true. If a state has a high percentage of students attending private colleges and universities, less state support is provided to its public institutions. For students who attend public colleges and universities within these states a greater expectation exists that they will bear larger costs of attending. States with large enrollments in private colleges and universities tend to put less emphasis on statewide planning and policy, while those states with large enrollments in community colleges approach planning differently from those states with lower enrollments in 2-year institutions. Budgeting practices among institutions are diverse and complex with no established standard (Parmley, Bell, L'Orange, & Lingenfelter, 2009).

Hermes (2008) determined for each one-percentage point increase in unemployment, there is a 7% decrease in funding for higher education. The leading competing priority is judicial corrections, more so than healthcare and K-12 education. It was found that for every $10,000 per capita increase in funding for corrections, there is a 12% decrease in funding for higher education. This particular finding aligns with the Pew Center research on the States that revealed between the years 1987 and 2007 state spending on corrections increased 127%, more than six times the 21% increase in spending on higher education in the same time frame. Over the 20-year period research universities experienced the most intense fluctuations in dollar support while appropriations for associate degree producing colleges grew steadily.

The achievement of the national objective to again be first in the world will represent an increase from 42% to 55% of the 25 – 34 year old age group holding a postsecondary degree or certificate by year 2025. With the passing of the 2010 Health Care and Education Reconciliation Act and the introduction of the 2010 Pell Grant Protection Act significant changes occurred in federal student loan lending policies. The federal Pell Grant program and incentives to states to propel the nation's access, quality, and completion agenda became available. As of June 2014 the United States ranked 12th in the world among G-20 nations (OECD, 2014).

The federal Pell Grant program initially authorized by Title III. Higher Education Act of 1965 aimed to expand access and encourage first-generation, low-income, college students to attend and complete college. In fiscal year 2002 the Federal TRIO programs were funded at $803 million, an increase of 52% from 1998. These programs served more than 850,000 at-risk students by providing outreach and support services as well as information about postsecondary opportunities. Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP)

has grown significantly since its inception in 1998 and in fiscal year 2002 was funded at $285 million and served 1.2 million students.

Federal legislation was soon followed by state initiatives to increase the number of graduates with postsecondary certificates, 2-year and 4-year degrees. The initiatives include increased institutional reporting requirements to the governor and state legislature in Massachusetts; improved transfer processes and articulation agreements between 2- and 4-year institutions in states including New Jersey, South Dakota, New York, Florida, and North Carolina; and setting student success as a policy priority with implications for institutional funding in Arkansas, Illinois, South Carolina, and Tennessee (Bautsch & Williams, 2010). Ultimately mission differentiation, increased degree production, and the drive of enrollment to community colleges through workforce and economic development initiatives are the factors relied on by most states in controlling their higher education systems toward higher levels of accessibility and accountability (Heller, 2001; Zumeta, 2001).

Taken together these programs represented more than $1 billion each year in annual funding and provided services to 2.1 million students from low-income families to help them enter and complete postsecondary education (USDE, 2005). The Higher Education Opportunity Act of 2008 set the authorized maximum Pell Grant at $6,000 in academic year 2009 – 2010. While in 2014 – 2015 the maximum is set at $8,000, an increase of 33.3% in 5-years (USDE, 2008).

St. John and Parsons (2004) and Heller (2001) present a compelling argument for methods and measures to demonstrate public accountability for continued support of higher education systems. Heller's (2001) focus was from a more historical perspective and St. John and Parsons (2004) from the perspective of trends impacting the ability to pay by families in a

changing recessionary economy. Both addressed affordability and accessibility to targeted populations. St. John and Parsons (2004) emphasized the need for higher education systems to evaluate and develop their marketability to new populations, to increase the level of readiness in students graduating high school and to develop solutions for low-income students who have the least capacity to manage the shifting debt load of higher education.

Occupational and Labor Market Effects

Walters (1984) examined the rate of growth of US public postsecondary enrollment with changes in occupational opportunities during the years 1922 - 1979. The findings indicate that enrollments during the period 1952 – 1979 were influenced by the perception of students that continuing education provided a means of preparation for anticipated future occupations. Enrollment was also affected by the demand for the labor of school-age workers, suggesting that schools may warehouse otherwise unoccupied individuals but only during time periods when the level of schooling in question is discretionary. Warehousing has little to do with the utility value of education as a means of preparation for adult occupational roles. Generally during the period of the study tight job markets had a positive effect on enrollment in postsecondary institutions.

The perception that a liberal arts education is occupational preparation has less of an effect on enrollment than the prospects for immediate employment opportunities for college-age students. Students may leave school when there were attractive opportunities in the labor market and stay in school longer when the job market is tight. Simultaneously state aid through budget appropriations is based principally on enrollment headcounts. This policy position adds to and

continues to impact the volatility of available operating revenue for 4-year public institutions (Dar, 2012).

Recession and Graduation

For students graduating during a recession the magnitude of persistent long-term earnings declines is substantial over a 10-year period. Individuals graduating during recession are more likely to start their careers with lower paying employers and rely on mobility for movement toward better paying organizations and positions. More advantaged graduates suffer less because of faster movement toward better employers while the less advantaged tend to be permanently affected by cyclical downgrading (Oreopoulos, Wachter, & Heisz, 2012). Cyclical downgrading is evident in declining starting wages for jobs created during recession. Graduates taking on jobs that are not in line with their academic preparation are also affected by cyclical downgrading when they later attempt to change into positions aligned with their degrees, again at lower starting salaries. The graduates hurt the most are those from less prestigious schools and those who major in the humanities. Students are further impacted by the likelihood of parents being laid-off work during a recession; or they themselves are not able to find employment to support themselves. Both will impact the students' ability to remain in school. The personal impact of graduating during recessionary periods is normally a 10-year negative effect on the individuals' wages (Wachter, 2010).

The Economy and Enrollment

The effects of inflation and recession have a relationship to postsecondary education enrollment. Postsecondary enrollment is viewed as discretionary and is influenced by student

perceptions of the availability of suitable employment in the job market. Declining enrollment has a direct relationship to public support in the form of allocations to public higher education institutions. During periods of recession it is more likely that students will remain in school longer, creating a warehousing effect for otherwise unoccupied young adults and others who are displaced by employment downsizing. Students who graduate in a recession are less likely to find immediate utility in their postsecondary education because of tight job markets, diminished salaries and benefits offered in positions that are available, and longer term earnings deflation as a result of lower starting salaries. During periods of inflation and open job markets students are more likely to leave school prior to degree completion (Oreopoulos et al., 2012; Walters, 1984).

Credential Inflation

Another socioeconomic phenomenon worth noting is job-market credential inflation. During tight job markets when there is an excess of employable degreed workers knowledge, skill, and ability (KSA) assessments for positions are likely to require postsecondary degrees for positions that did not require them in the past. The impact is significant for the poor and women because both groups occupy the majority of positions in the lower KSA ranks, and at the same time have the greatest challenges of affording college in terms of time and money (Leef, 2012; Rampell, 2013).

Since the recession began in late 2007 economic recovery has been slow for the United States in spite of billions of dollars in stimulus fund incentives to boost the economy. In 2012 the economy as measured by the labor market and gross domestic product 9.1 million jobs still needed to be created to restore pre-recession market health (Bivins, Fieldhouse, & Shierholz, 2013).

Rapidly changing and prolonged effects of inflation or extended periods of recession have an effect on postsecondary education and its participants' perceptions of value placed on the return on investment to be achieved as a result of degree completion (Oreopoulos et al., 2012; Wachter, 2010). From the state level governance perspective, whether a coordinating board or a governing board, increasing the demand for accountability in institutional performance is also impacted by the pace of institutional responsiveness in addressing and achieving state level governance goals. In most cases the goals are to achieve increased accessibility and affordability for prepared secondary school graduates and to address specific workforce development needs.

In the larger scheme of things the question remains: does state level higher education governance matter to the operational efficiencies and effectiveness that can be expected from public colleges and universities? Powell et al. (2012) developed a national benchmark model to assess efficiency and effectiveness based on expenditure levels at U.S. undergraduate institutions.

Policy Evolution

Policy evolution is a process that occurs resulting from the concerns of groups and individuals from dichotomous political perspectives seeking to influence higher education access, affordability and accountability policies. There is more agreement across various stakeholder groups over the need to increase postsecondary opportunity for all than there is agreement on how to finance the opportunities whether public vs. private provision, institutional vs. student support, or access vs. excellence. The debate continues over whether to regulate by establishing accountability rules, oversight of institutional aid policies, or input vs. output measures for performance. And with each budget cycle it seems the jury is still out on how to

prioritize among competing alternatives in higher education whether it is for increasing or constraining support for vocational, liberal arts, or need vs. merit-based financial aid policies all of which are considerations in making recommendations of best policy practices in the postsecondary sector (Dar, 2012).

Change Theory Application in Higher Education

Higher education is strategic in how it manages change across the sector and within single institutions. This is accomplished primarily through adapted change theory models that incorporate incremental change and learning communities of practice that support shared governance models (Harmening, 2013; Heaney, 2010; Pieterson, 2002).

Individual institutions and the sector rarely implement total organization change strategies. Incremental methods have the purpose of moving the single institution to a more developed stage while maintaining the status quo in the overall sector. So the more things change in single institutions and in the external environment the more likely it is they will really stay the same across the sector in institutional types and strategies at the exosystem level (Birnbaum, 1983; Morphew & Huisman, 2002). The exosystem is the realm containing federal financial aid policy, immigration policy, faculty curriculum committees, institutional policy makers, and parents' or spouse's workplaces and how these impact student development (Evans et al., 2010).

Change theory finds its theoretical roots in the social sciences, with its initial application in the business sector (Lewin, 1975). Although its application has evolved to other sectors including higher education, the theory as it is classically known has been modified to adapt to the education sector's unique cultural characteristics (Bergquist & Pawlak, 2008; Harmening, 2013).

Lewin (1975 developed a model of change based on empirical scientific research with primary applications in the business environment. The model included three components: unfreezing, moving, and refreezing. Unfreezing is characterized by creating the need for change and the introduction of disequilibrium into the environment until the desire for change outweighs the desire for the status quo. Moving is the actual work of change or implementation with energy and resources expended in communications, empowering action in formal and informal networks, decision-making, and support. Refreezing includes continuous reinforcement of group decisions, reward systems to embed new behaviors, new visions, missions, goals, and the general institutionalization of a change.

Lewin is also well-known for the development of force-field analysis, a tool in assessing change decision alternatives that has found widespread use across the business and higher education sectors. Although in using the tool, most leaders only consider the tip of the iceberg when considering change strategies; the cost, quality, and time (Kruger, 1996). Change in his perspective is a permanent task and challenge that is rooted in both the interpersonal and behavioral dimensions and the normative and cultural dimensions and is subject to power and politics management and the management of perceptions and beliefs.

Lewin's change theory was expanded by many researchers (e.g. Bolman & Deal, 2008; Burke, 2002; Hayes, 2010; Kotter, 1996). Kotter's (1996) expansion addressed the three components in the following way. The process of introducing disequilibrium is to create a sense of urgency, while the moving or the implementation phase is focused on recruiting powerful change leaders, building a vision of the desired state, effectively communicating the vision, removing obstacles to goal achievement, creating short-term wins, building on momentum through continuous improvement, and anchoring the change in the culture.

Bolman and Deal (2008) began with Kotter's model and added the importance of thorough analysis and specific actions to affect the structural, human resource, political, and symbolic frames to reframe or change the institution. While Burke (2002) also built on Kotter's model, he emphasized total organization structural and cultural change and de-emphasized the incremental approach as normalcy in organization functioning. Punctuated equilibrium discussed by Hayes (2010) is the relatively long period of stability where continuous improvement through incremental change is prevalent, although punctuated by compact periods of metamorphic or revolutionary change.

