

**STRATEGIC MANAGEMENT IN SMALL LIBERAL ARTS COLLEGES:
THE USE OF THE STRATEGIC SUCCESS MODEL
AS FRAMEWORK FOR SUCCESS**

Dissertation presented to the Faculty of the
California School of Management and Leadership

Alliant International University

San Diego

In partial fulfillment of the requirements for the degree of

Doctor of Business Administration

by

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2020

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Dedication

This dissertation is dedicated to

Eva and Nontas Karavokiris

June and Steve Souris

and my wife Marcella

Without their love, support and encouragement

I would not have been able to complete this work

Acknowledgements

I would like to express my sincere appreciation to a number of individuals who helped me in various ways to complete this research project.

First, I would like to extend my gratitude to the chairperson of my committee, Dr. Greg Lorton. Earlier in the program I chose to take as many strategic management classes he was teaching as possible. I came to appreciate his teaching style and his simple and to the point analysis helped me understand and appreciate Dr. Ansoff's model. As the chairperson of my committee he was very meticulous and provided invaluable support and suggestions.

I would like to thank the committee members Dr. Rene Naert and Dr. Robert Moussetis. Their advice and questions help me explore different angles of the topic and because of their assistance my work is that much more complete.

I need to thank Dr. Peter Antoniou and Dr. Tamer Salameh for the conversations we had and the valuable suggestions they gave me. A special mention for Dr. Ali Abu-Rahma. He was the person who approved my application and accepted me in the program, allowing me to start this journey. With his experience and suggestions, he helped me to complete my work. I am also appreciative of the assistance Dr. George Nakos gave me in navigating the deep waters of statistical analysis.

A big thank you to my wife Marcella, who was always supportive throughout the process. She offered me her assistance and constant encouragement and she never complained about the countless hours I spent in front of the computer researching and typing.

Abstract

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Committee Chairperson: Gregory A. Lorton, D.B.A.

THE PROBLEM: The purpose of this study was to attempt to validate Dr. H. Igor Ansoff's strategic success paradigm for use by small liberal arts colleges. It examined the alignment of environmental turbulence in the higher education space, the aggressiveness of the strategy, and the responsiveness of the organizational capabilities of these colleges as a prerequisite for success. In addition, it surveyed the impact of technological adoption to the attainment of the institution's goals.

METHOD: An on-line survey application was used to acquire thirty-three responses. The respondents were presidents or chancellors of small liberal arts colleges. The variables measured by the survey were Environmental Turbulence (Turbulence), Aggressiveness and Responsiveness of the liberal arts colleges. Performance was expressed in Academic and Financial. These two variables along with Technology Adoption data were retrieved from the Integrated Postsecondary Education Data System (IPEDS). IPEDS is a system of interrelated surveys conducted annually by the United States Department of Education's National Center for Education Statistics (NCES). Two gap variables were calculated between Turbulence and

Aggressiveness and Responsiveness to evaluate the alignment of these variables with Turbulence. Regression analysis was used to assess both of the performance concepts versus the two gap variables and Technology Adoption as well as Technology Adoption versus Aggressiveness and Responsiveness.

RESULTS: The four correlations of Academic and Financial performance versus Aggressiveness and Responsiveness Gap were not supported at a statistically significant level. Also, there was no correlation between Technology Adoption and Academic Performance, Financial Performance and Responsiveness respectively. The correlation between Aggressiveness and Technology Adoption was supported, along with three additional correlations of Turbulence versus Academic Performance, Aggressiveness versus Responsiveness and Responsiveness Gap versus Technology Adoption.

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CHAPTER I

Introduction

Background of the Problem

The golden era. Within the last century, Higher Education Institutions (HEIs) experienced such a significant growth that some observers have called this period the golden age of academia (Keller, 1983). This era started with the Industrial Revolution which set events in motion that created the need for more specialized education. Workers and administrative professionals required the ability to manage the new business structures and industrial processes. In order to do so, they needed to be educated in the expanding field of knowledge in their respective specialties (Fitzgerald, Bruns, Sonka, Furco, & Swanson, 2012). The general population recognized the importance of acquiring specialized education as a means to achieving personal growth, improving living conditions, attaining social prestige, and securing rewarding employment (Hixon, 2014; The Economist, 2012; Zhang & Peng, 2017). “A form of social contract emerged in which higher education came to be viewed as a social good that justified public investment” (Erickson, 2012, p. 213).

Consequently, people started to attend college at a steadily increasing rate. In 1879, there were 50,000 students attending colleges and universities in the United States (U.S.). By 1910, that number had skyrocketed to 350,000 (Kerr, 1991). Through the 1950s, enrollment at all U.S. institutions had escalated to more than 3.6 million, and by 2014, it has surpassed 20.2 million (National Center for Education Statistics, 2016). Figure 1 shows the number of enrollees in postsecondary U.S. based education institutions from 1947 to 2014.

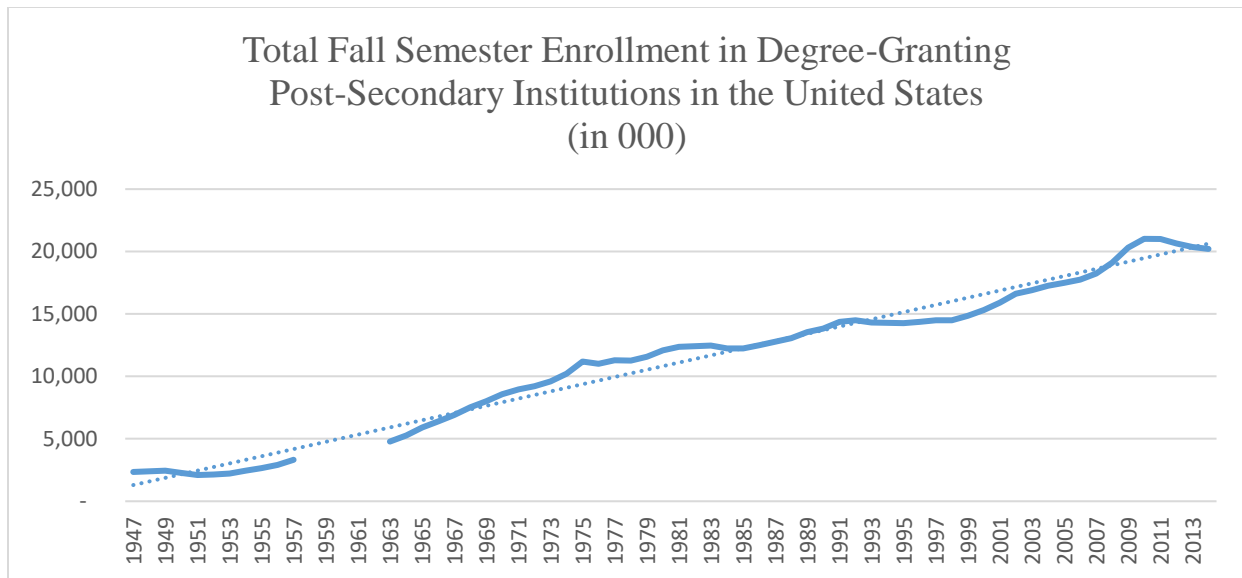


Figure 1. Total fall semester enrollment in degree-granting postsecondary institutions in the United States (1947 – 2013). From “The Digest of Education Statistics.” National Center for Education Statistics. Retrieved from https://nces.ed.gov/programs/digest/d15/tables/dt15_303.80.asp?current=yes.

This nearly constant increase in enrollments was fueled by several historical events and political actions. In the 19th century, the U.S. Congress enacted a number of land grant programs, such as the First and Second Morrill Acts of 1862 and 1890. According to these Acts, states were granted a number of acres for each of their senators and representatives. Proceeds from the sales of the land were to be invested in a perpetual endowment fund to support local colleges (Higher Education Resource Hub, 2008; Morris, 2010). Some of the universities that benefited from this legislation were well known educational powerhouses. Schools that started as land grant institutions include Purdue University, Auburn University, University of California, Massachusetts Institute of Technology, University of Missouri, and Cornell University.

During the Second World War (WWII), President Franklin D. Roosevelt signed the “Servicemen’s Readjustment Act,” or more commonly known as the “GI Bill.” This Act allowed some 1.4 million U.S. military personnel returning home from the war to flock to universities for retraining or to acquire useful skills. In 1947, veterans accounted for 49% of all the students in HEIs,

and by 1950, there were over 7.8 million who took advantage of that readjustment benefit (Stiefer, 2007; Mills, 2012; United States Department of Veterans Affairs, 2016).

As the enrollment numbers of the WWII generation tapered off in the 1960s, a new generation started making its way through college. The so-called baby boomers are the individuals that were born between 1946 and 1964 and number more than 74 million (Fry, 2016). The baby boomer generation secured robust college attendance for decades to come. In addition, the social changes driven by the civil rights movement empowered minorities and women to register in ever greater numbers (Keller, 1983). Currently, women make up more than 55% of the total student population (National Center for Education Statistics, 2016). Figure 2 illustrates the annual growth in the number of female enrollees in HEIs.

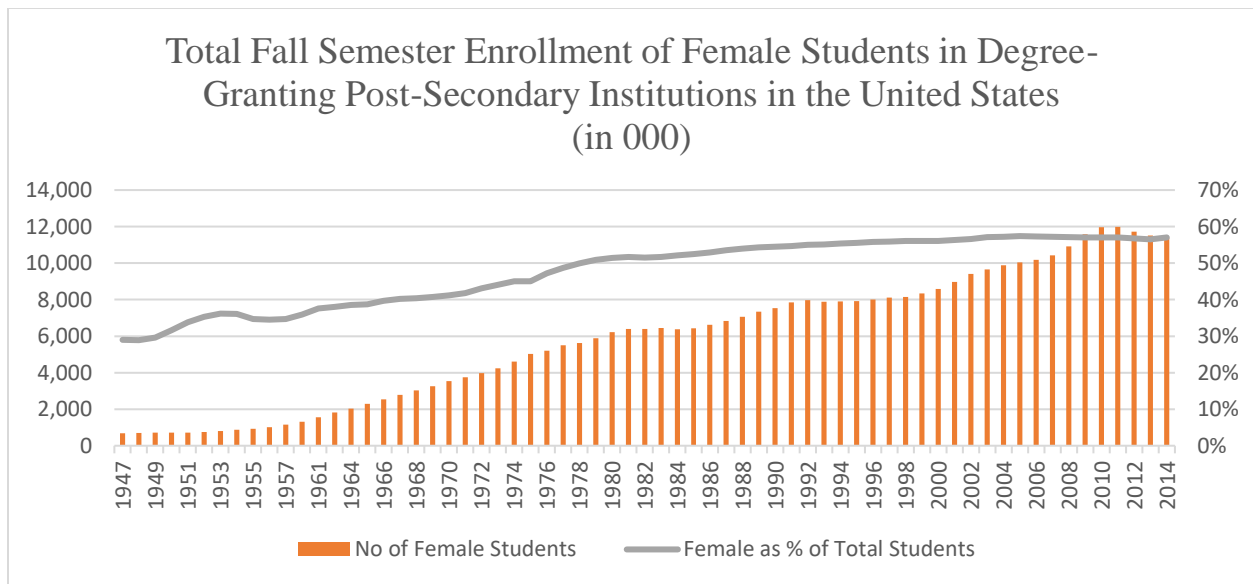


Figure 2. Total fall semester enrollment of female students in degree-granting post-secondary institutions in the United States (1947 – 2014). From “The Digest of Education Statistics.” National Center for Education Statistics. Retrieved from https://nces.ed.gov/programs/digest/d15/tables/dt15_303.80.asp?current=yes.

The generous influx of students and capital helped to create today’s grand image of the American university (Christensen & Eyring, 2011). Its rising reputation attracted students from all over the world. These international students were a welcome arrival for institutions because (a) they

paid full tuition; (b) they ensured diversity and pluralism (two concepts that are valued significantly on American campuses); and (c) they stimulated the economy of many local communities through their off-campus activities (Hegarty, 2014). International students provided the additional benefit of the retention of many talented scholars who selected to stay in the U.S. and contribute their expertise to the development of cutting-edge technologies (Douglass & Edelstein, 2009; Chellaraj, Maskus, & Mattoo, 2008).

Besides the robust enrollment record, states started allocating a significant portion of their budgets to fund certain local institutions. They recognized the importance of higher education and the prestige that universities could bring to their local communities. An example of a well-known such program is the Master Plan for Higher Education. In 1960, it provided the structure for California's massive and celebrated system of public higher education. After California's success, many states sought to reorganize their systems based upon this 1960 model, showing its national influence (Douglass, 2000; Maschino, 2001).

In addition to the relation between the federal and state governments, academia has had a mutually beneficial association with industry as well (Etzkowitz & Leydesdorff, 2000; Ramler, Felderer, Kitamura, & Marinov, 2016; McNally & Macdonald, 2017; Zaharia & Kaburakis, 2016;). Being the perfect venues for cultivation of new ideas and innovation of new technologies, universities have been extracting the following benefits from this relationship: (a) accessing data in scale that only industry could provide; (b) providing their students a close connection to corporations that could eventually employ them; and (c) receiving financial contributions from giants of commerce, such as Google and Facebook (Horard & Laird, 2013; Wolfman-Arent, 2014).

Corporations, in return, need access "to the talent and ideas percolating inside academe" (Wolfman-Arent, 2014, para. 5). Today's economy requires workers equipped with a certain skillset.

A robust education sector ensures that businesses have access to graduates who are capable of working in the current intellectually demanding environment. Similarly, as the average age of the workforce in the U.S. and in other industrialized countries increases, older workers can return to school to learn new skills and acquire new talents (Morrison, 2003). Lastly, a business-academia collaboration promotes innovation and ensures industrial relevance in academic research (Aurum et al., 2012).

HEIs are also benefiting from charitable donations from alumni and affluent members of society. The practice of donating to academia started in the earlier part of the 20th century when millionaires of the time, such as Johns Hopkins, Leland Stanford, or John D. Rockefeller found this to be a noble use of their wealth and a way to promote their aspirations. This practice continues today. In 2013, New York Mayor, Michael R. Bloomberg, became known for his notable pledge of \$350 million to Johns Hopkins University. According to the Council for Aid to Education, in 2013 the total number of private donations reached \$33.8 billion. In 2014, the number of gifts reached the all-time high of \$38 billion (Education in Review, 2013; Mulhere, 2015). Scholars have observed that HEIs thrived in an environment of available funding and robust enrollment, creating very desirable conditions for the higher education sector.

The Changing Environment in Higher Education

In the last several decades, the business and social landscape has changed, affecting higher education and altering many of the conditions that once drove the sector's growth (Manning, 2015). The economic crises of 2008-2009 affected most segments of society and ultimately impacted the HEIs, as well. After the recession, many states dealt with budgetary shortfall, and as a result reduced discretionary funding. Some of these reductions affected education programs that were not

constitutionally protected. As a result, the size of the funding state colleges received was drastically reduced (Lounder et al., 2011).

Selingo (2013) pointed out that due to the tightened federal budgets, the federal government had flat lined the research revenue dollars that accounted for 60% of grants awarded to universities. In 2013, the federal government was only able to cover 6% of the University of Virginia's budget, 7% of the University of Michigan's budget, and 11% of the University of California, Berkeley's budget. In the future, these dollars will mostly go to research powerhouses like John Hopkins University or the University of Washington. On the other hand, costs are not diminishing. Universities have established obligations (loans, building maintenance, campus upkeep) that are not reduced with a drop in appropriations or admissions. As such, HEIs will have to supplement their funding by trying harder to access the existing, but ever shrinking, pool of funds or look for new opportunities (Horard & Laird, 2013).

Partially due to economic woes, the cost of attending college has increased dramatically over the past decade. It has become a financial burden for students, many of whom carry significant debt from student loans well into adulthood (Consumer Reports, 2016; Edwards, 2016). Students' immediate family, who often assist with their financial obligations, carry the weight of the increased cost of tuition (Carr, 2012). This fact causes dissatisfaction and disappointment to the very constituents HEIs are trying to service.

A further concerning factor is that a portion of the borrowing students will eventually drop out. Nguyen (2012) explained that with the rising cost of college, students attempt to reduce their expenses by acquiring part-time or full-time employment, or by delaying their registration until they have sufficient funds. The paradox is that these cost saving actions put them at risk of dropping out

all together. As a result, these individuals experience higher unemployment, earn less income, and have higher default rates.

Defaulting on student loans affects colleges, as well. The United States Department of Education has created the Cohort Default Rate (CDR). The CDR “measures the percentage of a cohort that defaults within the year they entered repayment or the next two fiscal years.” (McKibben, La Rocque, & Cochrane, 2014, p. 6). Excessive CDR may impact institutions’ eligibility for Pell Grants and federal loans (McKibben, La Rocque, & Cochrane, 2014). The student financial assistance problem has been escalating for several years. A defining moment came in 2010 when Congress passed the Patient Protection and Affordable Care Act. This Act ensures that the United States Treasury, rather than private sector lenders, hold billions of dollars of outstanding student loan debt and their associated risk, all of which would be financed by taxes and deficit borrowing (Miller, 2012). In other words, since 2010, taxpayers have been ultimately responsible for the funding of all segments of higher education. This underwriting has not been limited to supporting the states’ HEIs or to funding the financial aid allotted to millions of students alone. It has also been extended to covering the losses incurred by failing for-profit colleges (Cooper, 2017). The increasing financial obligations, combined with the perceived poor performance results of HEIs, has weakened the resolve of the public to support academia. This lack of resolve jeopardizes any funding measures that are dependent on the public’s vote (Garland, 2009).

A decrease in U.S. fertility rates is another social factor that has altered the environment of HEIs over the last decades. Fertility rates of most western countries have been falling. In the U.S., the fertility rate in 1960 was 3.7 (The World Bank, 2017). However, by 2015 it had fallen to 1.8 (The World Bank, 2017) and since, it has fallen by an additional 1% according to the New York Times (Bakalar, 2017). The paradox is that, despite the ever reducing number of births the last

several years, enrollment has increased steadily for HEIs. This gap is covered by the influx of a significant number of international students. During the 2014-15 school year, 975,000 international students were studying in the U.S., contributing \$30.5 billion to the economy (NAFSA: Association of International Educators, 2017; Zong & Batalova, 2016).

Other countries have recognized the financial, social, and other benefits that higher education can bring to their own population, and they are investing heavily in their own education systems. Although many international students chose American institutions for their education, foreign states are now in position to retain local students, reducing market share for American universities and even attracting some American pupils (De Wit, 2010). The numbers are not significant yet, but competition is stiffening. HEIs need to expand their marketing capabilities and improve their competitive profiles to confront potential international rivalry (Pucciarelli & Kaplan, 2016).

The influx of international students, in conjunction with the increase of women and minorities, has dramatically altered the ethnic and racial demographic on campuses (Keller, 2001). An additional factor impacting the change in student body is the increasing average age of students. Transformation in the business environment means that workers need to retrain for the necessary skillset. Laid-off professionals frequently go back to school to acquire knowledge to become more marketable. These changes require the appropriate adjustment to values, scheduling, instruction, and curriculum at schools to address multiculturalism (Morrison, 2003).

Technology is yet another factor that has transformed education. It has infiltrated the classroom, and it has made knowledge delivery more interactive, immediate, and effective. It has also brought the classroom into the student's home. Online education has been expanding since the beginning of the 2000s. At the advent of online education, schools offered a few courses delivered over the Internet, but now institutions offer whole programs and degrees (Clark, 2014). Many brick-

and-mortar schools, especially the ones with smaller enrollment and weaker financial strength, will find it difficult to compete with the modern and less expensive virtual knowledge delivery systems (Christensen, 2009).

The new technology also speaks to the way the new generation operates and learns. Millennials have short attention spans and use technology skillfully. They prefer to search a subject on their own instead of attending hour-long lectures. Duke University Provost, Sally Kornbluth, stated that the new paradigm has flipped the classroom (Anders, 2015). Universities have to learn to teach the new generation the student's way, by making the necessary changes in pedagogy and adopt new technologies. These changes are costly and lengthy in their implementation, but necessary for the survival of any HEI.

The adoption of new technologies within higher education has brought another tribulation to the traditional brick-and-mortar university. Technological innovation allows private, for-profit institutions to flourish because they offer part of or their entire curriculum over the web. These online programs allow working adults the flexibility to attend college without altering their work schedules. In addition to technology, the for-profit college's simpler processes allow students easier enrollment and application for financial aid. Class availability is another benefit. The online platform allows for large attendance and asynchronous learning. As such, students are able to register for their desired classes, without having to wait for another semester due to limited enrollment, as they do in other HEIs. Thus, at the time that other segments of academia were contracting due to economic crisis, for-profit colleges grew much faster..

Academia is experiencing some internal challenges as well. Many tenure track faculty are aging and are at the end of their careers. Their pending retirements will open the door for the hiring of younger and cheaper professionals, easing the cost burden for colleges and universities. However,

tenured professors tend to remain at their posts longer, preventing younger educators from advancing their careers (June, 2014). There is also some concern that at that stage of their lives some do not have the required productive mind set (Perley, 1998). They may be hesitant or unwilling to change their traditional ways in order to make the necessary impact that today's students demand (Keller, 1983).

Tenure, itself, has had a partially detrimental effect in academia. It may act as a disincentive for a professor to change. As an example, in research universities, tenure professors may have less of an interest to teach and more of a desire to pursue their more lucrative research activities. To cover their teaching obligation, research institutions hire graduate students or adjunct professors. Non-tenure track positions of all types now account for over 70% of all instructional staff appointments in American higher education (American Association of University Professors, 2018). Adjunct professors do tend to be younger and more in tune with their students' generation, but their employment is uncertain and the lack of security can affect their dedication to the cause.

Lastly, shared governance between administration and faculty has not stopped from causing friction amongst the ranks. It is not a new concept, but it is more pronounced in today's difficult financial environment. Faculty continue to see themselves as the guardians of knowledge and pursue dissemination of their values of education at any cost. Administration, on the other side, is responsible for running an efficient operation. Their two functions are frequently contradictory, causing conflict and animosity. Occasionally, their differences make it difficult to reach consensus and establish a harmonious culture (Garland, 2009).

Small Liberal Arts Colleges (LACs) are not immune to these conditions. As a subset of the education ecosystem, they are experiencing the same challenges as their larger counterparts.

Traditionally, the LACs offer a unique curriculum which is focused on the humanities, social

sciences, arts, and science. In fact, they offer a wide variety of programs, but unlike other universities, their programs promote critical and creative thinking, problem solving and communication abilities, instead of specific skills in a narrow field. This acts both as a differentiating factor and as an obstacle to growth. On one hand, LACs have been successful in preparing graduates with the thinking and reasoning abilities required by today's corporate jobs (Marcus, 2013). On the other hand, it is more difficult for liberal arts graduates to find these jobs once they require business, medicine, engineering or some other specialized skill. Furthermore, their income for the first several years after graduation is well below their engineering or business classmates (Carnevale, Cheah & van der Werf, 2020). As such, parents have been urging their children to acquire education in subjects that offer better financial prospects.