Incremental change or Kaizen, Kai (change) zen (to become good), a Japanese management concept of continuous incremental improvement (Laraia, Moody, & Hall, 1999) is distinguished from innovation or radical or revolutionary change that is most notable in theories related to total organizational change management strategies (Burke, 2002), these methods rarely apply or occur in higher education. Incremental change is reflective of results achieved through shared governance models applied to problem solving in higher education.

Shared Governance and the Learning Organization

As change theories have evolved greater attention has been placed on context, or the internal and external environmental factors that impact the institutional capacity for change. Change strategies should be consistent with clear goals and consonant with the environment. In addition to being feasible, they must provide a competitive edge (Pettigrew & Whipp, 2014). Shared governance structures provide the institution with the capacity to establish agreement with its internal and external environments. However, this is where divergence begins from the business model in creating strategic changes that are consistent with the environment. "The

university is one of the world's oldest organizations and has withstood various external pressures, including those of a changing marketplace, by a deliberative and consensual decision-making approach" (Heaney, 2010, p. 70).

Shared governance is premised on the assumption that higher education institutions are learning organizations in which all stakeholders are engaged in the production and the critical assessment of knowledge. The vulnerability of institutions to over politicize the change process is most exposed through the shared governance process. In answer to this shortfall, Hendry (1996) sought to combine the strength of the academy with change theory by espousing the application of learning theory to strategic change management.

In the various forms of cognitive theory, people form plans and images based on their needs, motives, values, and beliefs about themselves; they act on these; get feedback about the effects or consequences; and then actively modify perceptions, plans, and behavior accordingly. Using this phenomenological construct the researchers overlay cognitive theory with experiential learning theory to form the basis for the creation of learning communities (Hendry, 1996). The concept of learning communities, or communities of practice, is then applied to the business model change process.

Communities of practice view learning in an organization as socialization, and a key task in understanding organizational change and in developing learning organizations is to detect and support emergent or existing communities-of-practice. Change then is conceived as occurring by means of an emergent community of practice through which an issue is identified and explored, problems diagnosed, options are experimented with, and learning built up as the issue is progressed. This application is consistent with the previously reviewed incremental change theories with special attention placed on the internal environment. Although, in order for change

to be implemented effectively in this context, attention also has to be paid to the three characteristics of meaningful work: autonomy, complexity, and connection between effort and reward (Andrade, 2011).

Policy Paradoxes

A third perspective unique to higher education is based on a theory of epistemological determinism. In this theory change is analyzed at the academic discipline level. Change at this level normally presents as national level policy. National policy agendas have dominated organizational research in higher education. The study of the university as an organization, its structures, cultures, and practices have taken less priority. Fumasoli and Stensaker (2013) propose a research agenda that involves aspects of organizational change in higher education, and the need to systematize organizational research around distinctive analytical dimensions related to institutional change.

In higher education, national policies often present as disjointed that results institutionally from policy paradoxes within policy bundles. Policy bundles are combinations of formal policies, often addressing different areas of practice, such as funding along with teaching and learning, which 'hit the ground' together, and are both experienced in relation to each other by practitioners and actually do interact with each other even if they were conceived and formulated separately (Trowler, Fanghanel, & Wareham, 2005). Such bundles often contain policy paradoxes, shaping practices in contradictory ways and setting up goals that lack the common qualities necessary for comparison or measurement.

These paradoxes, like policies themselves, operate at different levels of analysis: the personal, the workgroup, and the institutional and national levels. For example, at a higher level

of analysis than the institution policies on funding, research, and widening participation in higher education, for example, interfere with the operation of policies on teaching and learning to their detriment. Because higher education policy bundles are not 'joined up' in this broader sense, they block the flow and full implementation of change across the academic disciplines and the sector. This overall pattern of decision-making takes on a quality of randomness, and when problems and solutions happen to match, a decision occurs that is actually fully implemented as seen in Hoy and Miskel's (2010) garbage can model. Policy kludging or kludgeocracy is a term coined by Teles, (2013) to identify the phenomenon of laying patch on top of patch in the policy formulation process. Kludging can have the negative effect of operational ineffectiveness and inefficiency at the institutional level during the implementation stage. Federal funding for Pre K-12 programs is given as an example by Teles (2013) and likened to federal financial aid policy by Carey (2013).

Isomorphic Change in Higher Education

In viewing change across the higher education sector in 1983 Birnbaum studied change in the diversity of college and university types in eight U.S. states between 1960 and 1980. Using population ecology theory as its primary conceptual framework, the study's findings indicated that during a period of unprecedented growth in American higher education, the number of different institutional types had not increased. More specifically, Birnbaum found that even after the tremendous growth in the U.S. higher education system during the 1960s and 1970s there were no more and perhaps less diversity of institutional types among colleges and universities.

This study was replicated by Morphew (2009) covering 50 states between 1972 and 2002, using institutional theory, and gaining similar results after broadening the study's reach and

expanding the time period. Institutional theory proposes that many organizations, like colleges and universities, operate in normatively-defined environments, where success is more attributable to perceptions of legitimacy than to the quality of an organization's products. Institutional theorists argue that an organization's survival is inevitably tied to perceptions of its legitimacy. In order to maintain the perception of legitimacy, the education sector resists change that is perceived to impact its legitimacy, therefore protecting and projecting an unchanging image. Birnbaum (1983) argued that population ecology would predict such an outcome. Population ecology theorists propose that organizations respond to their environments much the same as animals do: they adapt or don't survive, often producing less diversity as a result.

Change in individual higher education institutions is isomorphic. Higher education institutions superimpose the same models used by business to affect strategic change within structures and the deployment and management of its human resources. Although the response to its external environment and attempts to control its political influences, diverge from the business model and become what makes academe unique from other institutional types.

Because higher education has institutionalized elements like highly professionalized special actors and hard to define technologies and goals, changes are made with greater concern for meeting the demands of internal constituents as opposed to affecting change to meet the demands of external markets or environments as is done in business (Morphew, 2009). As a result change within a single institution tends to move that institution into a form or stage of development which emulates another like higher education institution perceived to be at a more developed institutional stage.

The global effect of this isomorphism effectually yields no change in the types and characteristics of higher education institutions or the academy in general over time in spite of

rapid changes in the external and internal environments. So the more things change at the institutional level, the more things really stay the same across the sector.

Organizational Cultures of the Academy

According to Bergquist and Pawlak (2008), there are six cultures within academe. They are collegial, managerial, developmental, advocacy, virtual, and tangible cultures. The mixture of these cultures in most academic institutions and the value of this mixture is the focus of his study. Although each is addressed here, I am focused principally on the collegial, managerial, and developmental cultures as the primary framework of influence related to institutional effectiveness and efficiency.

Culture provides a framework for creating order out of the complex and often baffling dynamics of organizational life. In this context organizational culture is a pattern of shared basic assumptions that the group learned as it solved problems of external adaptation and internal integration that have worked well enough to be considered valid and taught to new members as the correct way to perceive, think, and feel in relation to those problems. A culture helps define the nature of reality for those people who are part of that culture (Bergquist & Pawlak, 2008).

A culture does not exist for itself; rather it exists to provide a context within which the primary intentions of the organization are fulfilled (Kezar & Eckel, 2002). The containment of anxiety is the fundamental purpose for the formation and maintenance of organizational culture. Anxiety can be created when the assumptions of one culture collide with those of other cultures and these collisions are particularly prevalent when an academic institution is confronted with demands from changing internal and external environments. If the assumptions on which the cultures are based are challenged through either an external or internal situation or through an

organizational change process, people tend to resist the challenges. People tend to seek cognitive and emotional stability and avoid the fear and anxiety of instability because these provoke pain, and people avoid pain, therefore people usually avoid change.

According to Bergquist and Pawlak (2008), contemporary colleges and universities can best reduce the fear of their faculty, administration, students, trustees, and community through bringing together the diverse perspectives within their institutions. Each of the six cultures in isolation provides a means of partially reducing the fears and anxieties of people about their own learning and the processes of change. Each culture alleviates only the symptoms of the anxiety not its ultimate source. Fear and anxiety will only be fully addressed when people feel they are being freely served with the skills, knowledge, strategies, and resources of all members of the academy, regardless of culture. Understanding each of the six cultures will allow a person to operate effectively within and among them while effectively influencing and improving the quality of change that is required in contemporary higher education.

Collegial Culture

The collegial culture is the most prevalent in North American colleges and universities. The culture encourages diverse perspectives and a relative autonomy in one's work. Relationships are informal, nonhierarchical, and long-term. Leadership emerges from committee and deliberative group activities or from autonomous academic activities. The collegial culture places great value on faculty work directed toward disciplinary scholarship and research and the passing of this knowledge and disciplinary orientation to students.

All members of the collegial culture value autonomy whether teaching, research, or scholarship is the emphasis within their institutions. The value of autonomy is reinforced by the

doctrine of academic freedom. This is one of the dominant norms of the collegial culture. Academic freedom is a privilege afforded from institutional censorship and types of discipline resulting from interference by governmental entities in decisions about how and what to teach (Bergquist & Pawlak, 2008; Thomas, 1983).

Current threats to academic freedom include the erosion of the traditional academic staffing structure. There has been a significant increase in the number of nontenured faculty in U.S. colleges and universities. Part-time or adjunct faculty constitute 70% of contingent faculty, forming roughly half of college and university faculty and 40% of all teachers, including teaching assistants, employed in higher education. All contingent faculties make up 75% of the professoriate (Clausen & Swindler, 2013).

Another aspect of the collegial culture is its alignment with values and perspectives that are decidedly male oriented. The traditional collegial culture has a strong emphasis on powerful competition striving for prestige and dominance and tenure for faculty. However, the traditional academic career leading toward tenure continues to be one that is based on a male model and on men's normative career paths, meaning that the typical work week expectation of 50 hours or greater is inconsistent with contemporary work-life balance needs of families with children (Gappa, Austin, & Trice, 2007).

It is not just a matter that some faculty members succeed by devoting their lives to the pursuit of tenure and disciplinary status, it is also the case that entire institutions compete with one another and can be placed on a hierarchy from high levels of prestige to low levels. The large research universities are placed at the top of the collegial culture's pyramid, and the liberal arts college, along with community colleges and vocational colleges, are placed at much lower

points on the status and prestige pyramid. It is also the case that institutions compete with each other within governance structures for limited resources.

The things that are most highly valued in the collegial culture are research, powerful academic disciplines, autonomy, collegially oriented leadership, bigger is better, the ability to handle the demands of public expectations, and the ability to broaden the scope. One factor that has the potential to disturb the traditional collegial ways of work in higher education is a decrease in new positions and severely reduced mobility of most academics. As senior faculty begin to retire there will inevitably be an influx of new faculty members with less power due to the nature of their part-time status and non-tenure-track positions (Bergquist & Pawlak, 2008).

A constructed reality for faculty members who implicitly accept the norms, values, rules and precedents of the collegial culture is that institutional change takes place primarily through - and power resides in -the quasi-political, committee-based, faculty controlled governance processes of a college or university. Faculty members in this culture do not think of themselves as employees of a college or university in the most common terms but instead consider tenure as a property right in the positions they hold. Because of the real or imagined power of faculty governance, collegial academics believe that the road to increased influence comes through assuming leadership; usually as chairpersons of major college or university wide committees. A faculty senate presides over the affairs of the institution, and the president's cabinet usually engages in centralized decision-making (Bergquist & Pawlak, 2008).

Managerial Culture

The managerial culture in higher education has its origin in the Catholic college and university systems of the United States and Canada. Unlike Protestant institutions the Catholic

colleges were focused on upward mobility of its students, occupational preparation, and social mobility through vocational education and the granting of credentials and degrees (Gleason, 1967; Webb, 2006).

The dilemma to educate for upward mobility and the need to keep the new graduates in the local community as advocates for and leaders of socioeconomic advancement for distinctive ethnic or racial groups the institutions served is ongoing. The advocacy culture broke off from the managerial culture in part because of this tension: if a college or university is seeking to move its graduates "up and out" of their current social class, then is the sponsoring community truly being served by these goals? In the managerial culture educational outcomes are expected to be clearly specified and the criteria for judging performance is identified and employed. Colleges that are dominated by the managerial culture have their focus on: outcome measures of success and quality, the enhancement of their own societal prestige, often resulting in efforts to shift from college to university status. Cohen (1998) asserted that the movement toward large-scale, efficient, public universities required and enhanced the prevalence of the managerial culture in higher education.

Through the managerial culture higher education systems were expanded to postsecondary systems to include trade, technical, and vocational education after high school and adult education. Responsibility for statewide planning of facilities, development of cost finding procedures, and demand for comparability in the description, budgeting, and evaluation of academic programs became the norm.

Statewide planning has had a profound impact on the management of operational and capital budgets and the strategic planning processes in postsecondary institutions. Federal legislation including the Civil Rights Act of 1964 has also required administrators in higher

education to gain new knowledge and skills in the management of people. According to Birnbaum (2000) higher education could improve if it adopted the management techniques of business by freeing managers to be entrepreneurial and market-driven.

In contrast to Bergquist and Pawlak (2008), Bates and Poole (2003) have stated a successful faculty member in the managerial culture is an efficient and competent teacher and manager of the instructional process. Faculty members are able to influence the educational outcomes of an institution first and foremost through teaching and course design, rather than by serving as members of faculty committees or as chairs of the faculty senate.

In the managerial culture one influences and changes academe by being a skilled manager of people and money. It is in the careful attention to the generation of revenues in the regular administrative duties of the college or university that one has an effect on the institution's operations. Enrollments are now managed rather than left to the unpredictable and ill-defined tendency of students to stay in school because they like a particular faculty member or feel comfortable talking to their student services advisors or unable to find work because of changes in the economy (Hossler & Anderson, 2005).

External calls for greater accountability and demonstrated outcomes, institutional pressure for faculty to generate revenue, and the necessity of keeping up with the expansion of new knowledge all conspire to create endless demands and expectations of faculty members (Gappa et al., 2007). How one manages information takes on special importance and meaning in the managerial culture. If success cannot be demonstrated through numbers there is a perceived lack of accountability and credibility. From the managerial culture perspective data and the ability to understand and use them effectively are essential in the decision-making process.

Developmental Culture

The field of faculty development emerged as a result of the focus on student development. Institutions of higher education face the harsh realities of decreased funding, declining enrollment, and limited faculty mobility together with demands for accountability voiced by students, parents, and state and federal officials. Because teaching is central to higher education, faculty members in particular were being asked to re-examine their personal and professional attitudes toward classroom instruction and toward their relationships with their students. The need was identified for training in new classroom procedures, possible reorganizations of departmental structures, and changes in governance systems all emanated from the development culture (Lindquist, 1979).

In an earlier study, Lindquist (1978) considered the combined work of research and planned change. The engagement of postsecondary institutions in a blending of institutional research, planning, and professional development unfortunately was in most cases short-lived. Many colleges and universities continue to conduct institutional research, but it is usually focused on finance, student enrollment and attrition, and resource allocation.

Governance bodies and regional accrediting agencies are now pushing for the assessment of student learning outcomes on an institution-wide basis. The new developmental push towards student success is based on the assumption that supportive learning environments and significant learning outcomes can be achieved no matter what the institution's resources or student preparation (Braxton, 2009). Student success from this perspective can only be achieved through allocation of resources and organized learning opportunities and services used to induce students to participate in and benefit from them. Institutional leaders and those aligned with the developmental culture must find ways to increase the amount of time and effort students put into

their studies and other activities that lead to the experiences and outcomes that constitute student success. Historically this is the thinking behind the development of divisions of student affairs and academic support services in public institutions. As a result resources are allocated to the development of the whole person engaged in the liberal arts education experience (Evans et al., 2010).

The challenge remains to effectively use education research and data for continuous improvement (Data Quality Campaign, 2012). In 2012, only six states, all within the SREB with the exception of Ohio, met the benchmark of implementing policies and promoting practices to build educators capacity to use data in decision-making, while 42 states reported having the ability to create reports with longitudinal statistics to guide system level change. This benchmark includes the criteria that teacher performance data is shared with educator preparation program.

Broad spectrums of stakeholders are affected by data accessibility, data linkages across state systems, and the capacity to use data in decision-making, include governance bodies. For example, in Delaware the state education agency works with the Department of Labor to analyze data to learn about students' transitions across the education pipeline and to inform the types of skills training offered by the state. The state is able to calculate the number of K-12 students who enroll in postsecondary institutions and the number of people getting jobs in the field in which they were trained, helping the state determine whether it is meeting one of its goals: preparing its citizens for the demands of the workplace.

Lindquist (1978) relied heavily on the work of Havelock (1971) who focused primarily on the process of change and innovation by using three different strategies: rational planning, social interaction, and human problem-solving. Building on this framework a fourth strategy

was added and called the political approach. The political approach focuses on the distribution and use of power in the postsecondary institution.

One of the basic tenets that underlies the political approach is the need to be sensitive to the wants expressed by various constituencies and the necessity of bringing these to the attention of influential members of the organization. Change will take place if the expressed wants are clearly articulated and are strongly relevant to those who have influence in the organization. Making authorities take notice that a more desirable state of affairs is possible, even with existing resources and expertise is critical. Lindquist (1978) went on to study change and innovation in American colleges and universities within the context of this theory and observed that we live within institutions in social networks. Some researchers maintain that these contacts are essential to change, for new ideas get communicated and validated through social networks. We gain security, status, and esteem from these informal systems, just as we can from formal organizations. The political strategy may on the surface look as systematic as the rational planning strategy: however, it involves a considerable amount of intuition and a thorough knowledge of the diverse needs of the various constituencies that make up the organization (Hoy & Miskel, 2008).

Those seeking to improve academe must view the settings in which they work as interacting communities rather than just an organization. In other words, rational planning and human problem-solving must be supplemented with Havelock's (1971) social interaction and Lindquist's (1978) political strategies. Academe has to be viewed as a learning organization.

The institutional values inherent in the developmental culture concerned three distinct but interrelated aspects of institutional life: teaching and learning, personal and organizational maturation, and institutional mission. This set of values link the developmental culture more

closely to the managerial culture than to the collegial culture. Proponents of the managerial culture are also concerned with teaching and learning as they relate to student learning outcomes. Personal and organizational maturation influences institutional operations, and the mission and goals of the institution as they inform and align with the institution's strategic plan.

Developmentalists attempt to address these values from a perspective that is compatible with the perspectives of faculty in the collegial culture. Rather than a focus on local and immediate issues, developmentalists are more likely to include change theories, organizational theory and research, student development theory, and research in their work methods. Developmental theory is at the core of learning organization theory and practice. The developmentalist frequently asks: what are we really doing in this college and university, and is it what we should be doing? Are our goals directly related to our essential mission? Developmentalists often focus their attention and questions on the core purpose of the educational institution, the engagement and success of its students (Braxton, 2009). The role played by developmental leaders in building a consensus-based model of quality improvement or in assisting the ongoing development of an institution of higher education is different from that found in the other cultures.

According to Yukl and Falbe (1991), the developmental leader tries to make use of expert power rather than the managerial cultures rational – legal power or authority derived from positioning in the managerial hierarchy. Developmentalists also avoid the charismatic and paternalistic power that is common in the collegial culture and choose instead a more collaborative or autonomous form of authority. Developmental leaders who have been identified as effective tend to exemplify a low-key leadership profile (Collins, 2001). Leadership is

manifested indirectly in the developmental culture and is more likely to be considered servant leadership.

Advocacy Culture

A constraint in implementing efficiency and effectiveness strategies is the threat of violating the psychological contract between academe and its employees. The psychological contract is associated with the rewards that the employee expects from the organization and the resources, services, and attitudes that the employee will provide the organization in return (Purvis, Zagenczyk, & McCray, 2014). The rewards range from rational and publicly acknowledged expectations about salary, benefits, and job security, to career advancement, public recognition, and meaningful work to the highly irrational expectations about self-worth, personal security, and friendship. Stakeholders including employees assess the direction and strength of the psychological climate and their assessments shape their motivation to participate in active support, token support, or counter-implementation actions. The psychological climate is the individuals' perception of the internal environment. This climate is assessed by the individual and is heavily influenced by pressure from expectancy theory. A determined effort to produce is driven by an expected reward, and the reward is perceived as desirable.

Parker, Baltes, Young, and Huff (2006) indicated that the relationships of psychological climate with employee motivation and performance are fully mediated by the employee's work attitudes. Collectively individuals' perceptions and attitudes create the organizational climate. The psychological climate and the organizational climate combine to determine whether individuals participate in a project, whether they will help or harm the project, and whether they

are motivated to complete the required actions. Organizational climate is an integral part of organizational culture.

The advocacy culture emerged in response to the inability of the managerial culture to meet the personal and financial needs of faculty and staff. There is a widespread belief in the advocacy culture that change takes place through confrontation and the effective use or withholding of use of resources. The advocacy culture originated in the community college systems. Collective bargaining is a key aspect of this culture. Shipka (1974) determined that collective bargaining in 4-year institutions began in 1969 with agreements between the City University of New York and the two units into which its instructional staff had been divided for bargaining purposes. The two units, the National Education Association represents professors and nonteaching professionals and the American Federation of Teachers, a division of the AFL-CIO. Ladd and Lipset (1973) found that over 90% of the bargaining units are in public institutions.

Most faculty members and private institutions are restricted from entering bargaining units because of the Yeshiva vs U.S. Supreme Court ruling in 1980 that stated that Yeshiva University faculty members were in control of substantially enough decisions in the institution to be considered managers and not staff. By 2001 of the 15,001 campuses in the public sector, 61% were unionized (Euben, 2001). These statistics suggest that the advocacy culture has gained significant strength in 2-year and 4-year public institutions. Birnbaum (2004) labeled this phenomenon as procedural justice, or the perceived level of fairness in the processes through which organizational decisions were made.

According to Bergquist and Pawlak (2008), individuals associated with the advocacy culture are likely to look out for and be particularly sensitive to processes and procedures being

used in their institutions that appear to be unjust or that do not align with their institutions mission and values. The advocacy culture goes beyond merely collective bargaining and is also involved with social justice. The development of the advocacy culture began with concerns expressed by higher education institution workers for job security, compensation, and organizational health. Bureaucratization is associated with the managerial culture; however, it is also the impetus for the development of the advocacy culture.

Ladd and Lipset (1973) attribute growth, organizational size, and complexity as leading factors in faculty endorsement of collective bargaining. They hold this opinion primarily because of the reliance of faculty on the administrative management to make decisions about cutting costs and dealing with efficiencies, as in any large corporation. Birnbaum (2004) proposed that academic institutions are more effective when governance is shared. Faculty involvement in shared governance may slow down the decision-making process, but it also ensures more thorough discussion and provides the institution with a sense of order and stability. "Academic governance cannot be rationalized for the same reason that is not possible to rationalize the purposes for which academic institutions exist" (Birnbaum, 2004, p. 18).