Over the last several decades, the percent of students that advanced to college after high school has increased from 45% to 69% (National Center for Education Statistics, 2016b). This indicates that current and future parents are generally more educated than those in prior generations. Their educational accomplishments are predictors of their preference in specialized education and specifically in elite institutions (Grawe, 2018). These two factors are part of the reason that degree awards at LACs have been declining steadily. The American Academy of Arts and Sciences (2017) reports that the degrees awarded in humanities decreased by 14.5% in the period between 2012 to 2015. Also, in 2015 the humanities portion of all new bachelor's degrees fell below 12% for the first time since records were compiled.

The future does not look any better for the LACs. The fertility rate in the U.S. is below 1.8 births per 1,000 women and this is significantly below the level needed for a population to replace itself (Howard, 2019). Due to this dramatic development in U.S. birth rates LACs should expect a

reduction of the size of their target market. It is expected that most education markets will experience decline of 20% in average, with some areas declining as much as 31% (Grawe, 2018).

LACs will experience changes in their student demographics, as well. Although diversity is improving, it is largely due to the rising number of the Hispanic students. In the last fifty years, there has been a steady increase in the enrollment number of this ethnic group (National Center for Education Statistics, 2016c). The challenge for the colleges is that these students are typically enrolled on a part-time basis (Grawe, 2018). This hinders the revenue goals of the LACs. These institutions are generally tuition driven. Running a profitable operation requires a sizable student body. However, their small size and ever decreasing attendance has affected their financial strength. To survive, many schools suffered program eliminations, faculty layoffs or increases to the already high tuition amounts (Koenig, 2019). As a response, students at these schools tend to apply for twice as much in loans as students in public colleges (Schwartz, 2020).

Increasing tuition, ballooning student debt, stiffening competition, technology and shortage of funds comprise the picture of the environment for the LACs (Paterson, 2019). These conditions cause several institutions to eliminate traditional liberal arts programs or close their doors, all together (Marcus, 2018).

Statement of the Problem

During the golden era of education, HEIs expansion was generally secured by the unwavering support of most sectors of society and the government (Morris, 2010). The skillsets and talents the faculty developed extended to traditional pedagogical methodologies. Administration could address most situations before they became crisis utilizing easily assembled resources. In those low volatile environments, colleges could adapt to situations organically over time. Hence, the culture they adopted and the institution behavioral orientation were mainly reactive.

However, in today's environment, challenges are diverse, more frequent, more impactful, and allow only a short reaction period before they develop into severe trials. In these conditions, success requires a proactive approach, aggressive strategy, creative skills, innovative spirit, and flexible structure. Because of the service to society, academia "was afforded a significant degree of insulation from the pressures of society" (Altbach, 2015, p. 2). Several scholars have agreed that the skillset developed by faculty and staff in the past has not been sufficient to serve today's university (Crow, 2010; Keller, 2008).

Rowley, Lujan, and Dolence (1997) postulated that jobs change more quickly than the specialized knowledge higher education offers to its graduates. The traditional values of academia have shielded universities from external forces, not allowing them to recognize and achieve the appropriate rate of change. Now more than ever, it is imperative for HEIs to change (Levine, 2014). Faculty and administration must assume new roles outside their comfort zone and different from the traditional way of teaching and managing (Christensen & Eyring, 2011). Many authors agree that it is imperative for the LACs to evolve with the times. They just cannot stay static in an evolving environment (Baker & Baldwin, 2015; Bonvillian & Murphy, 2013; Jaschik, 2016). They need to find creative solutions to accommodate their financial goals and they have to project a very compelling value argument to persuade parents and prospective students alike of the competitive advantage they offer.

Universities with prestigious reputations (Ivy League) as well as other well-funded research universities will be able to weather the storm by virtue of their reputation and the size of their endowment funds. They will be able to implement measures to mitigate any challenges before they become critical. However, the majority of the smaller liberal arts colleges have limited resources that make them distinctively vulnerable to the many changes in today's environment (Craig & Williams,

2015; Ghemawat, 2017; Hixon, 2014; Jaschik, 2017; Lombardi, Capaldi-Phillips, Abbey, & Craig, 2017; Paterson, 2019).

The goal of this research was to attempt to validate Dr. H. Igor Ansoff's (1987) strategic success paradigm for use by small LACs. It would examine the alignment of environmental turbulence in the higher education space, the aggressiveness of the strategy, and the responsiveness of the organizational capabilities of these colleges as a prerequisite for success. In addition, it would survey the impact of technological adoption to the attainment of the institution's goals.

Strategic Success Model

Ansoff (1987) developed the Strategic Success Model as a framework to assist executives in formulating a successful strategic management approach, specific to the various conditions of the business environments. The hypothesis states that an organization's performance will be optimal when the Strategic Aggressiveness (Aggressiveness) and the Responsiveness of Organizational Capabilities (Responsiveness) are aligned with Environmental Turbulence (Turbulence) (Ansoff & McDonnell, 1990). These terms are defined below:

Turbulence is defined as the frequency, visibility, novelty, and complexity of changes that occur in a specific business environment. In this study, the terms will refer to the HEI environment.

Aggressiveness is the degree of production push and marketing drive that is exhibited by a college. Aggressiveness should be appropriate to the level of turbulence in which the institution operates.

Responsiveness refers to the level of knowledge, skill, attitude, and talent of management, as well as the culture and structure of the organization, enabling it to support its Aggressiveness.

Expected Contribution of the Study

This study is designed to use Ansoff's Strategic Success Model as a framework for strategy formulation at LACs. It is anticipated to make contributions to both the field of strategic management, as well as to the practice of the management of specific institutions.

As it relates to the field of strategic management, this study provides a new perspective to strategy formulation taking under consideration external conditions and defining the appropriate organizational capabilities and culture. From a practical perspective, this work is intended to assist school administration with framing the appropriate strategic posture for any environmental circumstances.

CHAPTER II

Literature Review

Introduction

This chapter presents, in some detail, Ansoff's (1987) Theory of Strategic Management, upon which this study is based. The presented global model illustrates the actors comprising the higher education environment. Their actions create certain conditions that an institution is called to address by formulating an appropriate strategic response. This chapter will also introduce the research model and the methodology the current study used to validate the application of Ansoff's concept on the higher education industry.

Strategic Success Model

Ansoff's (1987) Strategic Success Model is a comprehensive instrument for the formulation and implementation of strategic alternatives (Ansoff & McDonnell, 1990). The theory suggests that an organization could achieve ultimate performance results if (a) its Aggressiveness matches the level of Turbulence of the environment; and (b) if the Responsiveness complements the intensity of the strategic push. All these variables are measured on a five-level scale (Ansoff & Sullivan, 1993).

Table 1 shows the characteristics of Turbulence on all five levels. Turbulence is a factor of complexity, familiarity, predictability, and succession rapidity of upcoming events. Turbulence is said to be at level 1 (low) when the business, economy, and social environment is stable and there are no impending changes. At this level, success is secured if the organization continues to do "business as usual" (Salameh, 1987).

Table 1

<i>Turbulence Scale</i>						
	Turbulence Level	Level 1 Repetitive	Level 2 Expanding	Level 3 Changing	Level 4 Discontinuous	Level 5 Surprising
Turbulence Characteristics	Complexity	National	+	Regional	+	Global
	Familiarity of Events	Familiar	Extrapolable		Discontinuous Familiar	Discontinuous Novel
	Rapidity of Change	Slower than Response		Comparable to Response		Faster than Response
	Visibility of Future	Recurring	Forecastable	Predictable	Partially Predictable	Unpredictable Surprising

Note. Source: Ansoff, H. I., & McDonnell, E. J. (1990). *Implanting strategic management*. Essex, UK: Prentice-Hall.

At Turbulence level 2, there are occasional, yet predictable changes. Organizations can foresee them and prepare for their impact before they become unmanageable. Focusing on efficient production is generally the most fitting response in these conditions. At Turbulence level 3, the rate of change in the environment is accelerating. Organizations are still able to react in time, but that is only because environmental shifts are predictable. Firms can address issues by employing past responses and extrapolating past successes into the future. Marketing orientation serves organizations best at this turbulence level. Ansoff (1987) called Turbulence condition level 4, when the rate of change is high and the upcoming challenges are significant and less visible. At this level, companies cannot depend on the extrapolation of their past successes to address the future. The impact of the change is usually faster than the response time of a firm to implement a remedy. At that level it becomes important to adopt an entrepreneurial stance. Lastly, at Turbulence level 5 (high), changes happen frequently and they are generally unpredictable and surprising.

Organizations often do not have the expertise nor the time to react appropriately. Historical

experience is not sufficient to address the challenges. A more proactive and creative stance is required at this level (Ansoff, 1987). Entities that are successful in this level are innovative. Through their pioneering actions, they create the turbulence with which the rest of the companies in the industry try to imitate (Christensen, 2006; Hamel & Prahalad, 1996; Kim & Mauborgne, 2005).

Through monitoring the business environment and interpreting the external signals, management can determine the level of turbulence. For the best chance of success, a firm needs to develop corresponding characteristics of Aggressiveness and Responsiveness. These must be specific to each and every Turbulence level in which it finds itself operating (Ansoff, 1987).

Aggressiveness is defined by the vigor and dynamism of the firm's competitive push, its marketing tactics, and the timelines of its product development and introduction to the market. At a Turbulence level 1, where there are no changes in the environment, the preferred Aggressiveness stance is that of stability. No operational change or new product introduction is warranted once the market is satisfied with the firm's products or services, and there are no environmental changes forecasted to alter this equilibrium.

From Turbulence level 2 through level 5, there is a progressively increasing degree of uncertainty. Challenges appear faster, are progressively harder to detect, and their impact is significant. Correspondingly, a firm should gradually adopt a more aggressive stance. At a Turbulence level 2, changes are visible and incremental. As such, a firm can afford to be somewhat reactive. However, through Turbulence level 5, changes appear more rapidly and are disruptive. The preferred Aggressiveness posture at that level is creative. Firms should think creatively, forming the environment, and initiating the changes instead of reacting to them. Table 2 indicates the Aggressiveness characteristics that correspond to each Turbulence level (Lorton, 2006; Sine, Mitsuhashi, & Kirsch, 2006;).

Table 2

Aggressiveness Scale

Turbulence Level	Level 1 Repetitive	Level 2 Expanding	Level 3 Changing	Level 4 Discontinuous	Level 5 Surprising
Strategic Aggressiveness	Stable	Reactive	Anticipatory	Entrepreneurial	Creative
	Based on Precedents	Incremental, Based on Experience	Incremental, Based on Extrapolation	Discontinuous, Based on Expected Futures	Discontinuous, Based on Creativity

Note. Source: Ansoff, H. I., & McDonnell, E. J. (1990). *Implanting strategic management*. Essex, UK: Prentice-Hall.

Responsiveness is a collection of factors relating to organizational structure, culture, management skill, and mentality that support the organization's Aggressiveness. Similar to the previous concept, there is a specific set of capability characteristics that are most suitable for optimal results for each one of the Turbulence levels. On a Turbulence level 1, the organization as a whole seeks stability, avoids change, operates based on past wins as the success guide, and has a more centralized and authoritative management system. At the other end of the spectrum, on a Turbulence level 5, the best performance will be achieved by an entity which is flexible, cultivates creativity and entrepreneurial thinking, has forward looking management, and is willing to embrace change. Table 3 shows the Responsiveness factors for each of the five Turbulence levels in more detail (Moussetis, 2011).

Table 3

Responsiveness Scale

Turbulence Level	Level 1 Repetitive	Level 2 Expanding	Level 3 Changing	Level 4 Discontinuous	Level 5 Surprising
Responsiveness	Custodial	Production	Marketing	Strategic	Flexible
	Precedent Driven	Efficiency Driven	Market Driven	Environment Driven	Create Environment
	Suppresses Change	Adapts to Change	Seeks Familiar Change	Seeks New Change	Seeks Novel Change
	Seeks Stability	Seeks Operating Efficiency			Seeks Creativity
	Seeks Strategic Effectiveness				
	Closed System	←————→		Open System	

Note. Source: Ansoff, H. I., & McDonnell, E. J. (1990). *Implanting strategic management*. Essex, UK: Prentice-Hall.

The Global Model

The described Strategic Success Model has been validated in a number of studies involving for-profit, not-for-profit, government organizations, as well as international and domestic entities (Al-Hadramy, 1992; Jenni, 2015; Lewis, 1989; Mitiku, 1992; van der Velten, 1993). It has not been applied broadly to the field of higher education or specifically to the subset of LACs. This section will describe the actors and forces involved in academia, and especially the small liberal arts college group.

As previously stated, various conditions will create a specific sociopolitical and business atmosphere in which a college is called to operate and succeed. Success will be a factor of the strategies and the specific pool of capabilities the school chooses to adopt or develop. Such selection



depends on the administration's knowledge, skills, talents, and abilities to understand the environment. Additional influence is applied by a number of cohorts. These groups encourage administration to take certain actions based on their aspirations, their own interpretation of the environmental conditions, and their power.

The Global Model schematic below (Figure 3) indicates the external factors that define a LAC's environment. Developments created by these factors are beyond the control of the institution and they can significantly affect its operations (Moussetis, 2011).

These factors involve:

- Politics: The general political climate;
- The government: The federal and the state governments play an important role as they enact and impose regulations, and provide funding both in the form of financial aid as well as direct subsidy to institutions;
- Economy: Contracting or expanding economic conditions can create new, unknown circumstances that may be detrimental to the LACs' opportunities for growth;
- Society: Its general propensity to support or oppose universities. Society has expectations of certain results from academia. In a democratic system, it has the ability to endorse or shut down education related proposals and legislations;
- Technology: The rapid speed of innovation necessitates faculty and staff to become familiar with technology, requires additional investment in equipment, and creates new markets and methodologies for the dissemination of information. In the internal environment, technology has a wide spread of applications. It may dictate how environmental data are collected and interpreted; affect the knowledge delivery method;

control operational actions; handle administrative activities; and manage communications to and from all parties;

- Industry: It desires partnerships that will support continued research, allow access to advanced data and create a well-trained work force; and
- Education: Various professional associations and governing bodies, such as accreditation groups, may impose another layer of demands for the institutions.

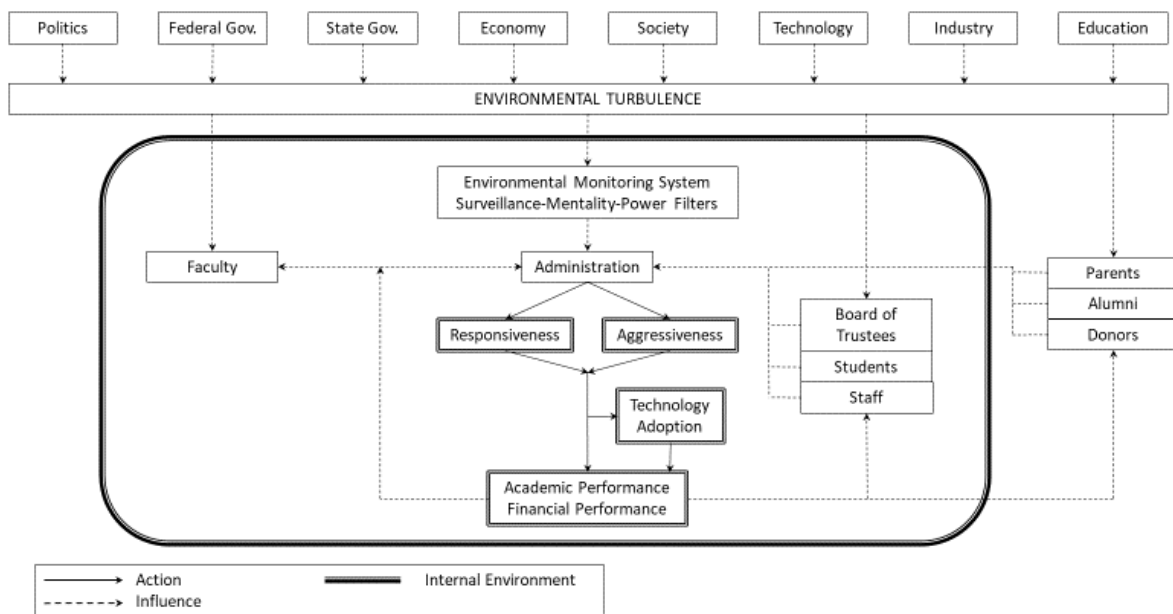


Figure 3. Image of the Global Model schematic.

The collective influences of these actors define the uncertainty of the higher education environment. One of the administration’s tasks is to collect and evaluate information and data so as to ascertain the level of Turbulence. This data may include the direction the market is moving to, the future success factors, the future competitive picture, the legislative outlook, and other aspects that could affect the school’s growth and profitability.

Many errors can happen during this data interpretation phase. It will depend on the knowledge, biases, and intellectual capacity of the administrators to correctly identify and understand the signals from the environment. There are three cognitive conditions that can affect the signal interpretation. Collectively they are known as filters (Ansoff & McDonnell, 1990; Kipley, 2008).

The first is the so-called “surveillance filter.” The monitoring systems and techniques employed have to be sophisticated enough to appreciate the complexity and recognize the weight of the information. If it is not, data may be misinterpreted or ignored. The “mentality” filter can also be a block. When they operate a successful institution, administrators perceive their current set of actions and decisions as the appropriate success model. As such, when they encounter a discontinuity, their first inclination is to continue with the same accomplishing methodology of the past. Nonetheless, today’s changes bring a new reality that makes the historical response invalid. Lastly, there is the filter of “power.” If the controlling/powerful group or the top executive has the incorrect outlook for a given environmental condition, this group or individual can override any opposing opinion and set up the company to confront tomorrow’s challenges with yesterday’s tools.

In addition to the external signals, the administration receives diverse influences from a number of constituents. These groups are exposed to the same environmental signals and form their opinions based on their interpretation of the data, their knowledge, and their interests (Kipley, 2008).

These constituencies include:

- The board of trustees who have certain hopes about the institution that may invoke their personal aspirations;
- Staff who strive for security and professional prosperity;
- Parents who want the best education at affordable prices;

- Students who are looking for cutting-edge curriculum and efficient knowledge acquisition that will ensure gainful employment;
- Alumni and donors who want to see the school succeed. Personal ambitions may drive some of the donations and involvement with the institution; and
- Faculty who have significant influence in the decision making based on the principal of shared governance. Although they do not involve themselves with the business aspect of the university, they are in control of scheduling, programs, pedagogy, and curriculum.

Based on their own interpretation of the environmental signals and the influences from all the constituents, administration formulates an impression of the turbulence conditions in the LAC environment. This understanding should lead them to formulate the appropriate strategy and set of capabilities for the successful operation in the given circumstances.

Research Model and Supporting Literature

This research study will focus on the sub-section of the global model as seen in Figure 4 below. As described above, the administration of a LAC receives input from several stakeholders and signals from the external environment. The perception they develop about the Turbulence from these inputs dictates the corresponding Aggressiveness and Responsiveness that they will develop. This section examines the interrelationships between the Turbulence, the Aggressiveness, the Responsiveness, and the level of Technology Adoption of an institution as they relate to achieving the best possible performance. The conclusion of this section will discuss the research hypothesis and the relating variables that were developed for the current study. The current study implemented Ansoff's (1987) Strategic Success Model as a framework and drew from research relating to higher education.

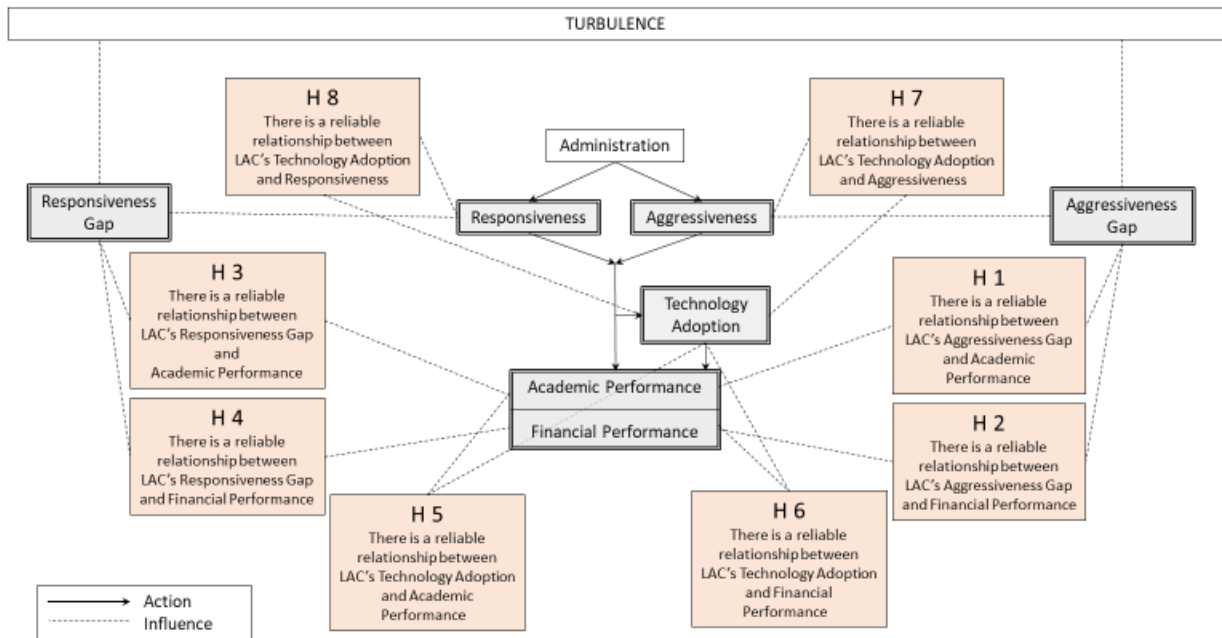


Figure 4. Image of the Research Model schematic

Turbulence. In his work, Ansoff (1987) suggested that an entity achieves ultimate results when it adopts strategic and operational measures appropriate for the Turbulence in which it operates in. Turbulence is a central concept in his construct and referred to the uncertainty that is created in an environment due to the reduced visibility and increasing speed, complexity, and severity with which changes impact an economic sector or the society as a whole. Ansoff (1987) suggested that from the second half of the 20th century, events such as the oil crisis of the 1970s, the environmental pollution issue, and the increasing growth and proliferation of new technologies have increased the uncertainty in society (Ansoff & McDonnell, 1990). Thiel (2014) further recounted the volatility of the 1990s, the recessions in the U.S. and many countries in Asia, and the “dot-com” exuberance that contributed to the early 2000 financial crash.