Bergquist and Pawlak (2008) proposed that much of the discontent inside many colleges and universities and the rise of the advocacy culture and collective bargaining can be traced to the breaking of psychological contracts between the academy and its employees. The psychological contract for many faculty members in both colleges and universities includes the collegial cultures expectations about mutual respect, autonomy, and status.

Other factors that are contributing to the advancement of the advocacy culture include the development of academic capital, legislation and governance, and failed faculty development efforts. The development of academic capital is higher education's reaction to market-driven

needs. The focus by faculty and administration on financial gain for departments and institutions through curriculum revisions and degree program offerings, which are then provided by hiring more part-time, untenured faculty members, and unbundling the role of faculty especially in online environments. All have a significant impact on collegial and developmental cultural values.

There has been a trend towards explicitly providing for academic freedom protection in faculty contracts resulting from collective bargaining or other organized labor activity (Olivas, 2006). The values held by advocates are antithetical to those found in the collegial and managerial cultures. The collegial tradition of individuality and autonomy is in contrast to the collective bargaining behaviors of the advocacy culture. There is also conflict in the interaction between values related to entrepreneurship-based incentives and differential compensation stemming from the managerial culture and an emphasis on equity and consistent compensation systems stemming from the advocacy culture.

Virtual Culture

The virtual culture is to some extent what you might expect in that it encompasses the applications of electronic technologies to teaching methodology and the expansion of institutional reach in higher education, e.g. on-line degree programs. Bergquist and Pawlak (2008) take it beyond this perception to include the role of higher education in a postmodern globalized world. The access to electronic technologies provides the links to global educational resources, information that was not previously accessible, and has the potential to expand the institution's enterprise to a global learning network. The virtual culture finds it roots in the managerial culture. The values espoused include open, shared, responsive educational systems

that make sense of knowledge fragmentation and ambiguity because of access to information locally and globally. This culture is often seen in conflict with the collegial culture because of the pace and processes used for institutional change.

Tangible Culture

The tangible culture is a return to the roots of higher education and a reaction to the rise of the virtual culture. The tangible culture "values the predictability of a value-based, face-to-face education in an owned physical location; it holds assumptions about the ability of old systems and technologies being able to instill the institution's values; and conceives of the institution's enterprise as the honoring and reintegration of learning from a local perspective" (Berquist & Pawlak, 2008, p. 185). This culture is most aligned with the collegial and developmental cultures. And they place a higher value on the symbolism associated with higher education.

Chapter Summary

In this chapter literature related to the theoretical framework of the argument, state and federal governance initiatives, the economic and political environmental conditions in which systems are operating, change theory and its applications, and impacts against organizational culture, have been discussed. This is the context for the analyses of performance as measured by institutional efficiency and effectiveness scores. Institutional efficiency and effectiveness scores categorized by governance structure types and state appropriation levels can be more clearly understood based on state fiscal health, historical context, and current external and internal environmental conditions. Making use of the unique perspectives and strengths of each operative

culture within the institution, practitioners can actively engage all six cultures in the process of organizational change and development thereby creating an enduring impact.

CHAPTER 3

RESEARCH METHOD

Introduction

This quantitative study is designed to determine if there is a significant difference in the means on benchmarks achieved for institutional efficiency and effectiveness between the three state governance structure types: governing boards, coordinating boards, and other state governance structures. This chapter provides a description of the methods and procedures used in the study. The chapter contains sections that address the research questions and null hypotheses, population, research design, data collection, data analysis procedures, and a chapter summary.

This quantitative study compares mean scores for efficiency and effectiveness achieved by 4-year public institutions and further examines if there are significant differences between institutions governed by the two state higher education governance structure types: governing boards and coordinating boards (SHEEO, 2014), and other state governance structure types (ECS & Education Commission of the States, 2007). The institutions in the other governance structure type category are public institutions operating with institutional boards of trustees; institutions that report to governing boards that in turn report to coordinating agencies; and public institutions that are governed by state statutory cabinet departments.

The research design is influenced by the studies by Powell et al. (2012) and Salerno (2003). Powell et al. (2012) focused on institutional financial assets used as inputs, the process used to convert these financial assets into degrees awarded, and the efficiency and effectiveness with which institutions were able to achieve the output of degrees awarded. Salerno (2003)

evaluated the data envelopment analyses (DEA) method as a best practice in measuring efficiency in decision-making units such as institutions of higher education.

Powell et al. (2012) using block-wise regression analysis determined that several expenditure and institutional characteristics as independent and intervening variables were not significant predictors of efficiency and effectiveness the dependent variables. The variables that were retained to assess effectiveness were the 6-year graduation rate, 4-year graduation rate, full-time retention rate, and part-time retention rate. These variables were further assessed by using structural equation modeling. Some of the data Powell et al. (2012) collapsed into the efficiency variable: faculty total hours per week teaching, and faculty satisfaction, are no longer available due to the discontinuation of the publication of the study National Survey of Postsecondary Faculty by the National Center for Education Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS) (NCES, 2004).

In the present study data envelopment analysis (DEA) was used to collapse selected institutional data reported to IPEDS into effectiveness and efficiency scores that were then used as the dependent variables. The Banker, Charnes, and Cooper (1984) technical efficiency with variable returns to scale (VRS) model was used with an input orientation (BCC-I) to measure efficiency, while the output orientation (BCC-O) was used to measure effectiveness. Using the input orientation outputs are assumed to be fixed and the possibility of proportional reduction in inputs is explored. In the output orientation inputs are fixed while proportional output expansion is explored (Johnes, 2006).

Inputs used in this study for efficiency are labor and nonlabor costs, and the outputs are education and research. Using the input orientation then outputs that are the collapsed FTE undergraduate and graduate enrollment, research grants and contract income are assumed to be

fixed; while proportional reductions in labor and nonlabor costs are considered. Enrollment is considered an output of students receiving education for the defined period regardless of institutional mission. Therefore by considering only degrees awarded or graduation rates in the study of efficiency, the provision of education to students who do not graduate in the defined term is an inadequate assessment of efficiency in institutional education output because these students also benefit from the institutional resources expended in providing shorter-term educational experiences (Salerno, 2003).

Degrees awarded and credit hours produced are considered in measuring institutional effectiveness. Using the output orientation to measure effectiveness by collapsing state-appropriations, tuition and fees, and student financial aid as the fixed input; and degrees awarded with credit hours produced as outputs proportional expansion of degrees awarded and credit hour production can be explored. Both means for efficiency and effectiveness variables will then be analyzed using the Statistical Program for Social Sciences (SPSS) to address the research questions (Green & Salkind, 2011).

Research Questions and Null Hypotheses

The following research questions were designed to evaluate significant differences and linear relationships in efficiency and effectiveness scores within governance structure types and state appropriation levels for 4-year public institutions. The relationship between efficiency and effectiveness scores for each governance structure type is also addressed.

Research Question 1: Are there significant differences in effectiveness and efficiency scores (or a linear combination of these scores) for public institutions operating under coordinating, governing, or other state governance structures?

Ho_1 There are no significant differences in effectiveness and efficiency scores (or a linear combination of these scores) for public institutions operating under coordinating, governing, or other state governance structures.

Research Question 2: Is there a significant relationship between effectiveness and efficiency scores for public institutions operating under coordinating agency state structures?

Ho_2 There is no significant relationship between effectiveness and efficiency scores for public institutions operating under coordinating board state structures.

Research Question 3: Is there a significant relationship between effectiveness and efficiency scores for public institutions operating under governing boards?

Ho_3 There is no significant relationship between effectiveness and efficiency scores for public institutions operating under governing board state structures.

Research Question 4: Is there a significant relationship between effectiveness and efficiency scores for public institutions operating under other state governance structures?

Ho_4 There is no significant relationship between effectiveness and efficiency scores for public institutions operating under other state governance structures.

Research Question 5: Are there significant differences in effectiveness and efficiency scores (or a linear combination of these scores) for public institutions with the same levels of state appropriations: lowest, middle, and high ranges?

Ho_5 There are no significant differences in effectiveness and efficiency scores (or a linear combination of these scores) for public institutions with the same levels of state appropriations: lowest, middle, and high ranges.

Population

There were 247 institutions under study that are 4-year public colleges and universities served by the Southern Regional Education Board and are regionally accredited. Forty-two 4-year public institutions were eliminated from the study based on the criteria that degrees awarded were baccalaureate or above. Sixteen institutions were eliminated because part-time and full-time retention rates were not reported. Three institutions were eliminated because 4-year and 6-year graduation rates were not reported. Also, two institutions were eliminated because the total dollar amount for plant, property, and equipment- ending balances were not reported under the GASB financial standards. An additional two institutions were eliminated to maintain consistency in the data between institutions that report credit hours as opposed to contact hours. One hundred eighty-two institutions meet the criteria for the study.

The institutions are classified into three categories according to the governance structure of the affiliated state. The categories are a state governing board, a state coordinating agency, or other structures that include states with a coordinating agency with governing boards or institutional boards of trustees within their hierarchical structure and higher education institutions reporting to state cabinet departments. Ninety-five institutions are directly accountable to coordinating agencies, 57 institutions are directly accountable to governing boards, and 30 institutions are in states with other governance structure arrangements that include either institutional boards of trustees, and/or governing boards that are accountable to coordinating agencies or a state cabinet department.

All institutions in the study are in the southern region of the United States and participate in Title IV federal financial aid programs. They are 4-year public institutions with degree granting status of baccalaureate or above. Institutions represent the following states: Alabama,

Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. These states are under the jurisdiction of the Southern Regional Educational Board (SREB). The number of institutions by state, state structure type as defined by SHEEO and ECS, the governing agency's name, and the number of institutions in the study are shown in Appendix A.

Instrumentation

Data to collapse and establish means for efficiency and effectiveness variables were collected from the Integrated Postsecondary Education Data System (IPEDS). IPEDS is a system of interrelated surveys conducted annually by the U.S. Department's National Center for Education Statistics (NCES). IPEDS gathers information from every college, university, and technical and vocational institution that participates in federal student financial aid programs. The Higher Education Act of 1965 as amended requires institutions that participate in federal student aid programs report data on enrollments, program completions, graduation rates, faculty and staff, finances, institutional prices, and student financial aid. These data are made available to researchers through the IPEDS Data Center (NCES, 2014a). Finance data available through IPEDS includes institutional revenues by source, expenditures by category, and assets and liabilities. This information provides context for understanding the cost of providing postsecondary education. It is used to calculate the contribution of postsecondary education to the gross national product. IPEDS collects finance data conforming to the accounting standards that govern public and private institutions. Public institutions use standards established by the Governmental Accounting Standards Board (GASB).

The identified best practice in measuring efficiency is a method called data envelopment analysis (DEA) (Johnes, 2006; Massy, 2011; Salerno, 2003). DEA has almost become synonymous with nonparametric efficiency estimation (Salerno, 2003). DEA is proclaimed to be a best practice because of its ability to estimate efficiency in institutional circumstances where multiple inputs produce multiple outputs and the underlying production relationship is not well understood, as in higher education (Cooper et al., 2006).

The typical DEA model imposes three assumptions. The first assumption is the free-disposability of inputs and or outputs. The second is the convexity assumption that if any two production plans are feasible then a linear combination of those plans is also feasible. The third assumption is the trivial assumption that the inputs specified can produce the outputs specified.