To confront these and other challenges, many companies need to transform themselves in order to survive. Cirque de Soleil is a famous example of an organization that had to reinvent itself

to endure the increasing competition from alternative forms of entertainment, such as video and home entertainment (Kim & Mauborgne, 2005). These technologies were developed relatively quickly and captured the interest of the traditional circus customer - the kids. Simultaneously, a social sentiment against animal cruelty matured and brought unpredictability to the future of this business (Kim & Mauborgne, 2005). Other entities, even powerful ones, have fallen from prominence. Hamel and Prahalad (1996) attributed this to the fact that the business landscape changes faster than the management can modernize its beliefs and assumptions.

Drastic challenges have not confronted the business world alone. Conditions in the higher education space have been equally disruptive (Erickson, 2012; Mehaffy, 2012; Staley & Trinkle, 2011; White, 2013). Altbach (2015) stated that challenges facing academia amount to a revolution which can alter profoundly the role of the university. Christensen (2009) echoed the above sentiment when he stated that “simply put, higher education’s prevailing business model is a mismatch with the current educational needs of our population. It is time to rethink and disrupt that model” (para. 17). Labib, Read, Gladstone-Millar, Tonge, and Smith (2014) pointed out that, similar to other sectors, higher education is also confronted with a rapidly changing environment. This necessitates the creation of a new culture that will swiftly respond to any sudden development.

Despite its historical preeminence, the American education system has lost its agility and adaptability. Universities have chosen to compete based on their name recognition and program reputation rather than reinvent themselves (Crow, 2010). They maintain an outdated pedagogical system and ignore societal developments and international competition (Eng, 2013). Crow (2010) postulated that universities are generally risk averse and conservative organizations. As a result, they frequently miss opportunities. Contrary to the reactive culture that the HEIs had prior to the financial crisis of 2008-2009, they have now mobilized. In light of financial and other challenges they faced,

they have set in motion actions to confront the new world order. However, many of these actions are defensive and intended to achieve an equilibrium. The author of this study argues that today is precisely the time that institutions need to embrace change and transform. Academia can use some of the driving principals of the successful American industry.

As in many other industries, the customer profile in higher education is evolving. Millennials are now of college age. They differ from any prior generational group. Some of their dominant characteristics are desire for structure, expectation for reward, and team-oriented approach to learning (Cutler, 2014; Jonas-Dwyer & Pospisil, 2004; Ralph, Waldron-Moore, & Woods, 2016). Millennials have the desire to succeed, like any other generation, and they expect instant gratification, sentiments that exacerbate with the use of technology (Cardon, 2014). Today's faculty need to understand that millennials are motivated in a different way than their predecessors. Researchers have postulated that educators need to adjust their teaching strategies by using technology themselves, or by relating the subject matter to the "real world" (Cardon, 2014).

Another conspicuous change has happened in the composition of the student body. American campuses are more diverse than ever. Today's age demographic of the student does not solely consist of 18- to 24-year-olds. Many students are now older professionals who are returning to school to retrain and acquire knowledge to improve their careers. They work full- or part-time, and some support families (Azziz, 2014; Oblinger, 2003). Currently, there is a significant portion of women and minorities on America's campuses (Patten & Fry, 2015; Seurkamp, 2007). Over the past decades, student demographics have changed due to a significant increase among all the major minority groups. The Hispanic population grew by 15 million people (43%). The African-American and Asian-American communities grew by more than 4 million, 12% and 43% respectively (Zhang & Peng, 2017). Researchers posited that teachers need to address millennials and the new way of

teaching and learning (Jonas- Dwyer & Pospisil, 2004; Oblinger, 2003). Researchers argued that teachers should tailor their curriculum to the needs of the students and to their learning models. Additionally, researchers concurred that HEIs need to address today's diverse and multi-cultural environment (Leavitt, Wisdom, & Leavitt, 2017; Morrison, 2003).

The cost of acquiring postsecondary education contributed to the turbulent environment within higher education. College fees have increased so much that, in conjunction with the student loan debt crisis, some researchers postulate that this may be the next financial crisis to occur. Since the late 1970s, the cost of higher education has risen almost 7.8% per year. In comparison, medical costs rose 6.1% per year, and the Consumer Price Index grew 2.1% per year (Hixon, 2014). Unfortunately, colleges did not make the hard decisions to reorganize or amend their curriculum to make their services more attractive. Instead, they resulted to the easy solution of raising tuition, becoming even less competitive (Erickson, 2012; Faust, 2010). To cover the expense of education, students and their families have to borrow from various sources. The amount of the total student loan debt in the U.S. has exceeded the total credit card debt. Today's graduates leave school with more than \$24,000 of liabilities (Erickson, 2012). To make sure that they will be able to pay it off, research has found that students select majors that ensure higher salaries. Engineering, business, and health professions represent some of the most common majors. Consequently, only one-third of all bachelor's degrees awarded annually in the United States are in the liberal arts, and less than one-third of these are in the humanities (Crane, 2011).

Technology has opened new horizons in the field of higher education. It started in the early 2000s with the advent of the Internet. Private, for-profit institutions took advantage of this tool to revolutionize the sector. Further business innovations have been rapidly materializing. In 2011, venture capitalists spent approximately \$429 million to promote unique education services and

applications. Some of the well-known corporate entities behind these solutions include Udacity, Udemy, Coursebook, among others. Universities, once revered as the keepers of knowledge, have discovered that they have been losing their monopoly. New corporate entities have entered the market, intensifying competition (Mehaffy, 2012).

The technological infrastructure required today is a significant expense. Cost ranges within the tens of millions of dollars. Institutions that cannot afford the initial investment and the ongoing maintenance of e-learning systems will find it difficult to survive in the highly competitive environment (Erickson, 2012). Levine (2014) agreed with this speculation and suggested that institutions cannot wait to be dragged into the digital world. Levine (2014) also argued that HEIs need to be proactive in the implementation of education technologies, otherwise they will be overtaken by more aggressive competitors. Global learning itself carries inherent complexities. The mere volume of knowledge is vast and diverse. Compounding this issue is the fact that knowledge is constantly increasing and changing. Colleges have to radically change their archaic structure to meet today's transnational environment (Summit, 2013).

Aggressiveness. Some of the challenges that higher education confronts are brought up by increased competition, globalization, technological innovation, demographic changes, and high expectations by the public. These conditions cause a rather high level of uncertainty in the environment, and therefore, require the appropriate strategic response by education institutions. Researchers have argued that entities operating in these conditions need to be proactive, creative, have a dynamic impetus, flexible structures, and an agile organization (Ansoff & McDonnell, 1990; Christensen & Eyring, 2011; Hamel & Prahalad, 1994; Morris, 2017; Navarro & Gallardo, 2003). As early as the mid-1990s, Clark (1998) defined features that forward-looking HEIs should implement into their strategic goals. Clark (1998) argued that the management of the organization should be

agile and dynamic, while simultaneously inclusive. “It must operationally reconcile new managerial values with traditional academic ones” (Clark, 1998, pp. 5-6). A second feature suggested that administration should have the

...means of reaching across ‘old university boundaries’ to reach organizations and structures beyond academia. This is not to deny the continuing importance of traditional academic subject areas and departments but there is a presumption that, in the entrepreneurial university, these must be overlaid with overlapping matrices of interdisciplinary networks that look across the traditional academic silos, or be complemented by an infrastructure that is deliberately and consciously outward looking (Taylor, 2012, p. 291).

Clark (1998) believed that a separate stream of funding should be established - one that makes the college independent from the control of one funding group and establishes partnerships with commercial entities or individuals in the community. Clark (1998) also argued that for transformation to take place in a college, it needs all the layers of the institution, including the academic departments, to move in the same direction. The spirit of change should be infused by faculty groups as well as all levels of administration so that the whole organization move all together in the same direction.

Milliron, de los Santos, and Browning (2003) studied community colleges and made a parallelism with Alvin Toffler’s (1989) three wave transition of society, from the agrarian to the industrial to the information age. The authors proposed that community colleges have a similar trajectory based on the evolution of society. They argued that these colleges are currently in the third wave, where they formulate partnerships with business and the community to propel the institution for years to come. A similar study labeled a number of community colleges along the three-wave concept. The ones that were categorized in the first wave viewed entrepreneurial behavior as the

addition of new programs. The schools, identified as belonging to the second wave, form business relationships in an effort to address the specific professional needs in their respective communities. While these two groups focus on activities that would immediately benefit the institution, schools belonging to the third wave focus on what impact they have in the community. They identified the need to develop sustainable entrepreneurial activities and maintain valuable relationships for the long hold. Still, regardless of the category (wave) in which the colleges are identified, a common response from many of the institutions is that entrepreneurial culture includes seeking new methods of funding, establishing partnerships, and institutionalizing entrepreneurial activities. They all recognize that a broad coalition with business, industry, and government was necessary to ensure wider support for an entrepreneurial culture (Cejda & Jolley, 2014).

Many authors have suggested that the profile of a modern and dynamic institution is encapsulated in the term, “entrepreneurial university.” This term characterizes a school that recognizes the need to prepare for the future challenges and adopts some of the concepts on which commercial entities operate. Some of these concepts include amending their internal structure, seeking to increase revenue streams, and looking for alternative sources of funding, separate from government appropriations (Clark, 2004b; Shattock, 2010). Siegel and Leih (2018) suggested that concepts, such as competitive advantage, organizational capabilities, or sustainable performance, would help colleges respond to challenges and succeed in their future. In today’s turbulent environment, organizations are being conditioned to act swiftly. Constant action ensures that they are ahead of any environmental development, and they are able to address it early and efficiently. However, Von Bergen and Bressler (2015) argued that this may be a recipe for disaster. They argued that fast action may not leave time for proper analysis and evaluation of the situation. As such, the response may be premature, excessive, or miss the mark altogether (Von Bergen & Bressler, 2015).

The authors suggested that not all events warranted an immediate action (Von Bergen & Bressler, 2015). Situations need to be evaluated with reasonable patience allowing time for more careful review and consultation.

Navarro and Gallardo (2003) argued that HEIs, even more than commercial firms, need to be aggressive and adoptive of the conditions of the environment. This challenge is much more important for academia because its culture has been more stable, and it is not known to evolve as quickly as needed. Schools have the tendency to entrench as they encounter difficult times. The 2008 financial crisis is a primary example. Several institutions tried to weather the storm by taking a defensive stance and relying on their endowments. They cut costs by reducing faculty and classes, and covered any other deficiencies by withdrawing funds from their endowment assets. The president of Bard College, Leon Botstein, had a different view and strategy. He was a proponent of using the endowment to drive growth and create value by re-investing in profitable programs instead of just covering operating expenses (Jaschik, 2008).

In discussing business programs, Dameron and Durand (2013) postulated that the American higher education system had been a recognized leader in teaching this field. However, international institutions have been competing by mimicking the successful American model. The result is that there are a lot of actors with undifferentiated offerings. Dameron and Durand (2013) argued that within this convoluted and competitive atmosphere, the American business school has three options. The first is to continue with business as usual. This strategy will maintain universities at the top for the time being, but will ignore the strengthening competitors. A second strategy is to utilize its dominant position to infiltrate the competition and take control from the inside. Lastly, the third strategy would be to identify the danger and the challenge that may arise and be ready and flexible to change methodology and pedagogy in new ways.

Higher education challenges are not limited to the United States. Canadian HEIs have experienced the same levels of funding constraints. Canadian colleges have embraced the competitive environment and have also embarked in entrepreneurial behavior. Researchers observed that Canadian universities are establishing strategic partnerships and are marketing more aggressively (Davies & Pizarro Milian, 2016; Pizarro Milian, 2017; Pizarro Milian & McLaughlin, 2017). Rather than the typical message of acquiring quality education, Canadian universities are promoting a broader image of the institution. They share with the public news on academic awards or grants acquired, and they promote the notion of a “rich” experience having the opportunity to participate in athletics and other social activities (Davidson, 2015; Pizarro Milian & Davidson, 2016).

Finally, technology is one of the driving forces for the uncertainty experienced by the higher education sector. The quick growth of online for-profit universities within the last decade is a threat for many colleges. Although the online universities created a new market and attracted a number of students, the typical brick-and-mortar institutions are still standing. However, the introduction by major universities of online courses and programs create a bigger threat as it intensifies the competition (Deming, Goldin, Katz, & Yuchtman, 2015). Colleges now need to respond to this threat by amending their strategy and acquiring capabilities that will allow them to support their new approach. Walker et al. (2014) suggested that, due to technology, the environment is driving institutions to transform their cultures and focus on improving the quality of learning and teaching by offering broad access to remote students. The Dean of the School of Business at the University of California, Berkeley, Richard Lyons, postulated that the first online Master’s in Business Administration programs were the result of offensive strategic initiatives to gain market share. Today, such programs are defensive reactions, necessary to prevent loss of market share (Byrne,

2014). Craig and Williams (2015) summarized in one phrase the strategic posture that colleges and universities must adopt: “[w]hat they must not do—if they want to survive—is stand still” (para. 8).

Responsiveness. According to Ansoff and McDonnell (1990), the term ‘Responsiveness’ referred to a set of attributes that the general manager should have and the organization should adopt or develop. Some of the leadership attributes include leadership style, risk propensity, mentality, competence, work capacity, knowledge, and culture. Characteristics of the organization include its culture, competence, climate, capacity for work, and organizational and power structure. Ansoff and Sullivan (1993) suggested that, depending on the Turbulence level, there is a specific mix of characteristics that are considered most suitable for success. These characteristics should be appropriate to support the chosen strategic stance of the organization. Furthermore, each one of the Responsiveness attributes needs to be supportive of each other. This means that at a hypothetical low turbulent level, a successful organization should be run by a commanding manager, focusing on production, and running a centralized and strictly hierarchical organization. The management style of a forward looking and creative leader (a profile suitable for a high turbulence level) would not be effective in these conditions. The centralized and hierarchical structure of the entity would not be able to support the leader’s innovative direction and aim.

In the field of higher education, it has been widely accepted that today’s Turbulence is rather high (Altbach, 2015; Christensen, 2010; Manning, 2015). The number and magnitude of the challenges have made it obvious to many scholars that academia needs to abandon its traditional practices and transform (Carlson, 2013; Cutler, 2014; Levine, 2014; Rivard, 2013; White, 2013). Such change needs to be driven by an innovative and competent president. Many authors agree that the profile of the college’s top administrator should be that of a persistent fundraiser, entrepreneurial and intellectual leader, tireless marketer, eloquent spokesperson, resourceful business person, and

skilled financial manager (Bok, 2003; Freeman & Gasman, 2014; Hartley & Godin, 2009). MacTaggart (2007) suggested that an outside hire, rather than someone who rose through the ranks, would be more effective in leading the transformation. A new leader brings fresh ideas and is not influenced by the institution's history or its constituents' past. Even so, it is essential for that individual to understand the cultural, political, historical, financial, and operating contexts of the institution (McWade, 2014). One of the president's roles is the creation of a realistic and achievable vision, and its clear communication to all parties involved. In return, the leader seeks broad support and commitment from all the institutional actors. Faculty, staff, trustees, donors, and even students need to be engaged and persuaded on the value of the new direction. This requires a president who is available and accessible, has an open-door policy, accepts and encourages dialogue, and actively participates in meetings and discussions (Carey, 2014).

What makes this aspect of the president's role hard is the university's increasing size and complexity within the last decades. Athletics, hospitals, and other side operations have added to the structure of the institution. New groups, in addition to the traditional constituencies, require the attention of the president. Amongst all the increased responsibilities, presidents do not have available time to attend to every aspect of the organization (McWade, 2014). They are forced to delegate many of their tasks to trusted subordinates. One of the responsibilities that is frequently delegated is academic affairs (Bok, 2014). Acting as the president's agents, administration has a significant amount of power. Utilizing it blindly will create animosities and will de-motivate the very constituents needed to provide support for the leader's direction. Instead, administration needs to create partnerships with the people that will implement the new decisions. They need to be listened to with interest and treated with respect (Morris, 2016).

Strategic sensitivity is particularly relevant to the college's leadership team. The executives need to be aligned behind a common course of action and present an image of unity. "At universities where leadership is based on a multi layered decision making and governance model built around numerous committees overlaid by leadership at central, faculty and sub faculty levels, this unity is critical in providing the organization with a strong level of trust and commitment to collaboratively achieve its strategic goals and objectives" (Mukerjee, 2014, p. 57). The faculty can play an equally significant role in the institutional transformation. Deans, in particular, who are situated organizationally between the administration and faculty, can support the overall strategic direction while at the same time represent the concerns of professors. In today's turbulent environment, deans need to exhibit a more entrepreneurial role in support of this action (Clark, 2004a; June, 2014). In her study, Cleverley-Thompson (2016) revealed that deans themselves reported that their highest entrepreneurial characteristics are "team builder" and "proactive" while their lowest is "risk taker."

Through the concept of shared governance, professors also have some amount of power and control around academic matters. The reputation of an institution is achieved to a major degree by the efforts of its instructors. Well known institutions have the ability to reach out to more markets and attract larger numbers of students. In that respect, faculty should be viewed as a great asset of a university. Administration needs to be nurturing and accommodating towards the professors, while at the same time, needs to gain faculty support by winning their respect and loyalty (Bok, 2003; Bok, 2014). Unilateral decisions by the administration will alienate this important group and will erode its support of any new initiative (Morris, 2016). In fact, because of resistance to change, faculty is cited by many presidents as one of the most challenging groups with which to work (Song & Hartley, 2012). Professors, especially the renowned ones, are frequently sought after by other institutions. It would not be difficult for one to seek employment elsewhere should certain operational limitations

or policy restrictions be imposed on them. Such moves can be perceived as a vote of no confidence for the administration and, to an extent, as a blemish to the reputation of the institution.

The reason for faculty resistance is not always ideological. Currently, instructors work longer hours preparing for classes, undertaking more administrative tasks or simply keeping up with their field. Their work capacity is limited and any effort in academic reform has to fit within an already busy time schedule. As a practical matter, all professors have been trained in doctoral programs on their respective fields of study, but few have been actually trained to be educators. This deficit becomes more significant as new technologies and new instructional methods create new realities in educational institutions. Instructors are required to become familiar with the new technology to improve knowledge delivery as well as administrative tasks. Lack of time to acquire such expertise can influence the quality of learning outcomes. Obviously, the quality of the results or the ability to undertake strategic initiatives depends on capacity (Gregory & Lodge, 2015). Overwhelmed professors do not have the capacity to undertake yet another initiative and complete it in a timely fashion (Bok, 2014).

Just as colleges are striving to be more innovative on the academic side, they need to be comparably modernized in their own administrative structures, practices, and operations (Crow, 2010). Friedman and Lewis (2014) and Raphan and Friedman (2014) suggested that for an organization to thrive in the global information age, it needs to be transformed into an adaptable, nimble, creative, and innovative entity. Furthermore, Duderstadt (2000) stated that “those universities that will thrive will be those that not only can respond to this future of change, but that also have the capacity to relish, stimulate, and manage change” (p. 35). Friedman and Friedman (2016) described the purpose of “lean thinking.” It is a holistic strategy with the goal to make an organization run more efficiently by moving away from a hierarchical organizational structure filled

with bloat and unneeded layers of bureaucracy. Businesses today are trying to flatten their organizational structure. Modern corporations want fewer layers and want to create learning organizations where knowledge is shared.

In today's world of constant change, the colleges have to exhibit the ability to adapt to new conditions with the minimum of latency. Yet, Seymour (2016), who examined vision statements from several universities, observed that many do not utilize language suggesting change for the better. It appears as if the goals have been already achieved and many feel quite comfortable in the status quo resisting any push to change. Although innovation and reinvention has long been the goal in the business world, doing so in academia is anathema. In many instances maintaining the tradition is a mark of quality and reputation. However, there is an increasing number of voices calling for modernization. The reduction in public funding and the mounting global competition makes it necessary for administration to think in competitive terms and develop new mental models and organizational structures, similar to commercial entities (Bok, 2003; Fahy, Hurley, Hooley, & DeLuca, 2009; Mills, 2012; Mukerjee, 2014).

An important element of the corporate world is the constant strive to improve. Strong competition forces entities to transform and adopt quickly to new conditions. Their products and services are continuously improving and advancing. The same cannot be said for the LACs. With the exception of some technological embellishments, their product (knowledge transfer) has remained mostly unchanged over the years. There are plenty of innovative solutions and creative actors, but changes are frequently resisted from the inside with the excuse of academic freedom, privacy, or professional autonomy (Bok, 2003; Garland, 2009). Furthermore, Armstrong (2016) believed that the American education system is a victim of its own success. Its growth and strong reputation have instilled in educators a sense of excellence. After decades of successful service to the community,

they see the institution's operations and pedagogy as the recipe for success. This sentiment prevents them from properly appreciating any change in the educational environment and, even worse, justifying resisting any effort to amend this accomplished model. Nonetheless, there are those authors who see a more sinister purpose behind the commercialization of the university. To manage commercialization, schools introduce additional administrative groups and roles. This new bureaucratic layer results in diminishing power for the faculty (Friedman, 2015). Schultz (2015) agreed that the 2008 financial crisis offered excuses for tighter controls that diminish the influence of instructors and eventually would lead to the end of the shared governance principle. Marcus (2014) argued that the increasing cost of tuition is due to this administrative bloat.

Thompson and Purdy (2009) discussed that universities run under a set of beliefs and goals that have been unconsciously impressed on all actors by years of operation. A successful university reform has to alter these basic elements of culture, beliefs, and mission – what Thompson and Purdy (2009) called the “deep structure.” Copying strategies, policies, or procedures from another institution has not guaranteed a production of the same results. Culture, competence, and structure vary from institution to institution and so the application of any one measure can produce various outcomes (Morris, 2016). In today's global knowledge economy, the success characteristics of an institution are changing. The old one-size-fits-all educational model is becoming anachronistic. Institutions should think creatively if they want to matter in the new economy (Levine, 2015). According to Karlgaard and Malone (2015), the successful organization of today should promote teamwork and instill a spirit of collaboration. Major tasks such as the restructuring of an HEI cannot be achieved by a few individuals, but by the cooperation of many. Institutions need to maintain high standards and a culture of honesty and integrity. It is not uncommon for HEIs to “cut corners” in a few circumstances when resources and reputations are at stake. For example, there have been several

incidents where admissions standards were lowered or grades of star athletes were kept artificially high so that individuals could be admitted or remain on the roster. Such events lower the public's opinion of the institution and the respect of faculty and staff towards the administration, and undermines the efforts to promote the institution itself (Bok, 2003).

As the HEIs expand globally, they come across a variety of cultures, customs, behaviors, and values. Their success in the international environment depends on personnel's ability to address sensitive and complex issues. Caligiuri (2013) referred to this competency as cultural agility and suggested that it would be a necessary skill for any organization. Mukerjee (2014) defined the term "agility" as "the ability to respond and adapt to change in a timely manner so that change quickly becomes the norm for the organization... An agile organization has this sense of opportunistic sensitivity and adaptability embedded in its strategic and operational DNA" (p. 57). Mukerjee (2014) continued to state that

resource fluidity drives the agility of the organization at the operational level. Actions include decoupling tightly integrated single entities into well-functioning separate entities to gain flexibility, modularizing business processes and systems into plug and play components, dissociating resource use from resource ownership, switching to enable parallel use of multiple business models, and grafting of new business models through acquisition (p. 57).

Friedman & Kass (2017) postulated that today's problems have been created by the application of yesterday's solutions. It is important that an institution builds the capability to adapt and evolve with every change of the environment.

Performance. Academia has been accused that it graduates ill-prepared individuals to serve society and business (Arum & Roksa, 2011; Mehaffy, 2012; Staley & Trinkle, 2011). According to the Pew Research Center (2012), "57% of Americans say colleges fail to provide students with good

value for money spent” (para. 4). In addition, *CFO Magazine* compared the skills and attitudes of veteran workers versus those of the younger generation. It reported some of the areas that new graduates lack (Carr, 2012):

- English Writing (grammar, spelling; 51%);
- Technical Skills (computer, engineering, etc; 33%);
- Critical Thinking/Problem Solving (27%);
- Mathematics (16%);
- Reading Comprehension (13%); and
- English Language (spoken; 12%)

This deficit is not a new phenomenon. Since the late 1980s, there have been complaints of weak university performance. A study by the Educational Testing Service Policy Information Center performed during the late 1980s, found that (a) about half of college graduates cannot understand a bus schedule; (b) only 13 percent of college graduates can perform multiple step math problems; and (c) only 11 percent of four-year graduates and one percent of two-year graduates can properly summarize a passage on how lawyers challenge prospective jurors (Gaitber, Nedwek, & Neal, 1994).

Due to the public outcry and, in an effort to confront the perceived superiority of Japanese manufacturing products, a task force of the National Governor’s Association examined the university performance issue. It concluded that funding should be adjusted based on the results of assessment programs as an incentive for the betterment of undergraduate education (Sims, 1992). One of the first efforts to develop processes and comprehensive measures to evaluate university effectiveness and learning outcomes came in 1988 from the State University of New York (SUNY). It was a proactive move to address the state legislature and public concerns for accountability before

the policy makers imposed their will (Gaitber et al., 1994). Some of the “SUNY” performance indicators are shown in Table 4.

Table 4

<i>Performance Indicators from the SUNY Performance Reports</i>	
Performance Area	Performance Indicator
Funding Context	Revenue by Source Tuition Rate Trends Educational and General Expenditures per Student Benchmark
Access to Undergraduate Education	
Admissions	Applicants Acceptances
Enrollment	Total Race, Ethnicity, Level, Age
Undergraduate Quality	Assessment Plans and Pass Rates Basic Skills Class Size

Note. Source: Gaitber, G., Nedwek, B. P., & Neal, J. E. (1994). *Measuring up: The promises and pitfalls of performance indicators in higher education*. Washington, D.C.: ASHE-ERIC Higher Education Report No. 5.

A number of other efforts were initiated at that time to develop criteria for the measurement of performance in higher education. The National Association of College and University Business Officers (NACUBO) developed a set of indicators to compare costs amongst participating institutions for a variety of administrative and financial functions. It turns out that these indicators became one standard for measuring and comparing institutions' efficiency. Table 5 lists the areas of evaluation (Meyerson & Massy, 1994).

Table 5

Functional Areas in NACUBO's National Benchmarking Project

Academic Affairs
 Accounts Payable
 Admissions
 Alumni Relations
 Bookstore
 Career Planning and Placement Center
 Central Budget Department
 Central Stores
 Collections
 Development Office
 Environmental Health and Safety
 Facilities
 Financial Aid
 Food Services
 General Accounting
 Human Resources: Benefits Administration
 Human Resources: General
 Human Resources: Hiring
 Information Technology
 Intercollegiate Athletics
 Intramural and Recreational Sports
 Legal Affairs
 Library
 Mail
 Multi-Campus System Administration
 Parking
 Payroll
 Police Security
 Purchasing
 Registrar
 Sponsored Projects
 Student Accounts Receivable
 Student Billing
 Student Affairs
 Student Counseling
 Student Health Services
 Student Housing
 Telecommunications
 Treasury: Cash Management

Note. Source: Meyerson, J. W., & Massy, W. F. (1994). *Measuring institutional performance in higher education*. Princeton, NJ: Peterson's.

Dr. Peter Ewell, at the National Center for Higher Education Management Systems (NCHEMS), developed another set of indicators to track progress on national goals. Table 6 identifies the groups of indicators (Ewell, 1994).

Table 6

Headings for the NCHEMS Indicators

Institutional Context and Use of Resources
 Curriculum Class Structure and Requirements
 Teaching Practice and the Classroom Environment
 Student Behavior and the Campus Environment
 Term Registration Records
 Transcript Studies of Graduating Seniors
 End-of-Course Course Evaluation Survey Items
 Faculty Surveys
 Student Surveys
 Periodic Course Syllabus Studies
 Periodic Studies of the Library and Other Academic Support Areas

Note. Source: Ewell, P. T. (1994). *A preliminary study of the feasibility and utility for national policy of instructional "good practice" indicators in undergraduate education.* Boulder, CO: National Center for Higher Education Management Systems.

Taylor, Meyerson, and Massy (1993) compiled a list of frequently used indicators that appeared in other studies. This list is shown in Table 7.

Table 7

Top Ten "Core" Indicators

1. Overall Revenue Structure
 2. Overall Expenditure Structure
 3. Excess (Deficit) of Current Fund Revenues over (or under) Current Fund Expenditures
 4. Percent of Freshmen Applicants Accepted and Percent of Accepted Freshmen Who Matriculate
 5. Ratio of Full-Time Equivalent Students to Full-Time Equivalent Faculty
 6. Institutional Grant Aid as a Percent of Tuition and Fee Income
 7. Tenure Status of Full-Time Equivalent Faculty
 8. Percent of Total Full-Time Equivalent Employees Who are Faculty
 9. Maintenance Backlog as a Percent of Total Replacement Value of Plant
 10. Percent of Living Alumni Who Have Given at Any Time During the Past Five Years
-

Note. Source: Taylor, B. E., Meyerson, J. W., & Massy, W. F. (1993). *Strategic indicators for higher education: Improving performance.* Princeton, NJ : Peterson's.

Additional research was performed by Burke and Minassians (2002b). They analyzed 29 performance reports of public colleges and universities in the United States. They found that from a total of 158 distinct performance measures, only eight were used by more than half of the institutions. The eight common performance indicators were (a) graduation; (b) enrollment; (c) sponsored research; (d) student transfers; (e) tuition; (f) financial aid; (g) degrees awarded; and (h) licensure test scores. In return, Burke and Minassians (2002a) proposed the following 14 generic indicators:

- Funding: State-operating appropriations for public higher education per FTE;
- Affordability: Tuition and fees for two- and four-year public campuses, minus financial aid, as a percentage of state median family income;
- College-school collaboration: Pass rates on teacher certification examinations;
- Percentage of baccalaureate freshmen with a college preparatory curriculum in high school;
- Participation: Rate of higher education going - or percentage of system or institutional enrollment - of high school graduates;
- Higher education - or system or institutional - participation rates of 18 to 24 year olds
- Twenty-five to 44 year olds enrolled part-time in postsecondary education systems or institutions;
- Articulation: Transfer rates between two- and four-year institutions;
- Completion: Completion rates at two-year (3 years) and four-year colleges and universities (6 years);
- Degree attainment: Degrees awarded or attained (associate, bachelor's, and graduate);
- Degrees awarded or attained in critical fields, such as science, engineering, information technology, and shortage fields in teacher education;

- Job placements: Job placement rates of college and university graduates;
- Sponsored research: Dollar volume of externally sponsored research; and
- Student development: Alumni survey on the knowledge and skills developed in college.

In a similar study, Terkla (2011) compared performance indicators from 66 U.S. colleges and universities. These institutions varied in size and form, from small colleges to major research universities and from public to private. He ranked the indicators that he found and produced the data shown in Table 8. Furthermore, Ballard (2013) studied the colleges and universities that were accepted in the Academic Quality Improvement Program (AQIP). This is an accreditation program with the objective of promoting continuous improvement and quality in the culture of higher education. In his study, Ballard (2013) ranked the frequency of use of specific “areas of measure” and ranked them based on the percentage of institutions that employed them. The results are shown in Table 9.

Table 8

Indicator Group Usage Ranking by Category

Category	Indicator Group	Number of Occurrences	
		(N = 66)	Percentage
Financial	Endowment & Expenses Data	53	80.3
	Advancement	48	72.7
	Financial Aid Figures	42	63.6
	Fees/Tuition Data	31	47.0
Admissions	Admissions Scores	52	78.8
	General Admissions Data	47	71.2
	Graduate Admissions	14	21.2
Enrollment	Enrollment Figures	51	78.8
	Enrollment Figures (Special Populations)	47	71.2
Faculty	Faculty – General	51	77.3
	Faculty Composition (Special Populations)	22	33.3
Student Outcomes	Graduation Rates	48	72.7
	Retention Rates	47	71.2
	Measures of Success	27	40.9
	Enrollment Awards	15	22.7
	Graduation Rates (Special Population)	10	15.2
Student Engagement	Student Body (Engagement)	38	57.6
Academics	Student/Faculty Contact	36	54.5
	Academic Information	31	47.0
Physical Plant	Physical Plant	25	37.9
Satisfaction	Student Satisfaction	23	34.8
	Employer/Staff/Other Satisfaction	7	10.6
	Faculty Satisfaction	3	4.5
Research	Research	23	34.8
External Ratings	Peer Assessment Data	14	21.2

Note. Source: Terkla, D. (2011). The most common performance indicators for institutions and their boards. *Trusteeship*, 19(1), 1-5.

Table 9

Ballard's Areas of Measure

Performance Indicator	Overall Usage (%)
Graduation Measures	100
Satisfaction	100
Employee & HR	97
Enrollment	94
Retention	94
Financial	88
Student Success	88
Student Engagement	85
Strategic Planning	82
Admissions	76
Course Measures	76
Alumni	70
Advancement	68
Other	68
Grants and Research	62
Community Connections	59
Peer Comparisons	59
Athletics	41
Facilities	41
Library	32
Business Connections	29
Financial Aid	29
Connections with Institutions	21

Note. Source: Ballard, P. J. (2013). *Measuring performance excellence: Key performance indicators for institutions accepted into the academic quality improvement program* (Doctoral dissertation). Western Michigan University: Michigan.

Performance indicators have been established on the state level as well. This is in relation to public institutions and the level of funding allocated to them. However, states monitor and evaluate the performance of their education system as a requirement to provide annual reports to the legislature and their governors. Table 10 lists the performance indicators used by the Midwestern Higher Education Compact (MHEC; Midwestern Higher Education Compact, 2017). This is a statutorily-created nonprofit regional compact, serving 12 Midwestern states (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and

Wisconsin). MHEC's goal is to increase access to research and choice of higher education for the residents of these states.

Table 10

Midwestern Higher Education Compact Performance Indicators

	Performance Indicators
Postsecondary Enrollment	College Enrollment Directly after High School Postsecondary Enrollment among Older Adults Undergraduate Enrollment by Race/Ethnicity Postsecondary Enrollment among Low-Income Students
Postsecondary Degree Completion	Graduate Rates at Two-Year and Four-Year Institutions Graduate Rates by Ethnicity at Public Four-Year Institutions
System Efficiency	Credentials Awarded per Expenditure
Affordability	Percentage of Family Income Needed to Pay for College Monthly Savings Needed to Pay for Four Years of College Average Student Loan Debt
Effectiveness and Efficiency of Postsecondary Institutions	Diffusion of High-Impact Educational Experiences: Study Abroad Promotion of Timely Degree Completion Education and Related Expenditures for Total Degree Production
Overall Public Funding for Higher Education	State Appropriations for Postsecondary Institutions Need-Based Grant Aid Allocations

Note. Source: Midwestern Higher Education Compact. (Accessed December 18, 2017). *About us.* Retrieved from <http://www.mhec.org/about-us>.

Similarly, the State of Wyoming mandated that the Wyoming Community College Commission (WCCC) create performance indicators to evaluate the local community colleges (Wyoming Community College Commission, 2017). The most commonly used measures included (a) student goal attainment and retention; (b) student persistence; (c) degree and certificate completion rates; (d) placement rate of graduates in the workforce; (e) licensure and certification pass rates; (f) demonstration of critical literacy skills; (g) success in subsequent, related coursework;

and (h) number and rate of students who transfer. Furthermore, the well-known *U.S. News and World Report* ranking of the best colleges and universities is based on a number of criteria (Morse, Brooks, & Mason, 2017). That criteria may change slightly from year to year, but for the 2018 academic year it included (a) graduation and retention rates; (b) undergraduate academic reputation; (c) faculty resources; (d) student selectivity; (e) financial resources; (f) graduation rate performance; and (g) alumni giving rates.

In the 2016 annual “Top American Research Universities” report, the Center for Measuring University Performance offered yet another set of performance criteria. Albeit this report focused on research institutions, the majority of the suggested measures reflected financial and academic components. Some of them adopted performance criteria from previously mentioned benchmarking projects, such as the NACUBO (Lombardi et al., 2017). This list of indicators includes (a) total research expenditures; (b) federal research expenditures; (c) endowment assets; (d) annual giving; (e) National Academy membership; (f) faculty awards; (g) doctorates awarded; (h) postdoctoral appointees; (i) SAT Scores; and (j) National Merit and Achievement Scholars.

As it became evident from the review of the relative literature, there is not a commonly utilized set of performance indicators amongst all the HEIs. In fact, there is a wildly diverse usage of measures. Certain groups of institutions that operate within the same market, or are controlled by the same legislative or professional body, may use similar indicators. However, in the absence of a broad mandate, schools develop unique formulas tailored to their size, goal, objectives, strategies, mission, form, or governance (Lombardi et al., 2017).

Lombardi et al. (2017) stated that

[a]lmost all efforts to provide a clear taxonomy of American higher education fail to achieve precision because the range of institutional variation around common types is

wide...an elite private college with a large endowment, small classes, primarily residential and well-qualified students, highly trained and credentialed permanent professors, and elegant facilities is not operated in the same fashion as a small rural state college campus with modest facilities, predominantly commuter students, many under-prepared students, significant numbers of part-time adjunct faculty with basic credentials, and fragile budgets (p. 5).

Terkla (2011) agreed that institutions create performance indicators to measure their own goals and mission, not to compare with other institutions. Burke & Minassians (2002b) suggested that universities are so unique that the creation of distinct indicators is warranted. Nonetheless, many policy makers believe that there should be standardization, at least in the area of enrollment trends, tuition and fees, graduation rates, and job rates (Burke & Minassians, 2002b). Craig and Williams (2015) were very critical of the value of the current performance measures. They suggested that their goal is not to gauge student outcomes, but to communicate their results to the public in the hope of attracting prospective students.

With such a variety of indicators, the selection of any one performance measure over another can raise reasonable objections regarding its validity. For the purpose of this study, the variables selected appear on multiple tables ensuring that the specific measures are actually being utilized by hundreds of HEIs and scoring organizations. Performance of higher education institutions is expressed in two levels. The first level is academic – the basic role of HEIs. The second level is financial, which, historically, is an important aspect of the success of a college, but also an imperative function for future growth. Financial and Academic Performance will be expressed by the use of the following factors - Academic Performance: (a) total admissions; (b) graduation rate; and

(c) retention rate – Financial Performance: (a) total revenues and investments return (Revenues); and (b) endowment assets (Endowment).

Technology. The importance of technology for HEI warrants the study of its impact and its effects on academia. Ansoff and McDonnell (1990) identified technology as a source of Turbulence. The authors proposed that management needs to monitor this field to avoid any surprises and ensure that their commercial operations employ the most appropriate level of automation. In academia, technology, which manifests itself mainly in electronic delivery of knowledge, has been brought up repeatedly as a challenge and as an ever-increasing factor of significance (Anders, 2015; Brown, 2016; Burnette, 2015; Erickson, 2012; Regalado, 2012). Christensen (2009) suggested that online learning is a disruptive force in the industry and Clark (2014) stated that many schools may close due to the impact of online education.

Distance education is not a new phenomenon. In the early years of the twentieth century, some courses were administered via correspondence. Today's online delivery format has been assisted with the advent of the Internet. The High Education Act (HEA) of 1992 limited the online courses a school could offer to 50% of their total offerings. Violating this rule, schools were in danger of being "deemed as not eligible" to offer student financial aid. Some exceptions, such as for-profit universities, were made. However, in 2006 that limitation was lifted all together, causing the dramatic increase in this type of curricula delivery model (Deming et al., 2015). By 2002, the number of students who took at least one distance education course reached 1.6 million. By 2010, that number had jumped to 6.1 million (Regalado, 2012).

A review of the literature identifies a plethora of terms to describe "technology." Distance education, blended delivery, hybrid courses, online learning, e-learning, flipped classrooms, and Massive Open Online Courses (MOOCs) are all used somewhat interchangeably and may confuse

the reader. In its basic form, there are two concepts of electronically delivering knowledge. The first is blended instruction. Drysdale, Graham, Spring, and Halverson (2013) defined blended instruction as the “integration of face-to-face and online instruction” (p. 90). It is the combination of traditional lecture with elements of technology. The degree of blending varies from the partial usage of the Internet during a class to the offering of a whole degree program online and everything in-between. It should not be confused with the simple posting of notes on the Internet. Blending instruction is the exchange of ideas, the introduction of knowledge, and the sharing of material utilizing a variety of online tools at any time (Brown, 2016; Junco, Heiberger, & Loken, 2011).

The second concept is that of the Massive Open Online Courses, or MOOCs. These are sessions that are usually hosted by a private technology provider featuring a lecture or a class delivered by a university professor. It is open to a broad number of participants who are potentially spread around the world and may not have anything else in common other than the interest on the specific topic. Initially all sessions were free. However, now institutions view that vehicle as a profit-making endeavor that could counteract current funding challenges. Some schools are experimenting with offering whole degree programs as a paid MOOC. It is expected, that in the future, the basic lecture will be offered for free, but higher value services such as mentoring or certification will be offered at a price (Fischer, 2014; Gregory & Lodge, 2015).

Challenges. In addressing the technology challenge, universities have made significant investments in infrastructure and equipment. The classrooms have been modified to accommodate students’ mobile devices, in class electronic equipment, not to mention the infrastructure for access to the Internet. However, institutions have not observed a significant improvement on learning outcomes (Gregory & Lodge, 2015; Peslak, 2005). Fischer (2014) postulated that even the best designed online courses are missing something of the richness, the breadth of interaction, and other

qualitative elements of a face-to-face class. Research indicates that there is no clear-cut evidence of the effectiveness of technology on student experience or learning outcomes (Goodyear & Ellis, 2008; Gregory & Lodge, 2015; Mellar & Jara, 2009). Nakos and Whiting (2018) suggested that technology alone cannot accomplish better results. Instructors need to remain engaged and challenge the learners through the courses, even more so than in a face-to-face teaching environment. Margaryan, Littlejohn, and Vojt (2010) argued a similar position. They explained that technology does not alter students' learning styles. It appears that they appreciate the instructor's personal delivery approaches, although they do use a variety of technological tools. Gregory and Lodge (2015) suggested that the technology applications in higher education is relatively new developments. Though the field experiences rapid growth, researchers do not yet completely comprehend the implication of this trend.

A good example of the shortfalls of online education is the high-profile experiment at San Jose State University (SJSU). Although faculty at SJSU were excited about the creation of a MOOC, they soon realized that it could not replace the "live" delivery in the classroom. Authors suggested that traditional lecture does not transfer well to online delivery (Bleffert-Schmidt, 2011; Fleck, 2012; Pope, 2014). Deming et al. (2015) suggested that results (in the form of grades) were lower when students in an economics class switched from a face-to-face delivery to online. Another study of a specific college course indicated similar student achievement between the online and the in-class variants (Bowen, Chingos, Lack, & Nygren, 2014). Anderson (2012) pointed out that online learning suppresses some instructors' skills and prevents them from employing their full capabilities. The student experience suffers as well. Even if academically the online class is similar to the physical one, the traditional student receives so much more. Students can interact with their professors

outside the class, can socialize with other classmates, or partake in sports and other social activities where available (Ghemawat, 2017; Pope, 2014; Summit, 2013).

Administrators seem to be unconvinced about the value of online education as well. Although the number of online offerings is expected to continue to grow, chief academic officers do not see the MOOCs as a sustainable education platform. In addition, they report that faculty are increasingly unenthusiastic about the blended delivery. Only 30.2% of chief academic officers believes that their instructors see online education as a valuable and legitimate tool. This rate is lower than it was in 2004 (Allen & Seaman, 2013). Richard Lyons, the dean of the School of Business at the University of California, Berkeley, suggested that technology may be detrimental to the success of the business school. Executive Master's in Business Administration degrees and open enrollment executive training courses are usually the profitable programs that contribute to the budget. However, these are the very programs that online education would impact the most, reducing the valuable financial contribution to the institution (Byrne, 2014).

The development of curriculum for online delivery presents legal and technical challenges, as well. Professors need pedagogical professional development, as presentations need to be tailored to the new requirements of teaching. In addition, they need to become familiar with the new technology themselves. This proves to be a steep learning curve even for technology savvy instructors. Empirical evidence indicate that their workload has significantly increased, at least at the early implementation stages, and their work capacity has become somewhat limited (Benson, Anderson, & Ooms, 2011; Gregory & Lodge, 2015; Schneider, 2010). Furthermore, the creation of new content creates intellectual property rights concerns. This is still not a fully developed field of the law, and so the protection of the school by the creation of appropriate policies is warranted (Fleck, 2012; Graham, Woodfield, & Harrison, 2013; Wallace & Young, 2010).

To create a smoother transition into the new technologically demanding operation, the institution needs to adopt a culture of flexibility and change (Walker et al., 2014). New strategies need to be implemented, accepted, and agreed upon by all levels of the university (Singleton, 2012). Different understanding between faculty and staff can inhibit the implementation of the technology strategy (Graham et al., 2013) and can result in resistance to change (Gregory & Lodge, 2015). Looking at MOOCs specifically, one realizes that they have a unique set of challenges. By its nature, MOOCs accommodate a comparably massive number of students. It is typical for the number of attendees to reach the 50,000 range. However, more than 90% of them will drop out before the end of the course (Pope, 2014). A study by the University of Pennsylvania identified a 94% drop out rate (Fischer, 2014; Lewin, 2013). These are individuals that find it hard to continue under these circumstances or are casually interested on the topic and not serious enough to finish the class. Carey (2013) argued exactly this point. The drop out/attendance percentages are misleading. These figures are calculated based on the total number of enrollees. A different and more realistic picture will be presented should the drop-out rates be calculated based on the number of the “serious” students that actually complete the class.