The typical DEA model used in higher education specifies two outputs: education and research, and two inputs: labor and nonlabor. Several variables may be collapsed for each input and output used in the model. Education output is usually expressed in FTE enrollments that can be split between undergraduate and graduate levels or disciplinary groups. Research output is commonly expressed by research grants and contract income. Input measures are most often expressed in physical units, i.e. number of FTE academic and nonacademic staff; though cost efficiency studies use expenditure measures. Mixed measures using physical and cost-based data are also used in DEA studies, where labor is expressed in FTEs while "other expenditures" are used as a proxy for all other institutional inputs.

Data Collection

Prior to conducting this study an exempt status was obtained from the East Tennessee State University Institutional Review Board (see Appendix B). This researcher collected data

from the Integrated Postsecondary Data System (IPEDS) through the following internet link: http://nces.ed.gov/ipeds/datacenter/ . The data year 2010-11 was selected because it is the latest year at the time of this study in the Human Resources data set that institutions reported fringe benefits of full-time instructional staff. All remaining variables were available for more current years.

Compare Individual Institutions was selected among the options. Institutions were selected by using the choose By Groups option and then by choosing EZ Group. The choices made in creating the institutional group were first to include only Title IV participating colleges and universities that are in the United States. Special characteristics options were selected to include the Category State or other jurisdiction. The following 16 states which are in the Southern Regional Education Board (SREB) were then selected: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Other special characteristics selected included the sector: 4-year public or above; degree granting status: degree-granting; has full-time first-time undergraduates, and to be certain the miscellaneous indicators U.S. only and Title IV participating were again selected.

The next step taken in collecting data from IPEDS was to select variables. The variable choices for this study included selecting from the Frequently used/Derived variables, 12-month Enrollment, Finance, and Student Financial Aid categories. In this study inputs for efficiency are labor and nonlabor costs. Data collected to collapse these variables into an efficiency score were selected from the Finance – Public Institutions GASB 34/35 category. Instruction – Salaries and wages and Instruction – Employee fringe benefits were combined to form the Labor component for efficiency input, Total expenses deductions – All other is the nonlabor component. The

variable Total expenses deductions: All other is defined as the sum of operating and nonoperating expenses not classified as salaries and wages, benefits, or depreciation.

Outputs for efficiency are education and research. Data collected for the education component were taken from the 12-month enrollment category and included 12-month instructional activity and (FTE) enrollment. Selected were the reported 12-month full-time equivalent (FTE) undergraduate enrollment and the reported 12-month full-time equivalent (FTE) graduate enrollment. The research component is represented by grant and contract income. The variable is comprised of data collected from the Finance category in Public institutions GASB 34/35, Revenues and other additions, then by selecting Revenues and other additions: federal, state, local, and private operating grants and contracts. Operating grants and contracts are revenues from federal government agencies that are for specific research projects or other types of programs and that are classified as operating revenues. Examples are research projects and similar activities for which amounts are received or expenditures are reimbursable under the terms of a grant or contract (IPEDS, 2014b).

Data collected to collapse variables into an effectiveness score were selected from the Finance – Public institutions: GASB 34/35, Frequently used/Derived variables, 12-Month Enrollment, and Student Financial Aid categories. Inputs for effectiveness are state-appropriations, tuition and fees, and student financial aid. Data collected in IPEDS for this component were taken from the finance category in public institutions – GASB 34/35 by selecting revenues and other additions and choosing state appropriations and tuition and fees after deducting discounts and allowances. Student financial aid information was collected from the Frequently used/Derived variables category. By selecting student financial aid, then by choosing financial aid to all undergraduate students; the total amount of federal, state, local,

institutional or other sources of grant aid dollars received by undergraduate students and the total amount of federal student loan aid received by undergraduate students were selected.

Outputs for effectiveness are degrees awarded and credit hours produced. Data collected were taken from the Frequently used/Derived variables category. In the Frequently used/Derived variables category – Degrees / awards: Doctor's degree – research/scholarship; Doctor's degree – professional practice; Doctor's degree – other; Master's degree; and Bachelor's degree were all selected. In the 12-Month Enrollment category the 12-Month instructional activity credit hours: undergraduate and the 12-Month instructional activity credit hours: graduate were selected.

Twenty IPEDS variables were selected to collapse into two input and two output variables each for entry into the data envelopment analysis software program to generate efficiency and effectiveness scores. A comma delimited (csv) data file report was generated that included all 20 variables selected. The file included institution name, unit id, long variable name, the actual data for each variable organized by institution, and imputation and status flags. Value labels were included as a separate file in the zip folder.

Data Analysis

Data were analyzed using Open Source Data Envelopment Analysis (OSDEA-GUI v. .02) Software and the Statistical Package for Social Sciences v. 20 (SPSS). Inferential statistics were used to answer all research questions. Research questions 1 and 5 were analyzed using a series of one-way multivariate analysis of variances (MANOVAs). If overall significant differences were found, appropriate post-hoc tests were performed to determine where the significant differences exist among the governance structure types as in research question 1; and state appropriation levels in research question 5.

For research questions 2, 3, and 4 the relationship between efficiency and effectiveness scores for institutions governed by coordinating agencies and governing boards as well as other governance structure types were analyzed separately using a series of Pearson r correlation coefficient analyses to determine the degree to which the efficiency and effectiveness scores are linearly related. All data were analyzed at the .05 level of significance.

Chapter Summary

Chapter 3 presents the five research questions and corresponding null hypotheses, population, research design, data collection, and plan for data analysis. This study uses inferential statistics to determine if there is a significant difference between state higher education governance structure types: coordinating agency, governing agency, or other types of governance structural arrangements, and institutional performance as measured by efficiency and effectiveness scores. The relationship between efficiency and effectiveness scores based on governance structure type is also examined for linearity. The study further determines if there are significant differences between institutional state appropriation levels: low, mid, and high, and institutional performance as measured by efficiency and effectiveness scores.

Within the Southern Regional Educational Board (SREB) there are 182 public institutions that meet the study criteria. Data envelopment analysis (DEA) was used as a method to collapse data into variables and identify institutional scores for efficiency and effectiveness. Data from the Integrated Postsecondary Educational Data System (IPEDS) were used in the BCC-I and BCC-O variable returns to scale (VRS) DEA model. The Statistical Package for Social Sciences (SPSS) was used to address the research questions.

CHAPTER 4

FINDINGS

Introduction

This quantitative study is designed to determine if there is a significant difference in the means of scores achieved for institutional efficiency and effectiveness between the three state governance structure types: governing boards, coordinating boards, and other state governance structures. The study also measures the significance of the relationship between efficiency and effectiveness scores for each governance structure type. The significance of differences in the means of scores achieved for institutional efficiency and effectiveness between three state appropriation levels is also considered.

Analysis of Research Questions

Data collected from IPEDS were collapsed into variables to process in the Open Source Data Envelopment Analysis (OSDEA) program in order to generate institutional efficiency and effectiveness scores. There were seven institutions that did not produce graduate enrollment, graduate degrees, and graduate credit hours. When graduate enrollment was reported by IPEDS as zero, zero was substituted as the missing data for graduate degrees and credit hours. These institutions are listed in Table 1.

Table 1

Institutions With Undergraduate Enrollment Only

UnitID	Group	Institution Name	STAppLvl	Efficient	Effective
159416	Coordinate	Louisiana State University-Shreveport	Lowest	0.81	1.00
207500	Coordinate	University of Oklahoma-Norman Campus	Highest	0.50	0.79
207847	Coordinate	Southeastern Oklahoma State University	Lowest	0.67	0.80
207865	Coordinate	Southwestern Oklahoma State University	Lowest	0.75	0.87
218724	Other	Coastal Carolina University	Lowest	0.77	1.00
234030	Coordinate	Virginia Commonwealth University	Highest	0.68	0.89
237367	Governing	Fairmont State University	Lowest	0.89	0.99

For the 182 institutions in the study raw data for the efficiency variable were the combined Instruction: Salaries and wages, and benefits to form the Labor component of input, and total expenses deductions - all other was used as the second input Expenses. Reported full time equivalent undergraduate and graduate enrollment combine to form the Enroll component of the education output and federal, state, local / private operating grants and contracts were combined to form the Research output component of the efficiency variable.

Data in .csv format were imported into the DEA software and the variables were assigned using the two-inputs and two-outputs. The problem was configured by selecting the model type BCC-I input orientation for technical efficiency using variable returns to scale. After solving for all institutions a data report was generated from the DEA Solver program in .deap format and exported into Microsoft Excel. The report included the model details, raw data, variables, objectives, projections, lambdas, peer group, slacks, and weights tabs. The objectives tab

contained the data identified as institutional efficiency scores. All scores range from 0 to 1, with 1 indicating full technical efficiency based on the inputs and outputs used in the problem.

The process was repeated using state appropriations as State, a component of input, tuition and fees after discounts and allowances as TuitFee, a component of input, and the combined total amount of federal student loan aid received by undergraduate students and the total amount of federal, state, local, institutional or other sources of grant aid dollars received by undergraduate students as FinAid the final component of inputs. Outputs included the sum of all degrees awarded: doctors degree-research/scholarship, doctors degree-professional practice, doctors degree-other, master's degree, and bachelor's degree to form the component Degrees; and the combined 12-month instructional activity credit hours: undergraduates and graduates to form the component Credits.

Data in .csv format were again imported into the DEA software program and the variables were assigned using the three-inputs and two-outputs. The problem was configured by selecting the model type BCC-O output orientation for technical efficiency using variable returns to scale. Again, all scores ranged from 0 to 1, with 1 indicating full technical efficiency, or in the case of this study, it is indicated as effectiveness, based on the inputs and outputs used in the problem. Institutions with a score of 1 are considered in this study as technically effective.

Data from the DEA software report objective tabs for efficiency and effectiveness were transferred to a separate EXCEL worksheet prepared with the IPEDS Unit ID, DMU Names assigned, and structural group identifier: coordinate, governing, and other as shown in Appendix A. The data were then sorted by state appropriation values from lowest to highest and the labels: lowest, middle, highest were assigned by dividing the list of 182 institutions into the three categories and assigning the appropriate labels to each lowest-59, middle- 64, and highest-59.

This file was imported into SPSS for use in addressing research questions one and five. Three Excel worksheets were then created using the same data previously prepared for SPSS separating the coordinating, governing, and other state structural types into separate files for use in addressing research questions two, three, and four. A frequency table of institutions by group and number of institutions scoring 1 and the percent for each group is shown in Table 2.

Table 2

Institutions Rated Efficient and Effective by Structure Type

By Group	N	Efficient	Percent	Effective	Percent	Efficient and Effective	Percent
Coordinating	95	8	8%	21	22%	4	4%
Governing	57	4	7%	9	16%	3	5%
Other	30	2	7%	6	20%	2	7%
Total	182	14	8%	36	20%	9	5%

The following research questions were designed to evaluate significant differences and linear relationships in efficiency and effectiveness scores within governance structure types and state appropriation levels for 4-year public institutions. The relationship between efficiency and effectiveness scores for each governance structure type is also addressed.

Research Question 1:

Are there significant differences in effectiveness and efficiency scores (or a linear combination of these scores) for public institutions operating under coordinating, governing, or other state governance structures?

A one-way multivariate analysis of variance (MANOVA) was conducted to determine the effects of coordinating agency, governing board, or other state higher education governance structure types on the two dependent variables, efficiency scores and effectiveness scores. There

were no significant differences or interactions found among the three governance structure types on the dependent measures, Wilks' $\lambda = .98$, $F(4, 356) = .81$, $p = .521$. The multivariate η^2 based on Wilks' λ is .01. Table 3 contains the means and standard deviations on the dependent variables for the three structure types evaluated.