Another criticism of the MOOCs has to do with their magnitude. The mere size of the class involves too many participants, too many systems, and too much input and discussions. Attendees frequently felt lost and overwhelmed with the volume of activity. Especially during the first couple of weeks, the exchanges are so numerous that it is difficult for students to keep up with all of them. Students feel that if they miss one day, it would be difficult to catch up (Andersen & Ponti, 2014; Knox, 2014). There are already voices that criticize the model for its integrity and the potential exploitation of students (Marshall, 2014). To this extent, Harvard is altering its original MOOCs, offering Smaller Private Online Courses or SPOCs (Baggaley, 2014).

The sudden fame and brief success that MOOCs experienced in the U.S. has brought them into the international spotlight as it has started to spread worldwide. As mentioned above, it is a relatively new pedagogical vehicle and its effectiveness has not yet been determined. As such, replicating it internationally, in different cultures with a variety of expectations, does not guarantee that this model will succeed nor will it alleviate the deficiencies identified in the American model (Adams, Yin, Madriz, & Mullen, 2014; Andersen & Ponti, 2014; Liyanagunawardena, Adams, & Williams, 2013).

Benefits. Nonetheless, all is not bad with technology in higher education. The sudden attention to online learning is not without reason. Some scholars point to the fact that technology in the classroom made the delivery more interesting, efficient, and allowed students to learn at their own pace. This is especially beneficial for working professionals who return to school to acquire extended and more specialized knowledge. Ghemawat (2017) suggested that online education is beneficial to students because it saves them transportation time, provides time flexibility, and customization (students can learn based on the style of their preference). Online learning also promotes collaboration, one of the skills demanded in the modern work environment (González, 2010). Studies have shown that a combination of in-class and online instruction provides for better and faster learning outcomes than a face-to-face only delivery (Perry, 2012). Lengthy lectures can be broken down into several shorter and more focused online sessions, allowing students to review them at their convenience and as many times necessary to be absorbed (Pope, 2014). Tamim, Bernard, Borokhovski, Abrami, and Schmid (2011) observed that technology contributes to the achievement of students, but not at the level that many are expecting.

Today's college going generations are more familiar with the Internet, computer, and personal electronic devices. They are learning how to use these tools at their own pace and

differently from the traditional pedagogical methodology. As such, the introduction of technology in the classroom has given professors a variety of tools to reach out to all learners, transforming, at the same time, the instructor from a teacher to a coach (Knott, Steube, & Yang, 2013). For the MOOCs in particular, Fischer (2014) believed that they can be especially effective because they serve groups that share a common interest, rather than students that congregate to a specific geographic location to attend a class they may have not taken otherwise. More importantly, the introduction of technology in higher education, and especially the MOOCs, have an overarching financial dimension. Based on the challenges academia faces, colleges are forced to adopt their goals to today's financial and social realities. Funding is scarcer and HEI's image is not as benevolent. There has been increased focus on cost reduction (Duderstadt, 2000) and currently the towering concern is the generation of revenue, the access to new markets, and the acceptance of paying customers (Paulsen, 2014).

Cost per student has increased faster than inflation. Technology is one of the fields that is hoped to stop or even reverse the phenomenon (Baum, Kurose, & McPherson, 2013). According to Graham et al. (2013), the cost for a brick-and-mortar university is substantially higher from institutions that have implemented blended instruction delivery methods. Although the technology acquisition comes at a significant price tag, the reduction in operational costs alone can cover that expense. In the 2000s, universities, being weary of increased facility and academic costs, were unwilling to increase enrollment. The arrival of the MOOC, however, allowed them to incur similar costs, and allocate them over a much larger number of paying customers (Baggaley, 2014). Fischer (2014) agreed that using MOOCs, schools can service more students and offer more courses without burdening their budgets. For the time being, universities will expand their online presence in an effort to reach new markets and more customers, to abbreviate the length of programs, and to reduce the cost of delivering classes (Lazarewicz, 2017).

The Research Questions

A review of the literature produced a number of questions. These questions are based on Ansoff's (1987) Strategic Success Model which correlates Turbulence with Aggressiveness and Responsiveness for the achievement of the best possible performance results. Performance is divided into two frames: Academic Performance, which measures the attainment of academic goals such as admission numbers, retention, and graduation rates; and Financial Performance, which evaluates the college's fiscal strength measuring the level of its income and endowment assets. Lastly, the role of technology is also invoked. The role of Technology Adoption is correlated with all the elements of the Strategic Success Model.

Question 1: What is the relation between LAC's Aggressiveness Gap and Academic Performance?

Question 2: What is the relation between LAC's Aggressiveness Gap and Financial Performance?

Question 3: What is the relation between LAC's Responsiveness Gap and Academic Performance?

Question 4: What is the relation between LAC's Responsiveness Gap and Financial Performance?

Question 5: What is the relation between LAC's Technology Adoption level and Academic Performance?

Question 6: What is the relation between LAC's Technology Adoption level and Financial Performance?

Question 7: What is the relation between LAC's Technology Adoption level and Aggressiveness?

Question 8: What is the relation between LAC's Technology Adoption level and Responsiveness?

The Research Hypotheses

The following hypotheses were formulated based on the abovementioned research questions:

Hypothesis 1: There is a reliable relationship between LAC's Aggressiveness Gap and Academic Performance.

Hypothesis 2: There is a reliable relationship between LAC's Aggressiveness Gap and Financial Performance.

Hypothesis 3: There is a reliable relationship between LAC's Responsiveness Gap and Academic Performance.

Hypothesis 4: There is a reliable relationship between LAC's Responsiveness Gap and Financial Performance.

Hypothesis 5: There is a reliable relationship between LAC's Technology Adoption level and Academic Performance.

Hypothesis 6: There is a reliable relationship between LAC's Technology Adoption level and Financial Performance.

Hypothesis 7: There is a reliable relationship between LAC's Technology Adoption level and Aggressiveness.

Hypothesis 8: There is a reliable relationship between LAC's Technology Adoption level and Responsiveness.

Conceptual and Operational Definitions

The conceptual and operational definitions of the variables are presented in this section.

Turbulence. Conceptual definition. Turbulence is the degree of complexity, familiarity, predictability, and pace of changes in the field of higher education. Such changes can be technological, regulatory, economic, social, academic, political, or business related, and can infuse a level of uncertainty in the strategic options of a university.

Operational definitions. Turbulence is measured by the responses to the below eight questions which are part of the overall questionnaire distributed electronically (also see Appendix A). Each of the questions offers five choices valued from 1 to 5, similar to Ansoff's (1987) Environmental Turbulence scale. Participants can only select one option from the list. The value of the perceived Turbulence for each individual responding LAC is the average value of the answers to the eight questions. A score of one means that Turbulence is low, whereas a score of five means that the environment is volatile.

- A. Which statement best describes the rate of change in the field of higher education?
1. Change is very rare
 2. Changes occur occasionally and we can react easily
 3. Changes occur frequently and we are just able to keep pace with them
 4. Changes occur very frequently and we occasionally struggle to keep up with them
 5. Changes are constant and we almost always struggle to keep up with them
- B. To what extent are you able to anticipate change in the field of higher education?
1. Changes are usually so rare that we do not worry about them
 2. We know what changes are coming well in advance
 3. We can anticipate that changes will occur, but not always when
 4. We can sometimes anticipate changes, but we are occasionally surprised
 5. We can rarely anticipate changes. The changes are often surprising
- C. How difficult and complex are technology issues to deal with?
1. Not at all difficult and complex
 2. Only slightly difficult and complex
 3. Moderately difficult and complex
 4. Usually very difficult and complex
 5. Always extremely difficult and complex

D. How difficult and complex are financial issues to deal with?

1. Not at all difficult and complex
2. Only slightly difficult and complex
3. Moderately difficult and complex
4. Usually very difficult and complex
5. Always extremely difficult and complex

E. How difficult and complex are competition issues to deal with?

1. Not at all difficult and complex
2. Only slightly difficult and complex
3. Moderately difficult and complex
4. Usually very difficult and complex
5. Always extremely difficult and complex

F. Your institution's constituents (students, parents, alumni, donors, etc.):

1. Have a few demands that can be easily addressed
2. Have numerous goals that our historical capabilities can meet
3. Are demanding, but we are able to meet their goals
4. Have high expectations that are difficult to meet
5. Have expectations beyond our reach

G. Institutions you compete with have:

1. Comparable curriculum
2. Minimal academic program differences
3. Most academic programs will be the same, but there are several differences
4. Most academic programs will be different, although there are several similarities
5. Academic programs will be significantly different

H. Institutions you compete with concentrate on:

1. Maintaining the current curriculum
2. Cost reduction and improve programs as needed
3. Anticipate and implement program improvements
4. Actively forming competitive academic programs
5. Aggressive academic program innovations

Aggressiveness. Aggressiveness is an independent variable on hypothesis H7.

Conceptual definition. Aggressiveness is the organizational attitude indicated by the marketing drive and the speed and rapidity of the introduction of new products to the market.

Operational definition. Aggressiveness is measured by the responses to the below seven questions, part of the overall questionnaire distributed electronically (also see Appendix B). Each of the questions offers five choices valued from 1 to 5, in line with Ansoff's (1987) Environmental Turbulence scale. Participants can only select one option from the list. The value of Aggressiveness for each individual responding LAC is the average value of the answers to the seven questions. A score of one indicates a stable and routine operation. A score of five indicates a very dynamic and vigorous institution.

- A. How would you characterize your institution's approach in addressing new challenges in higher education?
1. Maintain the status quo
 2. Change only when necessary
 3. Change in response to current threats or opportunities
 4. Change in anticipation of potential future threats and opportunities
 5. Pursue creative change
- B. Your institution's student recruiting strategy is best described by:
1. We only recruit locally
 2. We recruit students from our region
 3. We market ourselves nationally
 4. We actively target specific international markets
 5. We aggressively recruit globally
- C. The academic development at your institution is primarily characterized by:
1. We follow colleges like us
 2. We improve existing programs
 3. We expand to traditional fields of study
 4. We add new but familiar programs
 5. We create new cutting-edge programs
- D. Our education market share is best characterized by
1. Defend the existing market area
 2. Increase our market area
 3. Develop new market areas
 4. Control the market area
 5. Dominate the market area

	1	2	3	4	5
E. Over the last ten years, how often have new degreed program been introduced? <i>(1 means rarely, if at all - 5 means very frequently)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
F. Over the last ten years, how often have amendments to existing degreed programs been introduced, to reflect new developments in dynamic fields of study? <i>(1 means rarely, if at all - 5 means very frequently)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
G. Over the last ten years, what is the frequency of organizational changes, in your institution? <i>(1 means rarely, if at all - 5 means very frequently)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Responsiveness. This variable is an independent variable on hypothesis H8.

Conceptual definition. Responsiveness is the combination of the characteristics that will allow an institution to support the chosen strategic direction. Responsiveness includes both the knowledge and competencies of the university president and its administration group, as well as the competencies and structure of the organization as a whole.

Operational definition. Responsiveness is measured by the responses to the below twenty-two questions, part of the overall questionnaire distributed electronically (also see Appendix C). Each of the questions offers five choices valued from 1 to 5, consistent with Ansoff's (1987) Environmental Turbulence scale. Participants can only select one option from the list. The value of the Responsiveness for each individual responding LAC is the average value of the answers to the twenty-two questions. A value of one shows a custodial oriented and risk avert culture. A value of five characterizes a more agile and entrepreneurial organizational mentality.

	1	2	3	4	5
A. To what extent is top administration involved in new educational issues? <i>(1 means not at all - 5 means regularly involved, acting as change agent)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B. To what extent is top administration involved in new organizational issues? <i>(1 means not at all - 5 means regularly involved, acting as change agent)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
C. To what extent is top administration involved in new technology issues? <i>(1 means not at all - 5 means regularly involved, acting as change agent)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D. How much time does you or your staff devote to keeping up to date with developments in the field of higher education? <i>(1 means not at all – 5 means substantial amount of time)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E. To what extent are university performance factors included in top administrators' goals and objectives? <i>(1 means not at all – 5 means substantially included)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
F. To what extent are employees rewarded for contributions that improve the institution's performance? <i>(1 means not at all – 5 means substantial rewards given)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
G. To what extent are the institution's performance factors integrated into the overall strategic planning effort? <i>(1 means not at all – 5 means fully integrated)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

H. In your judgment, what is the administration's risk propensity?

1. In general, we tend to avoid risk as much as possible
2. In general, we accept only minimal risk
3. In general, we take risks but in familiar areas
4. In general, we take some risks in unfamiliar areas
5. In general, we venture into new and unfamiliar territories

I. What is your institution's administration's attitude towards open communication?

1. Communicates only through formal channels
2. Communicates only when there is an immediate need
3. Communicates when it sees a future benefit
4. Maintains open lines of communication
5. Promotes and encourages exchange of information

J. Your institution's promotion and advertising are best characterized by:

1. Promotional programs are limited
2. We respond to competitor's campaigns
3. We try to reach local markets
4. We market aggressively
5. We pursue marketing innovation

K. The administration's leadership style mostly characterized by:

1. Trying to meet annual budget goals
2. Focusing on increasing profitability
3. Be market driven
4. Be highly charismatic
5. Be visionary

L. The administration's prevailing problem-solving approach in our institution is characterized by:

1. We use solutions that worked in the past
2. We use solutions that worked in the past with minimal changes
3. Diagnose and pursue different solutions from what we used in the past
4. Find the best possible solution under the circumstances
5. Search for novel alternatives, not previously used

M. Our top administrator's (VPs) focus is primarily on:

1. Stability
2. Operational changes as reaction to environmental changes
3. Changes in the traditional markets
4. Development of national markets
5. Development of global markets

N. Our rewards and incentives are best characterized by:

1. Length of service and past performance
2. Achievements in operating efficiencies
3. Improving performance
4. Contribution to future developments
5. Creativity

O. Our values and attitudes are best characterized by:

1. We appreciate stability
2. "Roll with the punches"
3. We value growth
4. We are innovators
5. We create and expand into new exciting areas

P. Our attitude toward change is best characterized by:

1. Our programs are well established so that there is no need for change
2. In general, we try to keep up with changes in our segment
3. In general, we seek familiar changes
4. In general, we seek novel change
5. In general, we change beyond our comfort zone

Q. Our institutional structure is best characterized by:

1. Hierarchical
2. Functional
3. Divisional
4. Matrix
5. Flexible/Adaptive

R. Our top administrators' job descriptions are best characterized by:

1. Maintain operational stability
2. Maintain efficient operations
3. Contributions to academic growth
4. Seek new opportunities
5. Create desirable environment

S. Information we need about decisions for our future needs is predominately based on:

1. We use historical information and data
2. We use information based on our current experiences
3. Extrapolation of past successes
4. Upcoming needs
5. New/future oriented needs

T. The number of top administrators is:

1. Significantly above our needs
2. Above our needs
3. According to our needs
4. Below our needs
5. We struggle to achieve our tasks

U. The number of staff is:

1. Significantly above our needs
2. Above our needs
3. According to our needs
4. Below our needs
5. We struggle to achieve our tasks

V. What is the dominant focus of your institution?

1. Focus on maintaining stability
2. Focus on maintain efficient operations
3. Focus primarily on the needs of the internal stakeholders (students, faculty, staff etc.)
4. Focus primarily on the needs of the external stakeholders (society, professional bodies etc.)
5. Focus on being an innovative leader in higher education

Performance. Performance of a LAC is expressed on two levels: the academic and the financial. Values of the factors measuring performance are retrieved from the Integrated Postsecondary Education Data System (IPEDS). IPEDS is a system of interrelated surveys conducted annually by the United States Department of Education's National Center for Education Statistics (NCES).

Academic performance. Academic Performance acts as dependent variable on hypotheses H1, H3, and H5.

Conceptual definition. Academic Performance is the perceived quality of an institution as it is expressed through the increase (or decrease) of the value of the following factors over a period of six years, from 2010 to 2016: (a) total admissions: The number of first-time, degree-seeking undergraduate students who applied, were admitted, and enrolled at a specific LAC; (b) graduation

rate: The number of students from the degree-seeking cohort, who completed a bachelor's degree within 100 percent of normal time (4-years) divided by the cohort; and (c) retention rate: The percent of the fall full-time cohort from the prior year that re-enrolled at the institution as either full- or part-time in the current year. Growth in the values of these factors indicates that students appreciate an institution's quality of programs and excellence in pedagogy.

Operational definition. Academic Performance is measured as follows:

1. The increase (or decrease) of the value of each of the three factors is calculated. The result is based on the comparison of the respective values for the years 2010 and 2016.
2. Because the numbers of the three factors are very different, the results of the change of each factor are normalized utilizing the z statistical test.
3. The Academic Performance value for each institution is estimated by adding the three z scores specific to that LAC and dividing them by 3.

Financial performance. Financial Performance acts as dependent variable on hypotheses H2, H4, and H6.

Conceptual definition. Financial performance is usually an objective measure of how a company can efficiently and effectively use its assets and produce revenue. It can also be used as a generic measure of a company's or an institution's financial health over a certain period of time (Kenton, 2019). Although the vast majority of colleges and universities are not for profit, financial performance is still very important because without solid finances a college cannot survive over a long period of time. For this study, Financial Performance is measured by the increase (or decrease) of the following factors over a period of six years, from 2010 to 2016: (a) revenues: The sum of tuition and fees; government appropriations, grants and contracts, private gifts, contributions from affiliated entities, investment return (income, gains, and losses), sales and services of educational

activities and auxiliary enterprises; and (b) endowment: The value of the endowment assets at the beginning of the fiscal year. Growth in the values of these factors indicates that the institution is prosperous. Improved financial condition can translate in creation of more programs, hiring of quality faculty, or improvement of student services.

Operational definition. Financial Performance is measured as follows:

1. The increase (or decrease) of the value of each of the two factors is calculated. The result is based on the comparison of the respective values for the years 2010 and 2016.
2. Because the numbers of the two factors are very different, the results of the change of each factor are normalized utilizing the z statistical test.
3. The Financial Performance value for each institution is estimated by adding the three z scores specific to that LAC and dividing them by 2.

Technology adoption. Values of the factors measuring Technology Adoption are retrieved from the IPEDS. IPEDS is a system of interrelated surveys conducted annually by the U.S. Department of Education's National Center for Education Statistics (NCES). This variable acts as independent variable on hypotheses H5, H6 and as dependent variable on hypothesis H7, and H8.

Conceptual definition. The level of Technology Adoption for educational purposes by an institution is the degree by which it has implemented an e-learning platform and continues to offer online courses or programs. It is expressed by the increase (or decrease) of the value of the following factors over a period of four years, from 2012 to 2016: (a) the percentage of student enrollment exclusively in distance education courses; (b) the percentage of undergraduate students enrolled in some but not all distance education courses; and (c) the number of undergraduate programs offered

via distance education. Growth in the values of these factors, indicates that the institution adopts the new pedagogy trends.

Operational definition. Technology Adoption is measured as follows:

1. The increase (or decrease) of the value of each of the three factors is calculated. The result is based on the comparison of the respective values for the years 2012 and 2016.
2. Because the numbers of the three factors are very different, the results of the change of each factor are normalized utilizing the z statistical test.
3. The Technology Adoption value for each institution is estimated by adding the three z scores specific to that LAC and dividing them by 3.

Aggressiveness Gap. Aggressiveness Gap acts as an independent variable in hypotheses H1 and H2.

Conceptual definition. The Aggressiveness Gap indicates the degree of variance between the Aggressiveness an institution exhibits and the level of Turbulence in its environment. Given the fact that the array of possible values of these two variables is from one to five, the value of the variance can range from zero to four. A small gap (variance) means that the institution's Aggressiveness is the appropriate strategic stance for the specific environmental conditions.

Operational definition. The Aggressiveness Gap is measured by the absolute difference of the scores of Aggressiveness and Turbulence for each respondent.

Responsiveness Gap. This variable is independent variable in hypotheses H3 and H4.

Conceptual definition. The Responsiveness Gap is the difference between a LAC's Responsiveness and the level of Turbulence. Given the fact that the spread of possible values of these two variables is from one to five, the value of the gap would range from zero to four. A small

gap means that the institution's Responsiveness is similar to the appropriate capabilities profile for the specific environment in which it operates.

Operational definition. The Responsiveness Gap is expressed as the absolute difference of the scores between the Responsiveness and the Turbulence for each respondent.

CHAPTER III

Methods

This chapter presents the methodology used to evaluate the hypotheses mentioned within Chapter II. The data selection method is also presented, along with the instrument used to collect the data, and the method for analyzing and testing the hypothesis.

Research Strategy

The method used for this research study was based on Ansoff's (1987) Strategic Success Model. Using this model, this study set out to appraise what effects have certain strategic and operational characteristics on the performance of a LAC. More precisely, the Model suggested that the performance of colleges and universities (expressed on the academic and financial levels) would be optimal when their Aggressiveness and Responsiveness are aligned with the level of Turbulence. This alignment was measured by the Aggressiveness Gap (Turbulence vs. Aggressiveness) and the Responsiveness Gap (Turbulence vs. Responsiveness), respectively. Performance was measured by the variance of a number of academic and financial indicators between the 2010 and 2016 academic years. Furthermore, this study examined the relationship between Technology Adoption and the performance of an institution, as well as, its Aggressiveness and Responsiveness. Technology Adoption was expressed by the increase of online courses offered by schools and by the increase of students enrolled in distance education courses between the years 2012 and 2016.

Population

The population was drawn from the total number of institutions, as listed in the Integrated Postsecondary Education Data System (IPEDS). The IPEDS is a system of interrelated surveys conducted annually by the United States Department of Education's National Center for Education Statistics (NCES). IPEDS annually gathers information from more than 7,500 colleges, universities, and technical and vocational institutions that participate in the federal student aid programs.

The study sample of LACs was selected based on their Carnegie Classification®. The Carnegie Classification® has been the leading framework for recognizing and describing institutional diversity in U.S. higher education for the past four and a half decades. Starting in 1970, the Carnegie Commission on Higher Education developed a classification of colleges and universities to support its program of research and policy analysis. Derived from empirical data on colleges and universities, the Carnegie Classification® was originally published in 1973, and subsequently updated in 1976, 1987, 1994, 2000, 2005, 2010, and 2015 to reflect changes among colleges and universities. This framework has been widely used in the study of higher education, both as a way to represent and control for institutional differences, and also in the design of research studies to ensure adequate representation of sampled institutions, students, or faculty (Carnegie Foundation for the Advancement of Teaching, 2017). CCBASIC was an update of the original classification scheme. Data were available in both the years of 2010 and 2016 within the CCBASIC revision and at a constant terminology. This study focused on CCBASIC:21 classification, which is defined as follows. Baccalaureate Colleges-Arts and Sciences: Institutions where bachelor's degrees represented at least half of all undergraduate degrees, and at least half of the bachelor's degrees majored in arts and sciences fields. In 2006, of the 7,052 Higher Education Institutions in the IPEDS Federal database, 284 (4.0%) met the criteria of Private Baccalaureate Arts and Science schools (CCBASIS:21). By the 2015-2016 reporting year, 260 (3.4%) had the same classification out of 7,647 total HEIs.