Table 3

Means and Standard Deviations of Efficiency and Effectiveness Scores by Structure Types

	Efficiency Scores		Effectiveness Scores	
Governance Structure Type	M	SD	M	SD
Coordinating	.74	.13	.86	.13
Governing	.75	.17	.88	.10
Other	.75	.13	.84	.15

Analyses of variances (ANOVA) on the dependent variables were conducted as follow-up tests to the MANOVA. Using Bonferroni and Dunnett T-3 methods, each ANOVA was tested at the .025 level to control for Type 1 error since there are two dependent variables. The Dunnett T-3 post-hoc test was used because the Box's Test of Equality of Variance was significant $p = .002$. The ANOVA for both efficiency and effectiveness scores were not significant: efficiency scores $F(2, 179) = .08$, $p = .923$, $\eta^2 < .01$ and effectiveness scores $F(2, 179) = 1.53$, $p = .220$, $\eta^2 = .02$. There does not appear to be a significant interaction between the type of governance structure used in states and the efficiency and effectiveness scores of institutions in this study. The results of the *F* test reveal a nonsignificant main effect and there are no significant simple effects revealed through the pairwise comparisons. Boxplots of efficiency and effectiveness scores by type of governance structure are depicted in Figure 1.

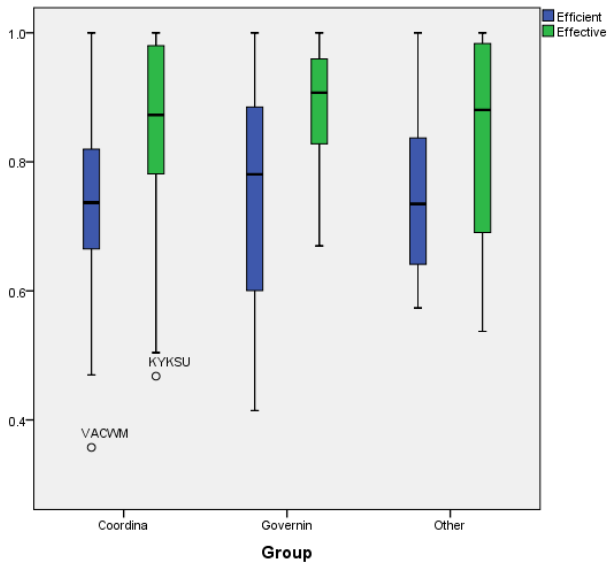

Figure 1. Efficiency and Effectiveness Scores by Structure Type

No evidence is found to indicate a significant difference in the main effects between the state governance structure type and institutional efficiency and effectiveness scores. As indicated by the boxplot in Figure 1 and the means and standard deviations in Table 3, it appears that institutions tended to score slightly, but not significantly, higher in effectiveness than in efficiency.

Research Question 2:

Is there a significant relationship between effectiveness and efficiency scores for public institutions operating under the coordinating agency state structure type?

Ho_2 There is no significant relationship between effectiveness and efficiency scores for public institutions operating under coordinating board state structures.

A Pearson correlation coefficient was computed to test the relationship between efficiency and effectiveness scores for institutions operating under the coordinating agency state

structure type. The results of the analysis revealed a moderate positive relationship between efficiency scores (M=0.74, SD = 0.13) and effectiveness scores (M = 0.86, SD = 0.13) and a statistically significant correlation [$r(93) = .36$, $p < .001$] with a medium effect size. As a result of the analysis the null hypothesis is rejected. In general, the results suggest that for institutions in this study operating under the coordinating agency state structure type, a significant positive relationship exists between institutional efficiency and effectiveness scores. Those institutions which are efficient are more likely to also be effective. When institutions score low in effectiveness they are also more likely to score low in efficiency. Figure 2 is the scatterplot graph of efficiency and effectiveness scores for coordinating agency institutions.

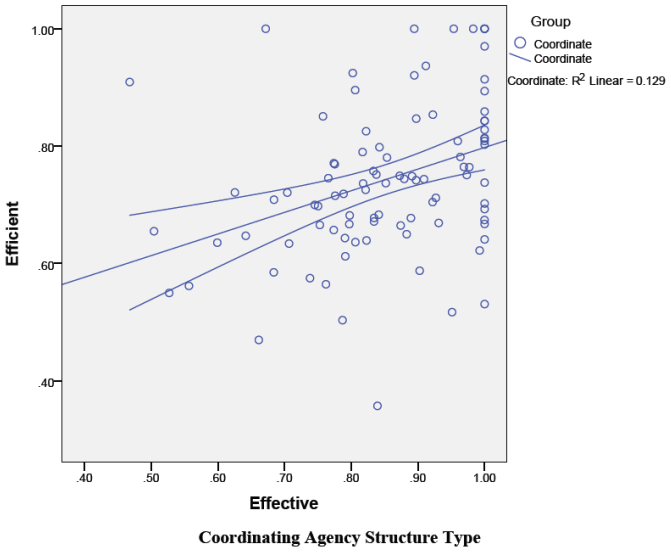

Figure 2. Efficiency and Effectiveness Scores by Coordinating Agencies

Research Question 3:

Is there a significant relationship between effectiveness and efficiency scores for public institutions operating under governing boards?

Ho_3 There is no significant relationship between effectiveness and efficiency scores for public institutions operating under governing board state structures.

A Pearson correlation coefficient was computed to test the relationship between efficiency and effectiveness scores for institutions operating under the governing board state structure type. The results of the analysis also revealed a moderate positive relationship between efficiency scores (M=0.75, SD = 0.17) and effectiveness scores (M = 0.88, SD = 0.10) and a statistically significant correlation [$r(55) = .31$, $p = .019$] with a medium effect size. As a result of the analysis the null hypothesis is rejected. In general, the results suggest that for institutions in this study operating under the governing board state structure type, a significant relationship does exist between efficiency and effectiveness scores. The institutions in the governing board structure type that are efficient are also more likely to be effective. When institutions score low in effectiveness they are also more likely to score low in efficiency. Figure 3 is the scatterplot graph of efficiency and effectiveness scores for institutions in the governing board structure type.

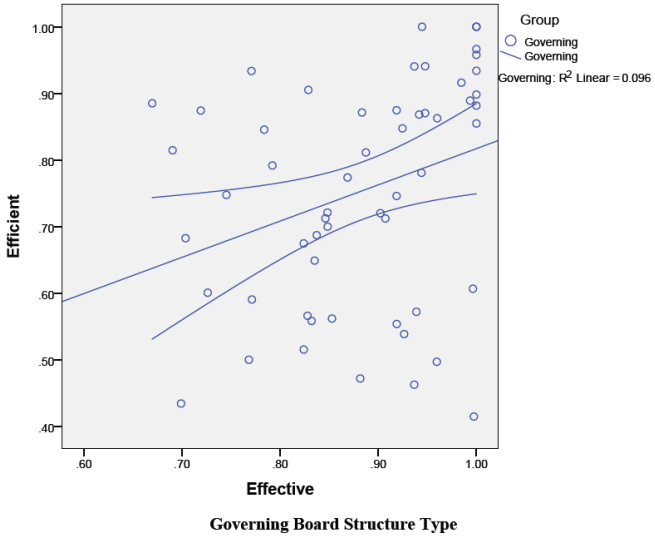

Figure 3. Efficiency and Effectiveness Scores by Governing Boards

Research Question 4:

Is there a significant relationship between effectiveness and efficiency scores for public institutions operating under other state governance structures?

H_{O4} There is no significant relationship between effectiveness and efficiency scores for public institutions operating under other state governance structures.

A Pearson correlation coefficient was computed to measure the relationship between efficiency and effectiveness scores for institutions operating under other state governance structure types. The results of this analysis revealed a strong positive *r*elationship between efficiency scores (M=0.75, SD = 0.13) and effectiveness scores (M = 0.84, SD = 0.15) and a statistically significant correlation [$r(28) = .67$, $p < .001$] with a large effect size. As a result of the analysis the null hypothesis is rejected. In general, the results suggest that for institutions in this study operating under other state governance structural types, a strong positive relationship exists between efficiency and effectiveness scores. The institutions in this study group which are efficient are much more likely to also be effective. When institutions score low in effectiveness, they are also more likely to score low in efficiency. Figure 4 illustrates the relationship between efficiency and effectiveness scores for institutions in the other state governance structure types.

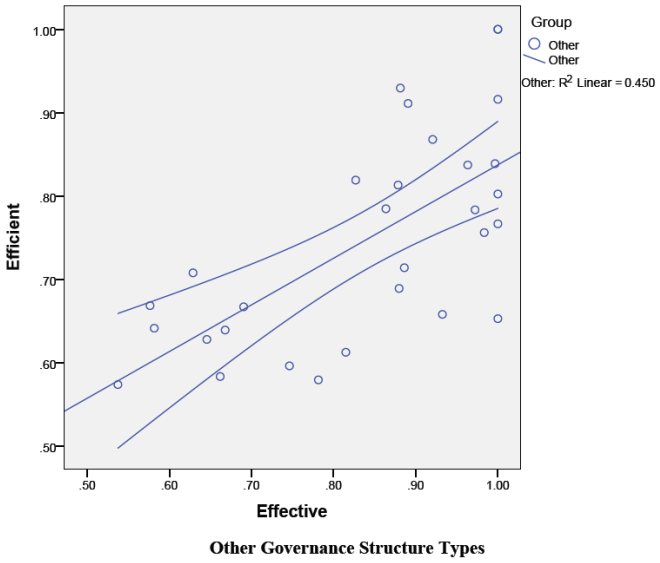

Figure 4. Efficiency and Effectiveness Scores by Other Structure Types

Research Question 5:

Are there significant differences in effectiveness and efficiency scores (or a linear combination of these scores) for public institutions with the same levels of state appropriations: lowest, middle, and high ranges?

A one-way multivariate analysis of variance (MANOVA) was conducted to determine the effect of the three levels of state appropriations (low, middle, and high ranges) on the two dependent variables, efficiency scores and effectiveness scores. Significant differences were found among the three appropriation levels on the dependent measures, Wilks' $\lambda = .92$, $F(4, 356) = 3.90$, $p = .004$. The multivariate η^2 based on Wilks' $\lambda = .04$. Therefore the null hypothesis was rejected. Table 5 contains the means and standard deviations on the dependent variables for the three appropriation levels.

Table 4

Means and Standard Deviations on Efficiency and Effectiveness Scores by State Appropriation Levels

	Efficiency Scores		Effectiveness Scores	
State Appropriation Level	M	SD	M	SD
Low	.80	.12	.89	.12
Middle	.74	.15	.84	.15
High	.71	.15	.86	.10

Analyses of variances (ANOVA) on the dependent variables were conducted as follow-up tests to the MANOVA. The Dunnett T-3 method was selected for post hoc analyses because the Box's Test of Equality of Covariance was found to be significant $p = .016$ and the Levene's Test of Equality of Error Variances was significant for effectiveness scores $p = .001$. Although the Levene's Test results were insignificant for efficiency scores $p = .211$. Using the Bonferroni and Dunnett T-3 methods, each ANOVA was tested at the .025 level of significance to control for Type 1 error because there are two dependent variables. The ANOVA for efficiency scores was significant: efficiency $F(2,179) = 6.16$, $p = .003$, $\eta^2 = .06$; while the ANOVA for effectiveness was not significant $F(2,179) = 3.22$, $p = .040$, $\eta^2 = .04$. There were significant differences in the main effect between variables. The difference in institutional performance as measured by effectiveness scores across the three appropriation levels was nonsignificant. However there is a significant difference in performance based on efficiency scores across appropriation levels. As a result, post-hoc analyses were done to determine the significance of the simple effects of the efficiency variable between the appropriation levels.