Data Sources

Primary data. Data for Turbulence in higher education, Aggressiveness, and Responsiveness were collected via an electronically distributed questionnaire. The survey application Qualtrics was used for the distribution. The document was emailed to the institutions

identified with the appropriate Carnegie Classification®. Specifically, the survey was sent to the president or the chancellor of each identified LAC because this position would be more abreast of the operational, organizational, and competitive status of the institution. The email contained a link that would allow the respondent access to the questionnaire. The body of the email provided introductions, description of the purpose of the study, and Institutional Review Board (IRB) required data (see Appendix D). For ease of review the single questionnaire is divided in a) the Turbulence related questions shown on page 61-62 and on Appendix A; b) the Aggressiveness related questions shown on page 63-64 and on Appendix B; and c) the Responsiveness related questions shown on page 65-68 and on Appendix C.

Secondary data: IPEDS. Data to measure the underlying variables defining Academic Performance, Financial Performance, and Technology Adoption were collected through IPEDS. IPEDS has made available the entire survey data for each one of the collection years in the Microsoft Access format beginning with the 2007-08 IPEDS data collection year. Prior to the 2007-08 collection year, IPEDS data were not available in Access format. However, archived years are available in comma separated value (csv) format. Provisional release data have undergone all NCES data quality control procedures. Data were inputted for nonresponding institutions. These data were used for First Look (Provisional Data) publications and are released about one year after the initial data collection. To preserve the integrity of the study, secondary data were collected for the corresponding institutions that answered the electronic questionnaire. Both types of data were downloaded to spreadsheets where primary data were matched to the appropriate set of secondary data based on the institution's name.

Variables

Turbulence. There were eight questions within the questionnaire evaluating the Turbulence level in the higher education environment (see page 61-62 or on Appendix A). Each of them addressed a characteristic of Turbulence. Question A examines the rate of change in the industry. Question B measured visibility predictability of change. Question C and D evaluated the complexity of developments in the environment. Question E looked into challenges at the result of competition. Question F appraised the complexity created from the constituents' expectations. Question G gauged the complexity of the industry vis-à-vis the academic program differences. Question H assessed the turbulence as it related to competition. Each of the questions offered five possible choices. Participants could only select one option. Their score ranged from 1 to 5, to correspond to Ansoff's (1987) five-point scale. The overall value for Turbulence was calculated as the average score of all the answered questions $[(Q1 + Q2 + Q3 + Q4 + Q5 + Q6 + Q7 + Q8)/8]$. If a question was not answered, it was assigned the average score of the remaining questions. This was an interval variable.

Aggressiveness. There were seven questions measuring the Aggressiveness of a LAC (see page 63-64 or Appendix B). The first question evaluated the vigor with which a LAC confronted changes. The second question measured the recruitment strategy strength. The next question gaged how innovative an institution was. The fourth question evaluated the marketing drive of the institution. The frequency of educational product introduction was examined on the fifth question. The next question reviewed the program life cycle length and the stability of the curriculum. The last question assessed the agility and propensity of the institution to change. Each of the questions offered five possible answers. Participants could only select one option. Their score ranges from 1 to 5 in line with the Strategic Success Model five-point scale. The overall value for Aggressiveness was

calculated as the average score of all the answered questions $[(Q1 + Q2 + Q3 + Q4 + Q5 + Q6 + Q7) / 7]$. If a question was not answered, it was assigned the average score of the remaining questions. This was an interval variable.

Aggressiveness Gap. The Aggressiveness Gap was a calculated number. It was the absolute arithmetic value of the difference between the score of Aggressiveness and the score of Turbulence for each response. For instance, if the value for Turbulence from a specific response was 4 and the Aggressiveness score is 3.5, the value for the Aggressiveness Gap was 0.5 ($4 - 3.5 = 0.5$). This was an interval variable.

Responsiveness. Twenty-two questions addressed several elements of responsiveness (see page 65-68 or Appendix C). Questions 1, 2, 3, 5, 8, 9, 11, 12, 13, 14, 18, 20 addressed the top administration's motivation and competence. Questions 4, 6, 7, 10, 14, 15, 16, 17, 19, 21, 22 measured the organization's climate, competency, and capacity. Each of the questions offered five possible answers. Participants could only select one option. Their score ranged from 1 to 5, in line with the Strategic Success Model five-point scale. The overall value for Responsiveness was calculated as the average score of all the answered questions $[(Q1 + Q2 + Q3 + \dots + Q19 + Q20 + Q22) / 22]$. If a question was not answered, it was assigned the average score of the remaining questions. This was an interval variable.

Responsiveness Gap. The Responsiveness Gap was a calculated number. It was the absolute arithmetic value of the difference between the score of Responsiveness and the score of Turbulence for each response. For instance, if the value for Turbulence from a specific response was 4 and the Responsiveness score was 3, the value for the Aggressiveness Gap will be 1 ($4 - 3 = 1$). This variable was interval.

Performance. Data for these variables were retrieved from the IPEDS database. The performance of a liberal arts college was measured on two different dimensions.

Academic performance. First and foremost, the LACs' role is to disseminate information, educate its students, and search for the truth. The Academic Performance of the university was measured by the following factors:

- Total Admissions: the change of the factor's value between the academic years 2010 and 2016 ($A_{2016} - A_{2010}$);
- Graduation Rate: the percentage change of the factor's value between the academic years 2010 and 2016 ($GR_{2016} - GR_{2010}$); and
- Retention Rate: the percentage change of the factor's value between the academic years 2010 and 2016 ($RR_{2016} - RR_{2010}$).

Financial performance. A LAC, however, is a business entity as well. It needs to be able to bring in sufficient income to fund its operations. The Financial Performance of a college was measured by the following factors:

- Revenues: the change of the factor's value between the academic years 2010 and 2016 ($R_{2016} - R_{2010}$);
- Endowment: the change of the factor's value between the academic years 2010 and 2016 ($E_{2016} - E_{2010}$).

The resulting values of each factor was normalized utilizing the z statistical test. The respective z scores were then averaged to provide a composite score for each of the Academic and the Financial Performance variables. These variables were interval.

Technology adoption. The degree of Technology Adoption by a liberal arts college was measured by the following factors:

- Percentage of student enrollment exclusively in distance education courses: The change of the Factor's value between the academic years 2012 and 2016 (SEDE2016 - SEDE2012);
- Percentage of undergraduate students enrolled in some, but not all, distance education courses: The change of the factor's value between the academic years 2012 and 2016 (UEDE2016 - UEDE2012); and
- Number of undergraduate programs offered via distance education: The change of the factor's value between the academic years 2012 and 2016 (DEC2016 - DEC2012).

The resulting values of each factor was normalized utilizing the z statistical test. The respective z scores were then be averaged to provide a composite score for the Technology Adoption variable. This was an interval variable.

With each of the two variables on every hypothesis being interval, the optimal test was a Pearson correlation coefficient. Also referred to as Pearson's r , it is a measure of the linear correlation between two variables X and Y . It has a value between $+1$ and -1 , where 1 is total positive linear correlation, 0 is no linear correlation, and -1 is total negative linear correlation.

Validity and Reliability

The questionnaire was put together by the researcher after extensive reading in the field of education and strategy. Significant assistance was given by the dissertation committee chairperson Dr. Gregory A. Lorton and the dissertation committee members Dr. Rene M. Naert and Dr. Robert C. Moussetis. Through their suggestions they provided important guidance ensuring the validity of the questionnaire.

Additional input was requested from five individuals with intimate experience and knowledge in the research topic. Four of them are full time professors. They have more than fifty-

years combined teaching experience in a variety of institutions. Furthermore, all of them are familiar with Ansoff's theories and three of them have studied extensively his work.

Table 11 shows the results of the reliability analysis of the variables. Reliability was measured by using the coefficient alpha (Cronbach's alpha).

Table 11

Reliability of the Variables

Variable	Coefficient alpha
Turbulence	.891
Aggressiveness	.789
Responsiveness	.877

CHAPTER IV

Results

This chapter presents the results of the data analysis of the eight hypotheses presented in Chapter II. The purpose of this study was to evaluate to what degree economic and other environmental conditions, in conjunction with the institution's strategy and organizational capabilities, could affect the LAC's performance. The variables analyzed in this study were Turbulence, the LAC's Aggressiveness, Responsiveness, the degree of Technology Adoption, and Performance, which was expressed as Academic and Financial.

Furthermore, two additional variables were calculated; the Aggressiveness Gap and the Responsiveness Gap. The Aggressiveness Gap represented the absolute difference between the value of the Turbulence perceived by an institution and the value of the HEI's current Aggressiveness. The Responsiveness Gap represented the absolute difference between the value of the Turbulence perceived by an institution and the value of the HEI's current Responsiveness.

The relationships between these variables were evaluated using regression analysis and Pearson correlation coefficient. Table 12 summarizes the basic statistical values of the research variables.

Table 12

Research Variable Statistics

Variable	N	Scale (Min-Max)	Mean	Range	S.D.
Turbulence	35	1-5	3.30	2.63-4.13	.403
Aggressiveness	35	1-5	3.17	2.00-4.29	.568
Responsiveness	35	1-5	3.54	2.23-4.59	.558
Aggressiveness Gap	35	0-4	.548	0.05-1.57	.326
Responsiveness Gap	35	0-4	.510	0.01-1.38	.376
Financial Performance	33	1-5	-.011	-0.80-1.57	.490
Academic Performance	33	1-5	.000	-3.04-4.86	1.41
Technology Adoption	35	1-5	.000	-0.95-5.71	1.59

The following section discusses the analysis results for each of the hypotheses. Each was tested at a 5% significance level.

Hypothesis 1

This hypothesis stated that there was a reliable relationship between LACs' Aggressiveness Gap and Academic Performance. Academic Performance was expected to be higher when LACs' Aggressiveness Gap was smaller. According to the collected data, hypothesis 1 was not supported. The data analysis indicated the following: regression slope = .553, regression intercept = -.306, correlation coefficient $r = .128$, coefficient of determination $r^2 = -.016$, $p = .478$, and $n = 33$. Figure 5 represents a scatterplot of these data.

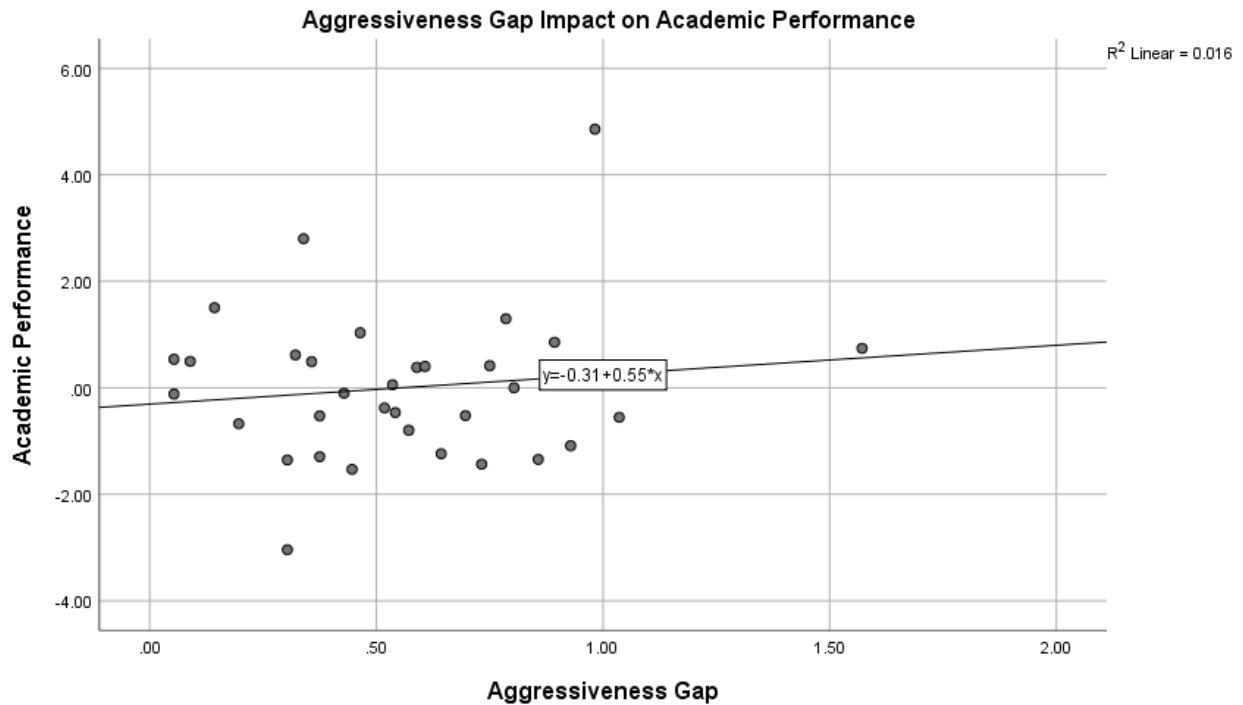


Figure 5. Scatterplot of data analysis for the Aggressiveness Gap impact on Academic Performance.

Hypothesis 2

Hypothesis 2 stated that there was a reliable relationship between LACs' Aggressiveness Gap and Financial Performance. It was expected that the Financial Performance for the LACs would be higher when their Aggressiveness Gap was lower. According to the scatterplot in Figure 6, hypothesis 2 was not supported. It did not appear to be a correlation between an institution's Aggressiveness Gap and Financial Performance. The data analysis indicated the following: regression slope = -0.278 , regression intercept = 0.142 , correlation coefficient $r = 0.184$, coefficient of determination $r^2 = 0.034$, $p = 0.307$, and $n = 33$.

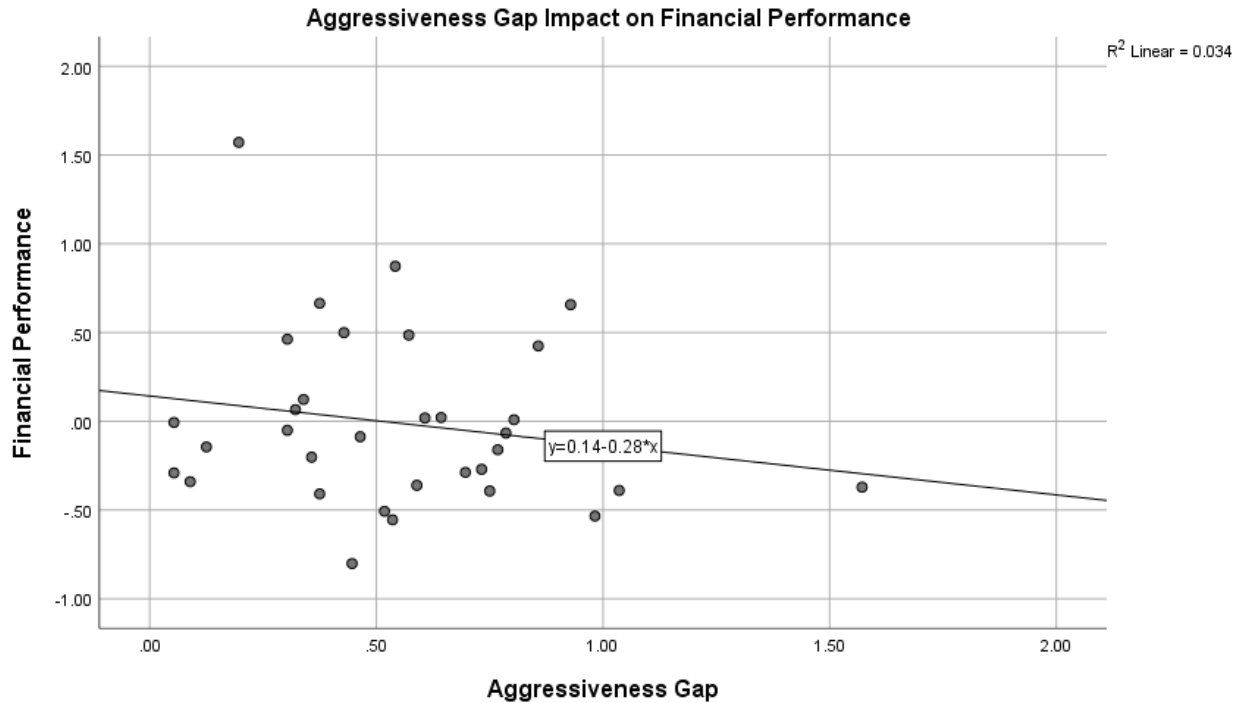


Figure 6. Scatterplot of data analysis for the Aggressiveness Gap impact on Financial Performance.

Hypothesis 3

Hypothesis 3 stated that there was a reliable relationship between LACs' Responsiveness Gap and Academic Performance. It was expected that LACs' Academic Performance would improve as the institution's Responsiveness Gap was diminishing. According to the scatterplot below (Figure 7), hypothesis 3 was not supported. The data analysis indicated the following: regression slope = -0.649 , regression intercept = 0.330 , correlation coefficient $r = 0.179$, coefficient of determination $r^2 = 0.032$, $p = 0.319$, and $n = 33$.

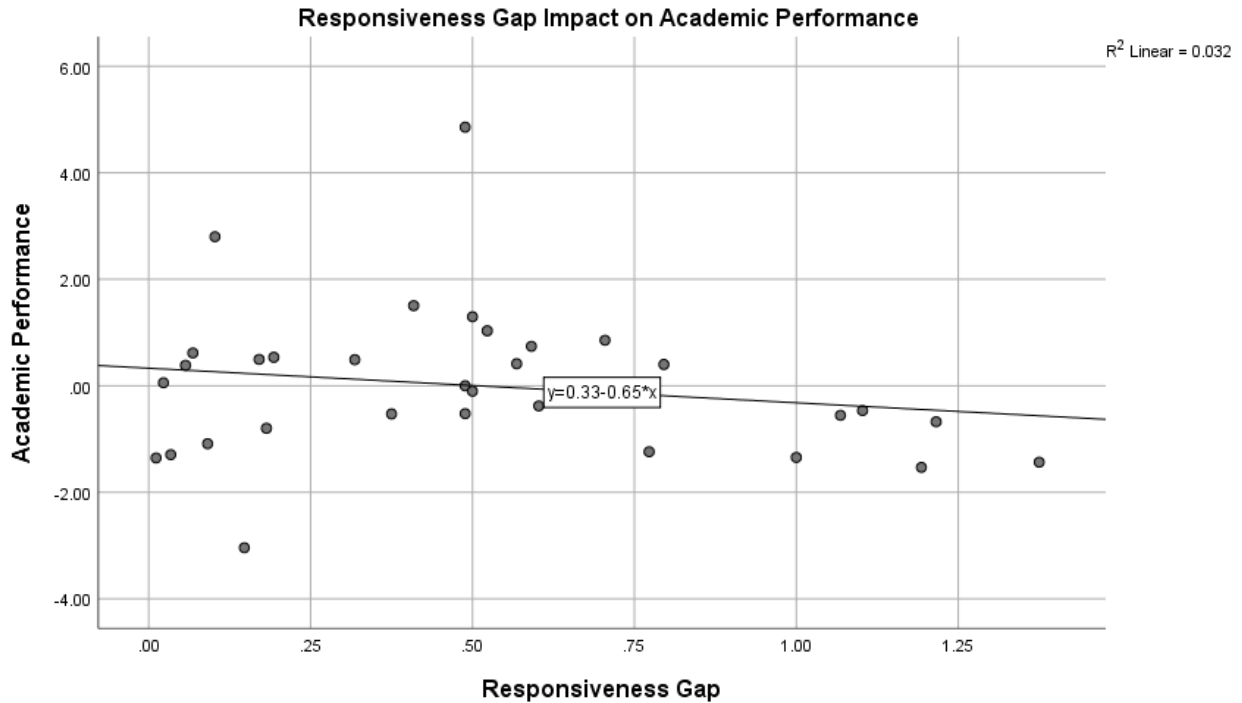


Figure 7. Scatterplot of data analysis for the Responsiveness Gap impact on Academic Performance.

Hypothesis 4

Hypothesis 4 stated that there was a reliable relationship between LACs' Responsiveness Gap and Financial Performance. It was expected that the institutions' Financial Performance would improve as their Responsiveness Gap was lessening. According to the data collected, hypothesis 4 was not supported. It did not appear to be a correlation between an institution's Responsiveness Gap and its Financial Performance. A scatterplot chart of these data is provided below (Figure 8). The data analysis indicated the following: regression slope = .143, regression intercept = -.083, correlation coefficient $r = .113$, coefficient of determination $r^2 = .013$, $p = .532$, and $n = 33$.

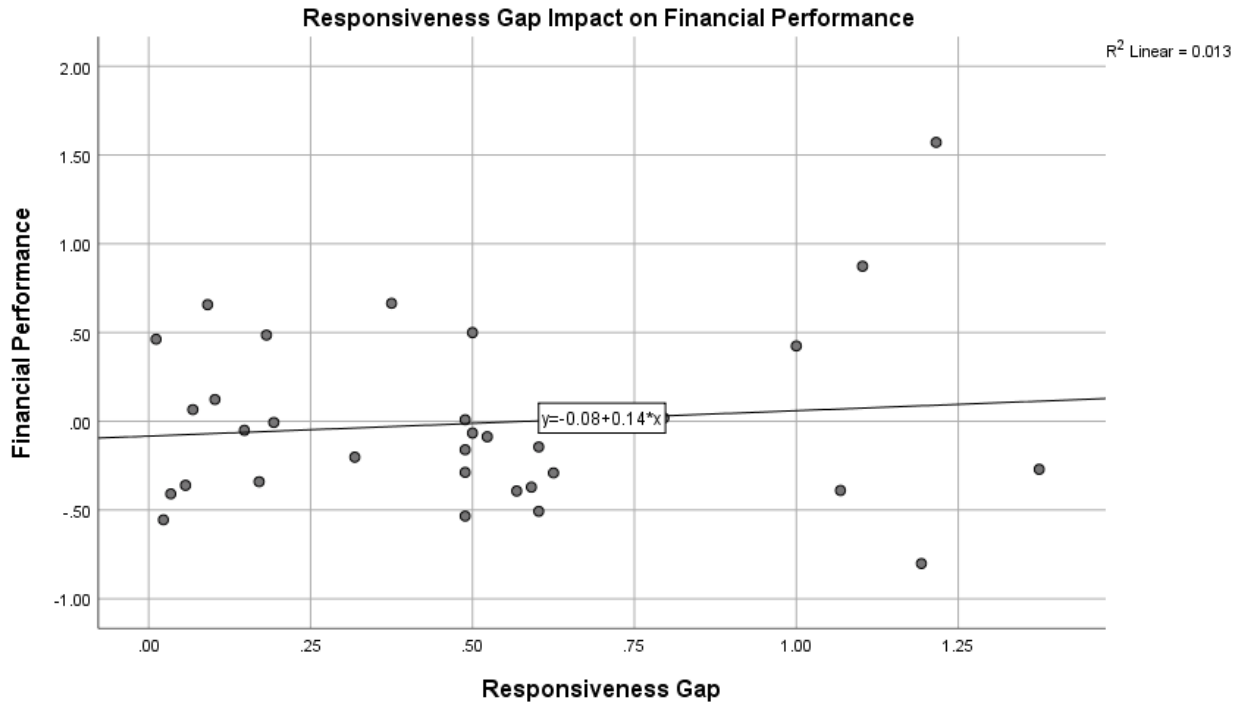


Figure 8. Scatterplot of data analysis for the Responsiveness Gap impact on Financial Performance.