Post hoc analyses to the univariate ANOVA for efficiency scores consisted of conducting pairwise comparisons to find which state appropriation level affected institutional performance as measured by efficiency scores most strongly. Each pairwise comparison was tested at the .008 level of significance since there are three categorical variables. Using the Bonferroni method the institutions in the lowest appropriation levels produced significantly superior performance in efficiency in comparison to institutions with the highest level of state appropriations. The efficiency scores for institutions in the middle level of state appropriations were not significantly different from the institutions in the highest levels of state appropriations. The 97% confidence intervals of the pairwise differences for efficiency scores by state appropriation levels are presented in Table 6. Boxplots of state appropriation levels and efficiency and effectiveness scores are depicted in Figure 5. It appears that institutions in the lower levels of state appropriations are more likely to be efficient, based on the variables in this study, than their counterparts in the middle and highest levels of state appropriations.

Table 5

97.5% Confidence Intervals of the Pairwise Differences for Efficiency and Effectiveness Scores by State Appropriation Levels

	State Appropriation Level	Lowest	Middle
Efficiency Score	Lowest		
	Middle	-.1301, .0043	
	Highest	-.1559, -.0187*	-.0917, .0428
Effectiveness Score	Lowest		
	Middle	-.1199, .0080	
	Highest	-.0866, .0185	-.0383, .0820

*Significant at the .008 level

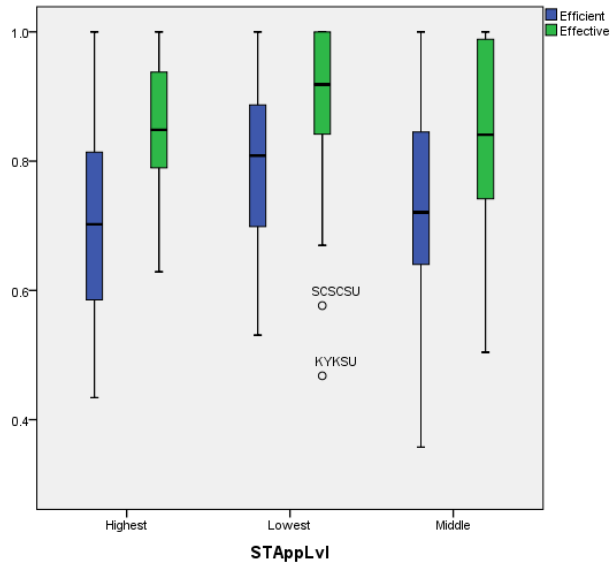

Figure 5. Efficiency and Effectiveness Scores by State Appropriation Levels

Chapter Summary

In this chapter data analyses procedures used in addressing the research questions were described. The procedures included data envelopment analysis methods to generate efficiency and effectiveness scores for the 182 institutions in the study. Multivariate Analysis of Variance (MANOVA) was used to test the null hypotheses in research questions 1 and 5. While Pearson correlations were used to test the null hypotheses in research questions 2, 3, and 4.

Since there were two dependent variables used in questions 1 and 5 the alpha level was set to .025 and the 97.5% confidence intervals for the main effects were presented. Post-hoc comparisons of between subject effects were tested at the .008 alpha level using Bonferroni methods since there were three categorical variables for each of the two dependent variables.

The Statistical Package for Social Sciences (SPSS) was used to analyze all research questions. Findings for each research question were presented in the chapter.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study benchmarked 4-year public institutions in the Southern Regional Education Board to determine if there were significant differences between the institutions based on efficiency and effectiveness scores within the types of governance structures in operation among the states. Linear relationships between efficiency and effectiveness scores were also analyzed for each governance structure type. Efficiency and effectiveness scores were also used to determine if there were significant differences between institutions based on state appropriation levels. This chapter summarizes the research findings and conclusions presented in Chapter 4. Recommendations to state legislatures, state higher education governance structures, administrators of public higher education institutions, and researchers for practice and further research are included.

One hundred eighty-two institutions were under study. Each institution participates in Title IV federal financial aid programs. They are in the 4-year public or above sector with degree granting status of baccalaureate or above. Institutions represent the following states: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. These states are under the jurisdiction of the Southern Regional Educational Board (SREB). The institutions were classified into three categories according to the governance structure of the affiliated state. The categories are a state governing board, a state coordinating agency or other structures which include states with a governing board reporting to coordinating agencies, those

with institutional boards of trustees within their hierarchical structure, and higher education institutions reporting to state cabinet departments. Ninety-five institutions are directly accountable to coordinating agencies, 57 institutions are directly accountable to governing boards, and 30 institutions are in states with other governance structure arrangements.

Data envelopment analysis was used to collapse data collected from IPEDS into efficiency and effectiveness scores for each institution. The Banker Charnes and Cooper (BCC) variable returns to scale input and output oriented models were used to structure the efficiency and effectiveness problems. Five research questions with null hypotheses were asked to test the significance of governance structure types, the linear relationship of efficiency and effectiveness scores across the structure types, and the significance of state appropriation levels to operational efficiency and effectiveness.

Discussion

Research question 1 asked if there were significant differences in effectiveness and efficiency scores (or a linear combination of these scores) for public institutions operating under coordinating, governing or other state governance structures. A one-way multivariate analysis of variance was performed to test the main effects of the dependent variables that were efficiency and effectiveness scores. Post-hoc tests using Bonferroni methods were used to determine between subject effects for the three structure types. There were no significant differences in the main effect for institutional efficiency and effectiveness scores based on coordinating agency, governing board or other state governance structural arrangement types.

The results of the analyses for research question 1 clearly points to a different type of alignment between authority and accountability when the operational performance of institutions

based on efficiency and effectiveness scores is considered. The role state level governance has in funding, evaluating performance, and developing policy related to administering public postsecondary institutions can lead the *average man* to believe a level of greater control over institutional results exists at the state governance level. After all "he who holds the power to evaluate and to dispense rewards based on that evaluation holds the real authority in the organization" (Hind, 1971, p. 279).

State level governance systems bear the primary accountability for funding, and measuring the performance of public postsecondary institutions. Higher education governing boards, coordinating agencies, and other governing structures were designed to serve in an intermediary or buffering role between state educational institutions and state legislatures (Tandberg, 2013). State level governance systems and political perspectives among state decision makers often have an effect on policy outcomes by favoring access, affordability, and accountability policies for institutions (Heller, 2001). Finney et al. (2014) found among other things that states struggle to develop policies in using fiscal resources strategically and recommended linking finance policies to increased institutional productivity and linking tuition to the income of the population to be served.

Accountability is a function of trust at each constituent level to perform agreed and clarified objectives and expectations. The necessary and appropriate means, resources, and instruments are made available in order to attain the expected performance result (Sibley, 1974). The relationship of trust is foundational to the collegial cultures core value of autonomy, and is preeminent in the relationship between higher education governance systems regardless of structure type. Institutional decision-making is affected by national policy directives, decisions made by state legislatures and postsecondary governance systems, political perspectives, and

economic conditions. How academe responds is filtered by the decision-makers' perceptions of the urgency of need for organizational change and embedded organizational culture beliefs (Bergquist & Pawlak, 2008; Heaney, 2010).

Mimetic practices and interventions at the institutional level may be evidenced in the overall frequencies of institutions maximizing inputs and outputs for both efficiency and effectiveness. Of the 182 institutions under study eight percent maximized the production relationship between labor and nonlabor expenses as inputs and enrollment and research as outputs in the evaluation of efficiency. Results for effectiveness are higher, with 20% of institutions maximizing the production relationship between tuition and fees, federal/state/student financial aid, and state appropriations as inputs and degrees awarded and credit hours produced as outputs. The results of initiatives to improve transfer processes and articulation agreements between 2- and 4-year institutions in Florida, and North Carolina; and setting student success as a policy priority with implications for institutional funding in Arkansas, South Carolina, and Tennessee as described by Bautsch and Williams (2010) are yet to be seen.

A mere 5% of the 182 institutions maximized the production relationship for efficiency and effectiveness with no significant difference across governance structure types. The role and influence of state higher education governance systems and the level of resource dependency institutions may be experiencing make a significant difference in the level of operational efficiency and effectiveness achieved (Bowen, 1980; Brown & Gamber, 2002; Sloan-Brown, 2009).

Research questions 2, 3, and 4 examined the correlation between efficiency and effectiveness scores for each of the structural types separately by computing a Pearson

correlation coefficient. The results of the analysis for institutions categorized in each of the structure types revealed a positive relationship between efficiency and effectiveness scores and a statistically significant correlation. Although each group of institutions across the structural types show a positive relationship between efficiency and effectiveness scores, the relationship between efficiency and effectiveness scores is strongest for those institutions governed by other structural arrangements. In the other structures type it is more likely that institutions that are efficient will also demonstrate effectiveness. In this study more institutions are effective with fewer demonstrating standards of efficiency based on the variables selected. Sloan-Brown (2009) found a lack of correlation between spending and enrollment which indicated that it is not the amount of money that is spent but the ratio of the funds allocated among interventions that impact enrollment, and therefore institutional efficiency and effectiveness.

Bowen (1980) found internal adjustments at the institutional level to accommodate emerging needs through greater efficiency are often made without altering overall unit costs. However, internal reallocations of resources can have the effect of altering the overall performance of the institution. For example significant changes in labor expenses, while holding non-labor expenses constant will not necessarily generate increased sustainable enrollment, or increase the amount of research income generated. Strategic analysis of the decision along with the trivial assumption used in DEA analysis that the inputs specified can produce the outputs specified must be first considered.

Organization culture beliefs related to tenure and promotion of instructional faculty and staff labor may also violate the assumption of free-disposability of inputs and therefore alter the types of decisions that can be implemented to adjust for greater efficiencies using this model. In the BCC-I model labor and nonlabor as inputs are considered for proportional reduction. Slacks

or the institutional capacity to increase enrollment and research income in order to maximize the production relationship will most likely be found in labor and or nonlabor expense.

A likely conclusion is that enrollment management systems and processes, improved student retention strategies, and student success initiatives to increase the number of degrees awarded are the low hanging fruit with the greatest immediate impact on the institution's ability to maximize the efficiency and effectiveness production relationships. Slacks in efficiency can be addressed by reductions in inputs and slacks in effectiveness can be addressed by increasing outputs. Institutional targets related to slacks can be generated by the DEA model.

Research question 5 asked if there are significant differences in effectiveness and efficiency scores (or a linear combination of these scores) for public institutions with the same levels of state appropriations: lowest, middle, and high ranges. A one-way multivariate analysis of variance was performed to test the main effects of the dependent variables which were efficiency and effectiveness scores. Post-hoc tests using Bonferroni methods were used to determine between subject effects for the three ranges of state appropriations. Significant differences were found among the three appropriation levels on the dependent measures. There were no significant differences in performance as measured by effectiveness scores for institutions across appropriation levels; however, there was a significant difference in performance as measured by efficiency scores across appropriation levels.

Post hoc analyses to the univariate ANOVA for efficiency scores consisted of conducting pairwise comparisons to find which state appropriation level effected institutional performance most strongly as measured by efficiency scores. Each pairwise comparison was tested at the .008 level of significance since there are three categorical variables. Using the Bonferroni method the institutions in the lowest appropriation levels produced significantly superior

performance in efficiency in comparison to institutions with the highest level of state appropriations. The efficiency scores for institutions in the middle level of state appropriations were not significantly different from the institutions in the highest levels of state appropriations.