Hypothesis 5

Hypothesis 5 stated that there was a reliable relationship between LACs' Technology Adoption level and Academic Performance. It would be expected that an institution's Academic Performance would improve when it included technological solutions into its curriculum. According to the featured scatterplot chart (Figure 9), hypothesis 5 was not supported. It does not appear to be a correlation between an institution's Technology Adoption and its Academic Performance. The data analysis indicated the following: regression slope = .005, regression intercept = .000, correlation coefficient $r = .006$, coefficient of determination $r^2 = .000$, $p = .974$, and $n = 33$.

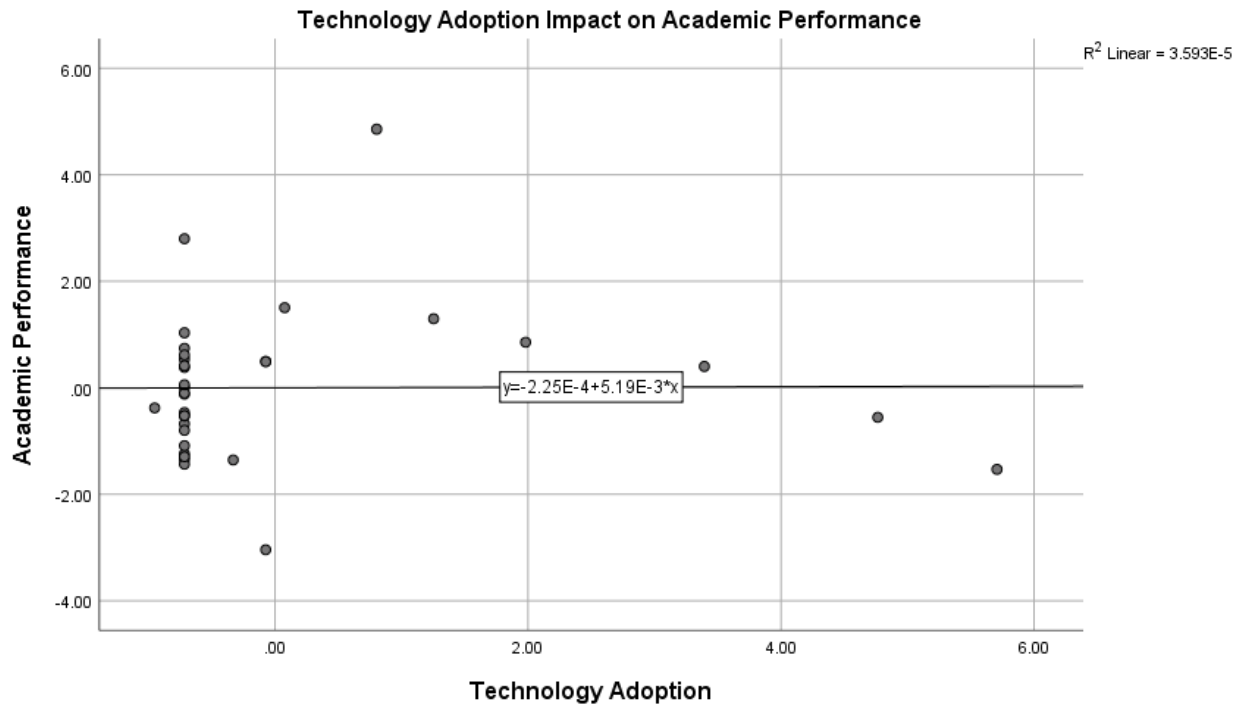


Figure 9. Scatterplot of data analysis for the Technology Adoption impact on Academic Performance.

Hypothesis 6

This hypothesis stated that there was a reliable relationship between LACs' Technology Adoption level and Financial Performance. It would be expected that an institution's Financial Performance would improve when it included technological solutions into its curriculum. According to the scatterplot chart (Figure 10), hypothesis 6 was not supported. It appeared to be a correlation between an institution's Technology Adoption and its Financial Performance, but in the opposite direction. The data analysis indicated the following: regression slope = $-.098$ regression intercept = $-.017$, correlation coefficient $r = .319$, coefficient of determination $r^2 = .102$, $p = 0.07$, and $n = 33$.

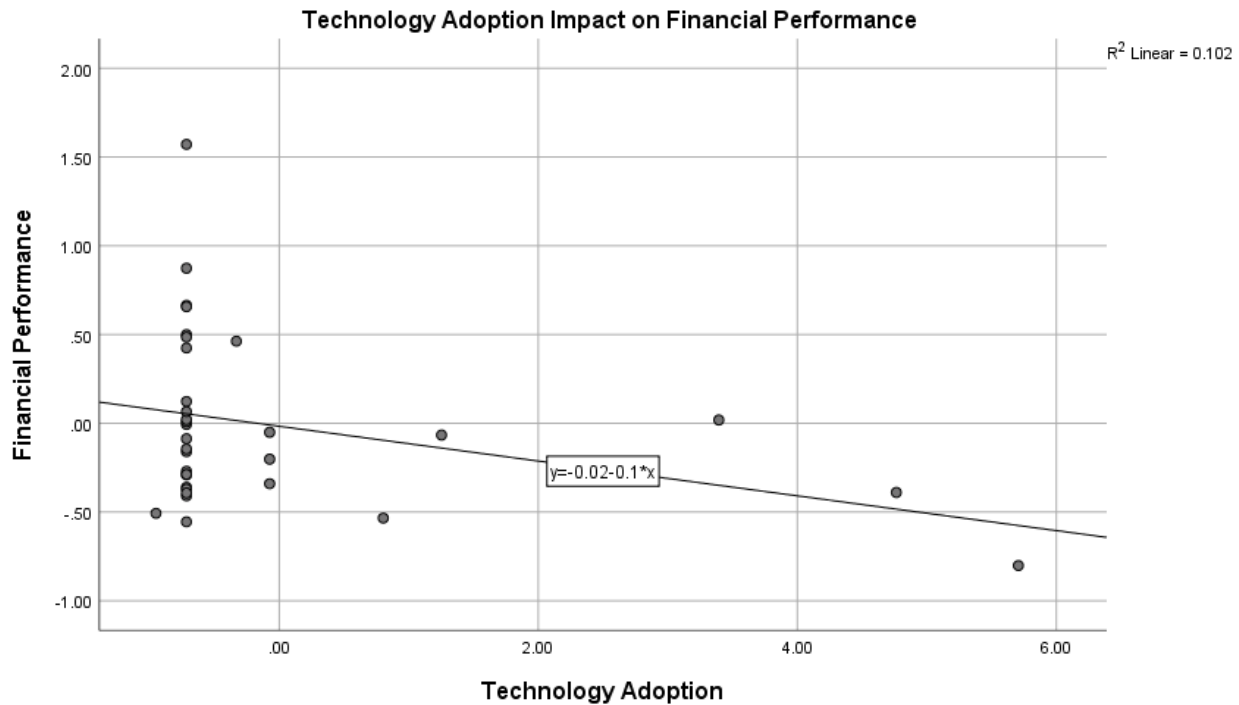


Figure 10. Scatterplot of data analysis for the Technology Adoption impact on Financial Performance.

Hypothesis 7

Hypothesis 7 stated that there was a reliable relationship between LACs' Technology Adoption level and Aggressiveness. It would be expected that an institution's Aggressiveness would improve when it included technological solutions into its curriculum. According to the scatterplot chart below (Figure 11), hypothesis 7 was supported. It did appear to be a correlation between an institution's Technology Adoption and its Aggressiveness. The data analysis indicated the following: regression slope = 1.035, regression intercept = -3.284, correlation coefficient $r = .370$, coefficient of determination $r^2 = .137$, $p = 0.029$, and $n = 33$.

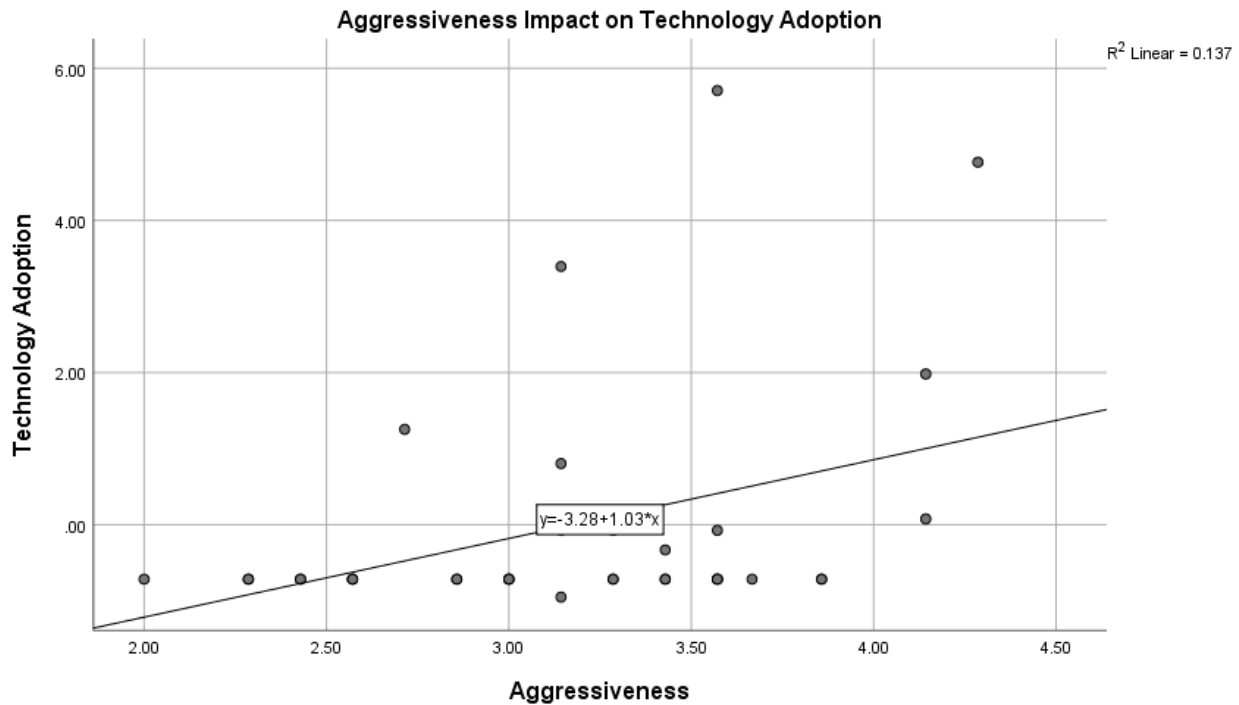


Figure 11. Scatterplot of data analysis for the Aggressiveness impact on Technology Adoption.

Hypothesis 8

This hypothesis stated that there was a reliable relationship between LACs' Technology Adoption level and its Responsiveness. It would be expected that an institution's Responsiveness would improve when it included technological solutions into its curriculum. According to the scatterplot chart below (Figure 12), hypothesis 8 was not supported. It did not appear to be a correlation between an institution's Technology Adoption and its Responsiveness. The data analysis indicated the following: regression slope = .718, regression intercept = -2.540, correlation coefficient $r = .253$, coefficient of determination $r^2 = .064$, $p = .143$, and $n = 33$.

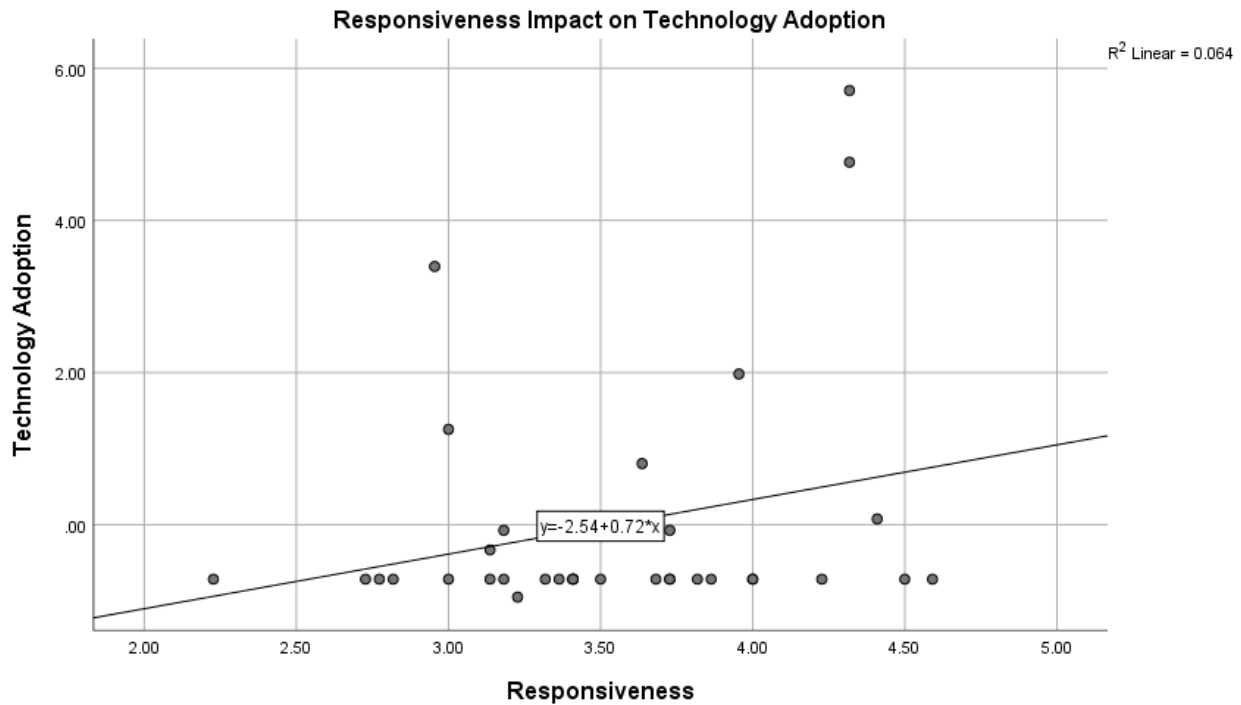


Figure 12. Scatterplot of data analysis for the Responsiveness impact on Technology Adoption.

Additional Findings

In addition to examining the data to see whether the hypotheses of this study were supported, further statistical analysis were performed to determine whether any other significant relationships existed in these data. These additional findings are discussed further.

Figure 13 illustrates the relationship between Turbulence in the external environment and the Academic Performance of an institution. It appears that a positive relationship existed between Turbulence and the Academic Performance of an institution. The higher the Turbulence is perceived to be by an institution, the higher its Academic Performance. It appeared that if an institution perceived the Turbulence to be high, it would strive to increase its Academic Performance. The data analysis indicated the following: regression slope = 1.207, regression intercept = -3.982, correlation coefficient $r = .351$, coefficient of determination $r^2 = .95$, $p = .045$, and $n = 33$.

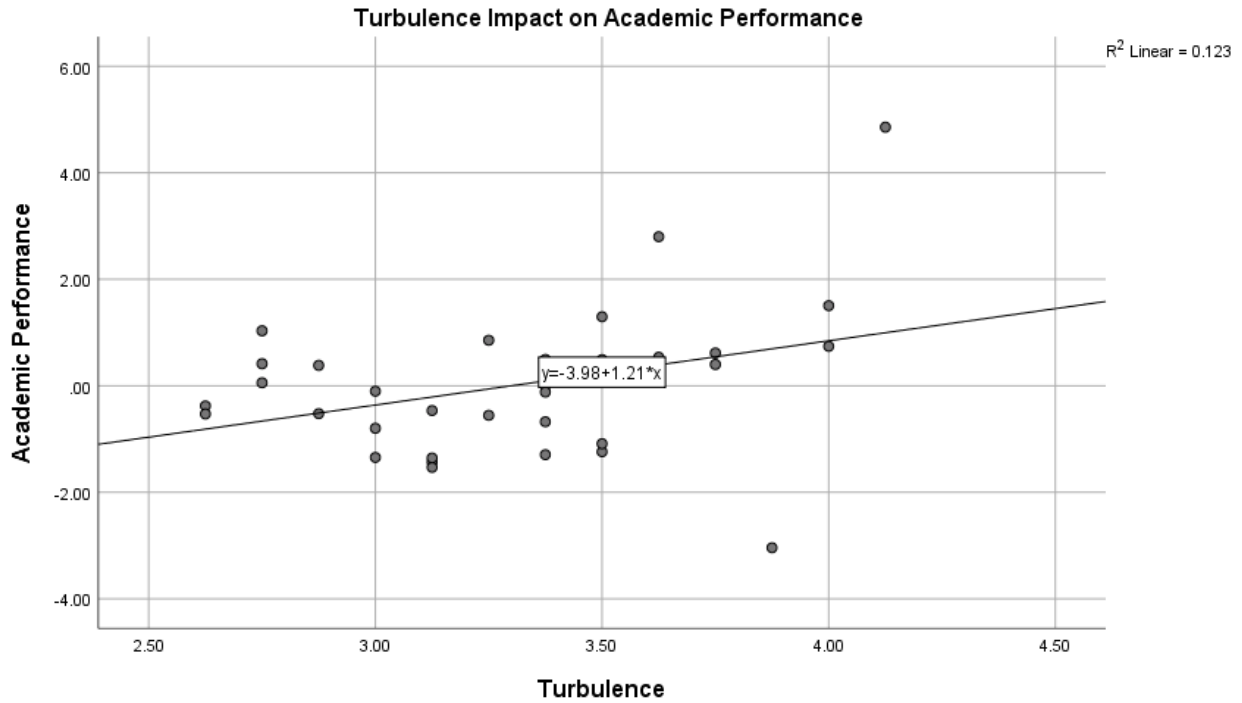


Figure 13. Scatterplot of data analysis for the Turbulence impact on Academic Performance.

Figure 14 shows whether a relationship existed between an institution's Aggressiveness and its Responsiveness. It appears that a positive relationship existed between its Aggressiveness and its Responsiveness. The higher the Aggressiveness an institution exhibited, the higher Responsiveness it would achieve. The data analysis indicated the following: regression slope = .669, regression intercept = 1.415, correlation coefficient $r = .680$, coefficient of determination $r^2 = .463$, $p = .001$, and $n = 33$.

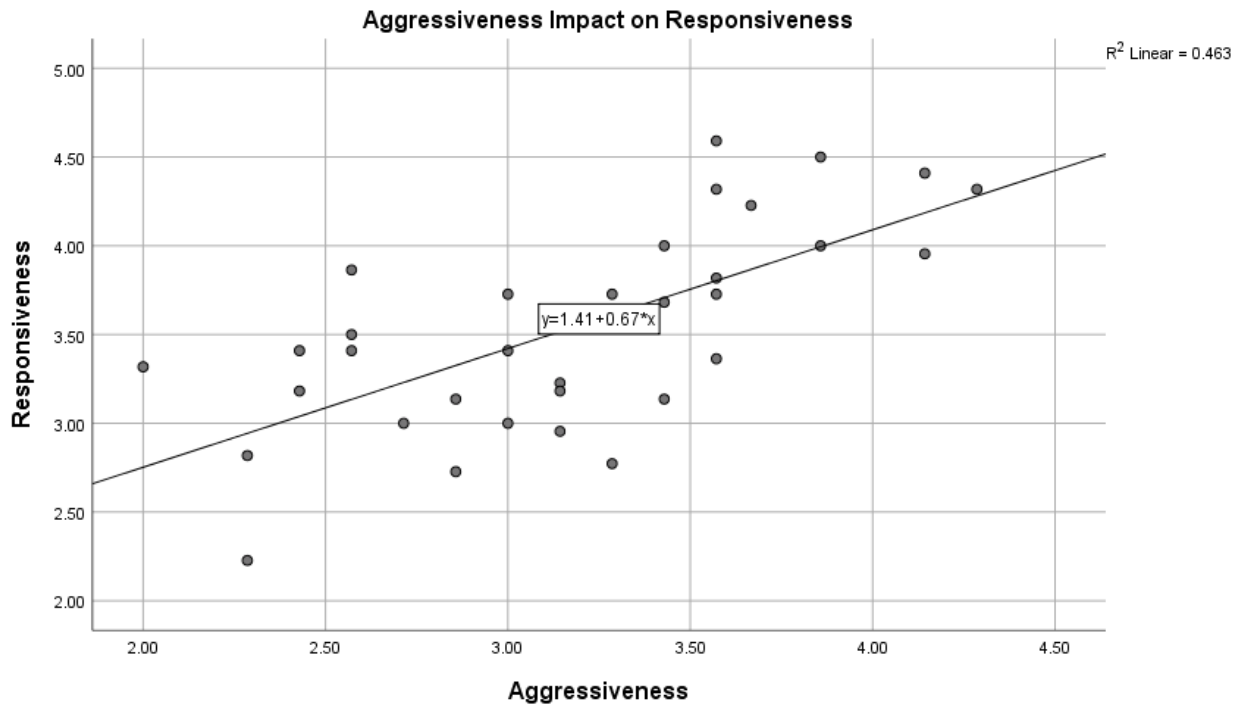


Figure 14. Scatterplot of data analysis for the Aggressiveness impact on Responsiveness.

Figure 15 illustrates whether a relationship existed between an institution's Responsiveness Gap and the level of its Technology Adoption. It appears that a positive relationship existed between its Responsiveness Gap and the level of its Technology Adoption. The higher the Responsiveness Gap an institution exhibited, the higher Technology Adoption it would seek. The data analysis indicated the following: regression slope = 1.702, regression intercept = -.869, correlation coefficient $r = .404$, coefficient of determination $r^2 = .163$, $p = .016$, and $n = 33$.