Consistent with Sloan-Brown's (2009) findings diminishing budgets for postsecondary education dictate the need for greater efficiency in the use of resources. However, the findings in this research study are also consistent with the laws of the revenue theory of costs. There is virtually no limit to the amount of money an institution could spend in attaining its goals. It is easily discernable and concluded based on the means and standard deviations across the appropriation levels that there are no significant differences in the level of effectiveness among institutions in the study. Institutions in the highest levels of state appropriations did not significantly outperform institutions in the lowest levels of appropriations.

Weerts and Ronca (2012) found almost no variation among institutions within the same state relative to the degree of variation that occurs among states or even within institutions over time and like institutions in different states have a greater difference in funding support than at the institutional level where the variance is insignificant among institutions in the same state from year to year. Recommendations were made to average appropriations for future study, however this study grouped institutions based on appropriations levels from lowest to highest which provided a cross-section of states within each group.

Conclusions

There are no significant differences in institutional efficiency and effectiveness scores based on coordinating agency, governing board or other state governance structural arrangements. The relationship between efficiency and effectiveness scores is strongest for those

institutions governed by other structural arrangements. Institutions in lower levels of state appropriations tended to score higher in efficiency than their counterparts in the mid-range and highest levels of state appropriations.

It has become clearer that operational efficiency and effectiveness of 4-year public institutions in relationship to their governance structure types that the accountability for institutional efficiency and effectiveness seems to rest primarily within the institutions governed. Institutional leadership has the pivotal role of leading constituents through the management of resources, internal and external relationships, and responding to environmental pressures which impact operational efficiency and effectiveness.

The environmental pressure for market responsiveness requires a greater emphasis on measurability at the student, faculty, administrative, and institutional levels. Autonomy and protections for the control of institutional decision-making by tenured academicians as described by Bergquist and Pawlak (2008), Lingenfelter and Mingle (2014), and Zumeta (2001) provides the opportunity for innovative approaches that address the deployment of human resources and the allocation of institutional resources to interventions that have the most significant impact on enrollment, research, and credit hours produced. These benefits can be attained by effectively engaging constituents from each organizational culture perspective in the decision-making process and strategically managing institutional change processes.

Recommendations for Practice

The following recommendations should be considered to improve practice. Know the numbers that have an effect on your decision making unit, regardless of size. For higher education governance and administrative professionals who want to improve institutional

performance. Decisions can be made relative to factors that increase desirable organizational performance by identifying optimal levels of inputs and outputs related to efficiency and effectiveness, as presented in this study. Leaders must have access to data, information, technology, and integrated data systems are critical in identifying and applying the appropriate measures to impact effective decision making at every level. Broad spectrums of stakeholders are affected by data accessibility, data linkages across state systems, and the capacity to use data in decision-making, including governance bodies. To effectively use education research and data for continuous improvement continues to be a challenge for the majority of state legislatures and higher education systems. Practices to build educators capacity to use data in decision-making could have a significant impact on efficiencies realized at the system and institutional levels.

Use the best timeliest data available when decisions are expected to have an effect on instructional faculty and staff compensation, nonlabor operational expenses, enrollment, research income, the number of degrees awarded and credit hours produced within institutions. Knowing the sources and appropriate uses of income and revenues that increase or decrease inputs and the related effects on outputs will provide a framework for reducing operational slack in the efficiency and effectiveness production relationships.

Bring people along with the process. Listen to and understand the organization's cultural perspectives that influence the perceptions and behavioral choices of faculty, staff, and students, and therefore the production processes within the institution which impact expenditures, enrollment, and student persistence to graduation. In an early study Sibley (1974) determined demands for accountability reflect the breakdown of viable forms of governance, the weakening of autonomy, and the loss of community within higher education. Birnbaum (2004) proposed that academic institutions are more effective when governance is shared. Faculty involvement in

shared governance may slow down the decision-making process, but it also ensures more thorough discussion and provides the institution with a sense of order, stability, and community. Shared governance is one method that is frequently used to influence decisions at the state and institutional levels. Shared governance is premised on the assumption that higher education institutions are learning organizations in which all stakeholders are engaged in the production and the critical assessment of knowledge.

The challenge faced by today's practitioner is to go beyond the production and assessment of knowledge and seek wisdom. Glover (2013) describes a wisdom seeker as one who understands that multiple sets of knowledge are connected many of which are unseen, and the identification and acceptance of commonalities among competing frameworks is critical in the process of architecturally designing the desired future state. The vulnerability of institutions to over politicize the change process is most exposed through the shared governance process. In answer to this shortfall Hendry (1996) sought to combine the strength of the academy with change theory by espousing the application of learning theory to strategic change management.

Expand opportunities for leadership to hear from a broader range of constituents through less formal means than standing committees, senates, and student government associations. With advanced communication technologies and accessible social media outlets decision-influencing opportunities should abound for all faculty, staff, and students. Glover (2013) states it best by clarifying that policies that limit our futures are effectively challenged through questioning. As constituents in learning organizations "we must question our individual and organizational beliefs and assumptions so that we understand how our ways of thinking and our states of knowing limit our ability to generate the changes the future will require" (Glover, 2013, p.19).

Meet people where they are on issues and gain buy-in. Obtain high levels of buy-in from constituents in the decision making unit for change initiatives. Mutually agreed practices and expectations increase trust, transparency, and commitment to change initiatives. All voices are important. Take appropriate actions that move the institution in the direction of achieving its mission. Make use of the unique perspectives and strengths of each operative culture within the decision making unit regardless of size. Practitioners that actively engage all six cultures of academe in the process of organizational change and development create enduring impacts.

Recommendations for Further Research

To quantitatively assess the level of efficiency and effectiveness by state using the data envelopment analysis procedures. To determine if within state systems institutions by degree levels reflect the same slacks within labor and nonlabor as inputs and degrees awarded and credit hours produced as outputs. The results of these analyses may inform governance bodies in decision making related to program expansions, eliminations, tuition increases, and modifications to appropriation levels. There are systemic institutional practices that promote inefficiencies. Develop replicable best practices through systems analyses identifying what can be changed to improve efficiency and effectiveness.

To qualitatively assess what matters in the measurement of institutional efficiency and effectiveness of governed institutions by state higher education leadership officials. Determine the types of data normally used in decision making. Determine if disciplines offered at the institutional level have an effect on intuitional efficiency and effectiveness.

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APPENDICES

APPENDIX A

State Governance System Classifications

SREB - States	# Insts.	SHEEO Classification	Governing Agency	Structure (ECS)	# Insts. In Study
Alabama	13	Coordinating Board	Alabama Commission on Higher Education	statutory commissiond coordinating Board ECS Education Commission of the States.	13
Arkansas	10	Coordinating Board	Higher Education Coordinating Board / Arkansas Department of Higher Education	Statutory responsibility for coordiantion	9
Kentucky	8	Coordinating Board	Kentucky Council on Postsecondary Education	statutory coordinating agency	8
Louisiana	14	Coordinating Board	Louisiana Board of Regents	statutory coordinating	13
Oklahoma	15	Coordinating Board	State Regents for Higher Education	Constitutional amendment as coordinating board	12
Texas	37	Coordinating Board	Texas Higher Education Coordinating Board	statutory coordinating agency	28
Virginia	15	Coordinating Board	State Council of Higher Education	statutory coordinating agency	12
Total Coordinating	**112**				**95**
Florida	34	Governing Board	Florida Board of Education /State University System Board of Regents (dissolved). Council for Education Policy Research and Improvement in the Office of Legislative Services (7 members: 5 appointed by Gov. 1 by Speaker of House, 1 by president of Senate.)	statutory governing authority	11
Georgia	29	Governing Board	Board of Regents of the University System of Georgia	statutory authority ECS reports 26 eligible institutions for this study	15
Mississippi	8	Governing Board	Mississippi Board of Trustees of State Institutions of Higher Learning	constitutional governing authority	8
North Carolina	16	Governing Board	The Board of Governors of the University of North Carolina	constitutional governing authority	15
West Virginia	12	Governing Board	West Virginia Higher Education Policy Commission	coordinating agency: replacing Board of Trustees of the University System and Board of Directors of the State College System.	8
Total Governing	**99**				**57**
Delaware	2	other	Delaware Higher Education Commission	statutory Cabinet Dept.	1
Maryland	13	Coordinating Board	The Maryland Higher Education Commmission	**OTHER**: coordinating body: 6 segments - University system of Maryland, Morgan State University, St. Mary's College, Community Colleges, Independent Colleges and Universities, and Private Career Schools	10
South Carolina	12	Coordinating Board	South Carolina Commission on Higher Education	**OTHER:** statutory coordinating agency / insitutions have board of trustees	10
Tennessee	9	Coordinating Board	Tennessee Higher Education Commission	**OTHER**: statutory coodinanting agency: governing boards for Univ. system and state univ. system (TBR)	9
TOTAL OTHER:	**36**				**30**
TOTAL	**247**				**182**

Organized based on State Higher Education Executive Officers and Education Commission of the States reports (SHEEO, 2014; ECS, 2007).

APPENDIX B

Institutional Review Board Exemption

East Tennessee State University
Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707
Phone: (423) 439-6053 Fax: (423) 439-6060

February 25, 2015

Angela Claxton-Freeman

Dear Angela,

Thank you for recently submitting information regarding your proposed project "Higher education governance structures and operational efficiency and effectiveness of public four-year institutions."

I have reviewed the information, which includes a completed Form 129.

The determination is that this proposed activity as described meets neither the FDA nor the DHHS definition of research involving human subjects. Therefore, it does not fall under the purview of the ETSU IRB.

IRB review and approval by East Tennessee State University is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are human subject research in which the organization is engaged, please submit a new request to the IRB for a determination.

Thank you for your commitment to excellence.

Sincerely,
Stacey Williams, Ph.D.
Chair, ETSU IRB

Accredited Since December 2005

VITA

ANGELA CLAXTON-FREEMAN

Education:	Ed.D. Educational Leadership. Concentration: Postsecondary Private Sector Leadership, East Tennessee State University, Johnson City, Tennessee, *December, 2015*
	M.P.A. Public Financial Management, East Tennessee State University, Johnson City, Tennessee 2011
	Certificate Nonprofit Management, Girl Scouts of the USA / Mandel Center for Nonprofit Management, Case Western Reserve University, Cleveland, OH 1992
	B.S. Human Relations, Missouri Valley College, Marshall, Missouri 1977
	Public Schools, University City, Missouri 1973
Professional Experience:	Interim Director, Multicultural Center, East Tennessee State University, Johnson City, Tennessee 2013-2015
	Graduate Assistant, Office of Equity and Diversity, East Tennessee State University, Johnson City, Tennessee 2011-2013
	Graduate Assistant, Engineering Technology Surveying and Digital Media, East Tennessee State University, Johnson City, TN 2009-2011
	Chief Executive Officer, Girl Scouts of the Appalachian Council, Inc., Johnson City, Tennessee 1993-2009
	DeWitt Wallace-Girl Scouts of the USA Executive Director Fellow Girl Scouts of the USA, New York, NY 1991-1993
Publications:	Claxton-Freeman, A., Trogen, P., Johnson, K. (2011). The dynamics of achieving faculty diversity in predominantly white universities: A case study of East Tennessee State University (unpublished Master's Capstone Report).
Presentations:	*Enhancing the Faculty Search Process to Achieve Faculty Diversity*. 4th Biennial Diversity Conference April 26, 2012 Nashville, TN: Tennessee Board of Regents.

Honors and Awards:	Nominee, Outstanding Thesis and Dissertation Award, East Tennessee State University 2012
	Kappa Delta Pi International Honor Society in Education, Zeta Iota Chapter, East Tennessee State University