Responsiveness. The significance level was 0.001. Lastly, a relationship was found between Responsiveness Gap and Technology Adoption. The significance level was 0.016. Tables 13 and 14 summarize the results.

Table 13

Summary of Statistical Findings

Hypothesis	<i>p</i>	Supported?
H1 Relationship between Aggressiveness Gap and Academic Performance	.478	No
H2 Relationship between Aggressiveness Gap and Financial Performance	.307	No
H3 Relationship between Responsiveness Gap and Academic Performance	.319	No
H4 Relationship between Responsiveness Gap and Financial Performance	.532	No
H5 Relationship between Technology Adoption and Academic Performance	.974	No
H6 Relationship between Technology Adoption and Financial Performance	.07	No
H7 Relationship between Technology Adoption and Aggressiveness	.029	Yes
H8 Relationship between Technology Adoption and Responsiveness	.143	No

Table 14

Summary of Additional Findings

Additional Findings	<i>p</i>	Supported?
Relationship between Turbulence and Academic Performance	.045	Yes
Relationship between Aggressiveness and Responsiveness	.001	Yes
Relationship between Responsiveness Gap and Technology Adoption	.016	Yes

CHAPTER V

Discussion and Conclusions

This chapter summarizes the purpose of this research, the challenges in today's education landscape, and the theoretical framework of the research methodology of this study. Further, it summarizes the research questions and hypotheses, discusses the test results, and offers suggestions for altering and extending the scope of the research.

Summary

This section recaps the important information and concepts presented in Chapters I through IV. Chapter I introduced the background of the problem and discussed the Strategic Success Model as a tool to assist universities to navigate the challenges of today's academic environment.

Chapter II presented in some detail Ansoff's (1987) Theory of Strategic Management. It also presented the global model that identified the actors affecting the environment of HEIs. Further, it introduced the research model and the methodology used to validate the application of Ansoff's (1987) construct on the higher education industry.

Chapter III presented the research methodology, including the data sources, the data collection process, and the data analysis techniques. It identified the variables and described the method of valuing the results of the survey instrument.

Chapter IV presented the results of the data analysis based on the eight hypotheses and a number of additional relationships found amongst the variables of this study.

Background of the Problem

For the better part of the previous century, academia in general enjoyed broad support from many social and political forces. Since the early years of the Industrial Revolution, professionals realized that they needed specialized education to handle the new technical and business processes

and the new methods of industrial production. Soon, it became evident that higher education was the ticket to better jobs, higher income, and improved social status.

Recognizing that HEIs created a well-educated and competitive work force, the Federal government provided support to academia through various legislative efforts. The first of these important decrees was the First and Second Morrill Acts of 1862 and 1890 respectively. According to these two pieces of legislation, states could sell designated acres of land to provide for a perpetual endowment fund. Another notable law was the “Servicemen’s Readjustment Act,” or more commonly known as the “GI Bill.” The government gave funds to returning World War II soldiers to attend college in order to retrain and acquire practical skills. In addition, states appropriated funds from their annual budget to directly support higher education institutions in their jurisdiction.

During the 1960s, as the GI Bill student population began to shrink, and a new group of students replaced this demographic, refilling the university classes. This group is known as the “baby boomers.” Around 74 million of these individuals enrolled in colleges ensuring robust attendance for years. In addition, significant social changes within that era made it more acceptable for minorities and women to attend college, increasing significantly the attendance levels of these groups.

Industry and academia created a mutually beneficial partnering relationship. Industry received a well-trained and educated pool of workers, capable of operating in the modern technological and business environment. Industry also got access to talent and innovative new ideas that so frequently are generated by HEIs. For its part, academia received financial and material contributions from industry, as well as, access to infrastructure that could bring its ideas and innovations to fruition. In addition, successful alumni, eagerly assisting their alma mater, sometimes made sizable donations. There were also numerous entrepreneurs that periodically contributed

sizable donations that collectively reached up to multiple billions (Education in Review, 2013; Mulhere, 2015).

With unwavering support from the government, industry, and society at large, HEIs were able to proliferate and grow free from many obstacles that impeded other organizations. However, in the last several decades, conditions in higher education changed. Nations other than the United States have recognized the strategic value of quality higher education and have invested heavily in their own education systems. There are now a number of reputable institutions internationally that compete directly with their American counterparts (Pucciarelli & Kaplan, 2016). International students have now the option to study at home or at a destination much closer to them than the United States. Foreign universities are even attracting American students, though this has not been a major issue yet (De Wit, 2010).

The financial crisis of 2008 amplified many financial challenges in local and state governments. Afflicted with budget shortfalls, governments dramatically reduced or eliminated the discretionary budget allocations to higher education. With colleges' funding sources reduced, institutions tried harder to access the existing, but ever shrinking, pool of funds or looked for new income opportunities. As a way to alleviate financial shortages, institutions opted to dramatically increase the cost of tuition per student. As a result, affordability was one of the unwanted side effects cited for the recent increase in dropout rates (Nguyen, 2012). To pay for their education, many students took advantage of student loans and significant numbers of them will carry that debt well into their adulthood. In some occasions, the financial weight fell on the shoulder of parents or other family members. Lack of affordability and resultant family debt, coupled with weak educational results, have been some of the reasons that the general public question the value of HEIs.

The historically celebrated reputations American universities have built have attracted scores of international students. This factor, combined with the increased attendance by women and minorities, has significantly altered the demographics on campuses within the United States. Also, technological advances have necessitated the re-training of workers. Laid-off professionals who are seeking to acquire more marketable skillsets have been attending college once again. These developments have caused the increase of the average age of the HEIs students population. The transformation of education has not been brought about by the student body demographic changes, alone.

A shift in the pedagogy has also been observed. On-Line Education (OLE) has entered the academic mainstream and has created a competitive advantage for many institutions. The HEIs with the means to acquire expensive infrastructure, can reach out to innumerable tuition-paying students around the world. On the other hand, smaller schools, especially LACs, have found it difficult to compete with these larger institution's virtual knowledge delivery systems.

HEIs face administration issues, as well. Similar to the increase in age amongst students, the average age of faculty is also increasing. Many relatively higher paid tenured professors have been prolonging their retirement, preventing younger educators from advancing their careers (Perley, 1998). In an effort to control costs, universities have had to increasingly rely on non-tenured instructional staff appointments. These instructors tend to be younger and more in tune with their students, but their employment is uncertain and the lack of security may affect their dedication to their profession.

As part of the higher education ecosystem, small liberal arts colleges have been experiencing the same challenges as any HEI. Small LACs have a student body of typically less than 3000 students. Nonetheless, their fee amounts are comparable to that of bigger institutions. They are

tuition driven schools and as such, any market correction, let alone the financial crisis of 2008, impacts them significantly. LACs have been experiencing a steady decline in their attendance the last decade. Their future market share is expected to shrink even further due to the reducing fertility rates in the U.S. and the increased competition from other institutions, both domestic and international. Another pressing issue that they need to overcome was that of their image. Their curriculum consists of arts and science, the humanities and social sciences. These disciplines do not guarantee a high paying job after graduation. That is the reason that prospective students gravitate towards business, medicine or engineering majors.

Statement of the Problem

In most of the 20th century, conditions were advantageous for academia. The American HEIs had little competition. They had the support of the federal and state governments and the public's in general, which valued higher education as the means to a better future. Funding was generally available. A number of historical events (the Industrial Revolution, WWII, and the sizeable baby boomer generation) ensured continuous enrollment within higher education. HEIs thrived in this environment, but as a result, created a rather reactive culture. The pedagogical methodologies of faculty remained essentially unchanged and the skillset of the administrative staff was just sufficient enough to address predictable challenges.

The 2008 financial crisis revealed systemic financial and operational concerns which potentially could influence the future of the HEIs' long-term viability. As of today, there is strong competition from many sources including (a) the rise in quality and number of international education institutions; (b) the increasing use of the OLE format; and (c) the increasing number of domestic HEIs. Revenue fund sources have been reduced and financiers are more selective to where they allocate their money. Changes in the society, the student body and the technology driven economy required the adoption of new pedagogy. Under these conditions, the environment has

become unpredictable and changes are precipitous and more impactful. To succeed in this new climate, faculty and administrative staff need to acquire an innovative skillset and develop a proactive culture, characteristics that were not necessary and were not cultivated in prior years.

Purpose of the Study

The goal of this research was to attempt to validate Dr. H. Igor Ansoff's (1987) Strategic Success Model for use by small liberal arts colleges. It examined the alignment of Turbulence in the higher education space, the Aggressiveness of the strategy, and the Responsiveness of these colleges, and the impact of Technology Adoption, as a prerequisite for success.

Expected Contribution of the Study

This study was designed to use Ansoff's (1987) Strategic Success Model as a framework for strategy formulation at LACs. It was anticipated to make contributions to both the field of strategic management, as well as to the practice of management of specific LACs. As it relates to the field of strategic management, this study hoped to provide a new perspective to strategy formulation taking under consideration external conditions and defining the appropriate organizational capabilities and culture. From a practical perspective, this work was intended to assist school administration with framing the appropriate strategic posture for any environmental circumstances.

General Theoretical Framework

The Strategic Success Model provided a unique basis for evaluating performance of an organization in a given state of environmental conditions. The theory introduces three concepts measured on a 5-point scale that have to be aligned for an organization to achieve ultimate results. These concepts are Environmental Turbulence (Turbulence), Strategic Aggressiveness (Aggressiveness) and Responsiveness of Organizational Capabilities (Responsiveness).

Turbulence is a factor of complexity, familiarity, predictability and succession rapidity of upcoming events. Table 1, mentioned in Chapter II, illustrated its characteristics on all five levels. At Level 1 there are no changes, the environment is stable, and an institution can continue to operate in the same historical manner. Changes are slow, predictable, and can be addressed through the extrapolation of past performance up to Level 3. However, through Level 5, changes are becoming gradually more sudden and impactful, creating a complex and dynamic environment that needs new skills and competencies to navigate.

Aggressiveness refers to the management's drive to deal with certain business conditions. As addressed in Table 2 (see Chapter II), at low levels of Turbulence, management can afford to be more reactive. As Turbulence escalates to Level 5, their stance should change from anticipatory to creative. Responsiveness is a collective factor measuring the organizational structure, culture, management skill, and mentality. At low levels of Turbulence, stability is the most effective organizational response. As the Turbulence level increases, the institution needs to adopt progressively a more flexible and creative posture. Table 3 (see Chapter II) demonstrated the responsiveness levels throughout the scale.

The Global Model

According to the Strategic Success Model, management and staff of the LACs needed to adopt the appropriate structure, culture, and mental stance to succeed in today's environmental conditions. In addition, they needed to accommodate the interests of various groups. Figure 16 below, illustrates the Global Model and identifies all the factors and stakeholders influencing the education landscape. These factors and stakeholders include:

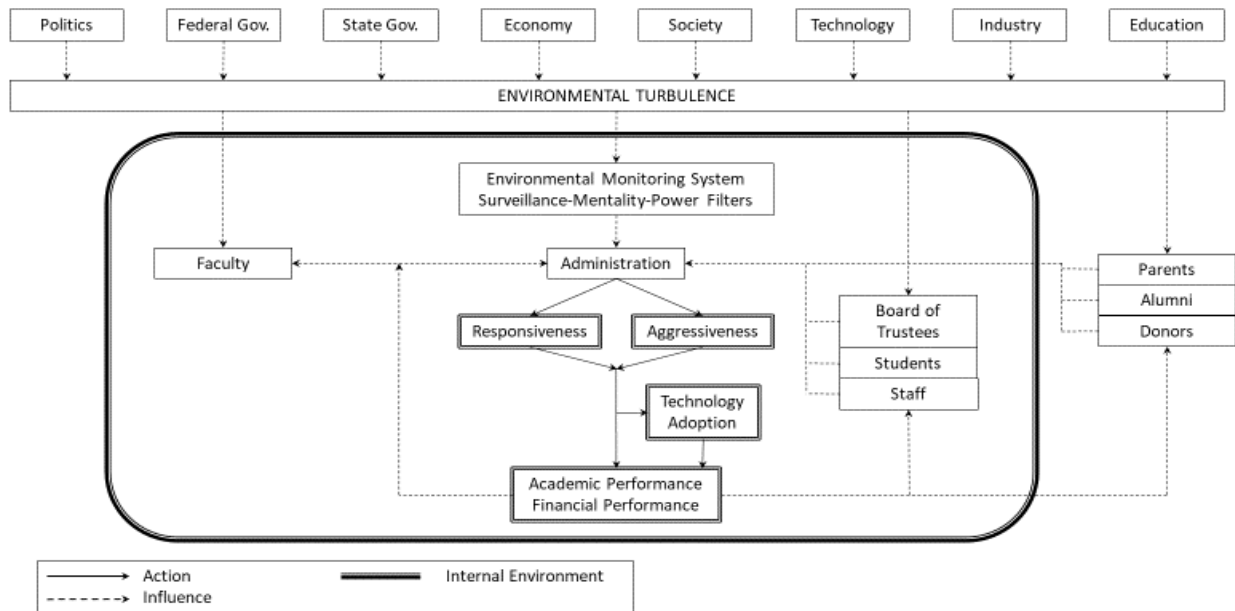


Figure 16. Image of the Global Model schematic.

- **Politics:** The general political climate;
- **Government:** The Federal, state, and local governments play an important role as they enact and impose regulations and provide funding both in the form of financial aid as well as direct subsidy to institutions;
- **Economy:** Contracting or expanding economic conditions can create new, unknown circumstances that may be detrimental to the LAC's opportunities for growth;
- **Society:** Society has expectations of certain results from academia. Under different conditions it can be opposing or supportive of the universities. In a democratic system, it has the ability to endorse or reject education related proposals and legislations;
- **Technology:** The rapid speed of innovation has multiple effects on higher education. It necessitates faculty and staff to familiarize with technology; requires additional investment in equipment; creates new markets and methodologies for the dissemination

- of information; dictates how environmental data are collected and interpreted; affects the knowledge delivery; controls operational actions; and manages communications to and from all parties;
- Industry: It desires partnerships that will support continued research, allow access to advanced data and create a well-trained work force;
 - Education: Various professional associations and governing bodies, such as accreditation groups, may impose another layer of demands for the university;
 - The Board of Trustees has certain hopes about the institution that may invoke their personal aspirations;
 - Faculty has significant influence in the decision making based on the principal of shared governance. Although they do not involve themselves with the business aspect of the university, faculty is in control of scheduling, programs, pedagogy, and curriculum;
 - Staff strive for security and professional prosperity;
 - Parents want the best education at affordable prices;
 - Students are looking for cutting-edge curriculum and efficient knowledge acquisition, that will ensure gainful employment; and
 - Alumni and donors want to see the school succeed. Personal ambitions may drive some of the donations and involvement with the institution.

All of the above factors provide signals to administration pertaining to the future competition, the economic situation, the legislative outlook and other environmental conditions. The same signals are received by the groups of stakeholders. With these conditions in mind and biased with their own desires, hopes and aspirations they attempt to influence the school officials. All these inputs received by the administrators are interpreted based on three filters.

- Surveillance: The level of environmental monitoring sophistication which should be elaborate enough to allow the appreciation of the information obtained.
- Mentality: At a successful institution, the current set of actions and decisions is perceived to be the correct one. New challenges bring new conditions and the administrators need to be observant and prudent to recognize that past responses will not be effective anymore.
- Power: If the top executive/administrator has an incorrect perspective of the environment he/she can override any tendencies to change.

Based on their own interpretation of the environmental signals and the influences from all the constituents, administration formulates an understanding of the turbulence conditions in the LAC's environment. This knowledge leads them to formulate the appropriate strategy and adopt a set of capabilities that will ensure the successful operation in the given circumstances.

Research Model

The Global Model is the depiction of the education ecosystem as illustrated in Figure 16 above. Figure 17 emphasizes the Research Model, which was the specific focus of this study. This part examined the relation between Turbulence, Aggressiveness, Responsiveness, and the level of Technology Adoption of an institution as they related to achieving best possible performance. The conceptual and operational definitions of the variables used in this study are defined within the next section.

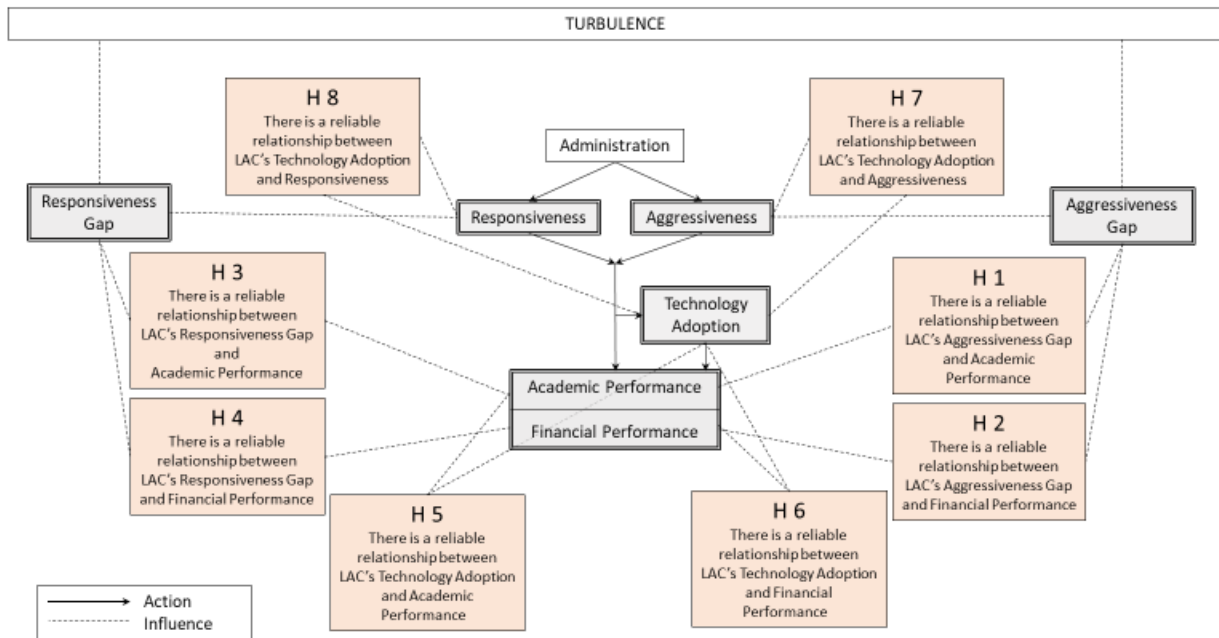


Figure 17. Image of the Research Model schematic

Research Variables

Turbulence. Conceptual definition. Turbulence is the degree of complexity, familiarity, predictability, and pace of changes in the field of higher education. Such changes can be technological, regulatory, economic, social, academic, political, or business related and can infuse a level of uncertainty in the strategic options of a university.

Operational definitions. Turbulence was measured based on the responses to eight questions (see page 61-62 or Appendix A) which were distributed via an electronic questionnaire. Each of the questions offered five choices valued from 1 to 5, similar to Ansoff’s (1987) Environmental Turbulence scale. Participants could only select one option from the list. The value of the perceived Turbulence for each individual responding LAC was the average value of the answers to the eight questions. A score of 1 meant that Turbulence was low whereas a score of 5 meant that the environment was volatile.

Aggressiveness. Conceptual definition. Aggressiveness is the organizational attitude indicated by the magnitude of marketing activities, and the speed and rapidity of introduction of new products to the market.

Operational definition. Aggressiveness was measured based on the responses to seven questions (see page 63-64 or Appendix B), which were distributed by an electronic questionnaire. Each of the questions offered five choices valued from 1 to 5, in line with Ansoff's (1987) Environmental Turbulence scale. Participants could only select one option from the list. The value of Aggressiveness for each individual responding LAC was the average value of the answers to the seven questions. A score of 1 indicated a stable and routine operation. A score of 5 on the other side, indicated a very dynamic and vigorous institution.

Responsiveness. Conceptual definition. Responsiveness is the combination of the characteristics what will allow an institution to support the chosen strategic direction. Responsiveness includes both the knowledge and competencies of the university president and its administration group, as well as the competencies and structure of the organization as a whole.

Operational definition. Responsiveness was measured by the responses to twenty-two questions (see page 65-68 or Appendix C), which were distributed by an electronic questionnaire. Each of the questions offered five choices valued from 1 to 5, consistent with Ansoff's (1987) Environmental Turbulence scale. Participants could only select one option from the list. The value of the Responsiveness for each individual responding LAC was the average value of the answers to the twenty-two questions. A value of 1 showed a custodial oriented and risk avert culture. A value of 5 characterized a more agile and entrepreneurial organizational posture.

Performance. Performance of a LAC was expressed on two levels, the academic and the financial. Values of the factors measuring performance were retrieved from the Integrated

Postsecondary Education Data System (IPEDS). IPEDS is a system of interrelated surveys conducted annually by the U.S. Department of Education's National Center for Education Statistics (NCES).

Academic performance. Values of the factors measuring Academic Performance were retrieved from IPEDS.

Conceptual definition. Academic Performance is the perceived quality of an institution as it was expressed through the increase (or decrease) of the value of the following factors over a period of six years, from 2010 to 2016:

- Total Admissions: The number of first-time, degree-seeking undergraduate students who applied, were admitted, and enrolled at a specific LAC;
- Graduation Rate: The number of students from the degree-seeking cohort, who completed a bachelor's degree within 100 percent of normal time (4-years) divided by the cohort; and
- Retention Rate: The percent of the fall full-time cohort from the prior year that re-enrolled at the institution as either full- or part-time in the current year.

Growth in the values of these factors indicated that students appreciate an institution's quality of programs and excellence in pedagogy.

Operational definition. Academic performance was measured as follows:

1. The increase (or decrease) of the value of each of the three factors was calculated. The result was based on the comparison of the respective values for the years 2010 and 2016.
2. Because the values of the three factors were very different, the results of the change of each factor were normalized utilizing the z statistical test.

3. The Academic Performance value for each institution was estimated by adding the three z scores specific to that LAC and dividing them by 3.

Financial performance. Financial Performance is usually an objective measure of how an organization can efficiently and effectively use its assets and produce revenue. Financial Performance can also be used as a generic measure of an organization's financial health over a certain period of time (Kenton, 2019). Although the vast majority of colleges and universities are not for profit, Financial Performance is still very important because without solid finances, a university cannot survive over a long period of time. Values of the factors measuring Financial Performance were retrieved from the IPEDS.

Conceptual definition. Financial Performance is the fiscal health of an institution measured by the increase (or decrease) of the following factor over a period of six years, from 2010 to 2016:

- Revenues: The sum of tuition and fees; government appropriations, grants and contracts, private gifts, contributions from affiliated entities, investment return (income, gains, and losses), sales and services of educational activities and auxiliary enterprises; and
- Endowment: The size of the endowment fund at the beginning of the academic year.

Growth in the values of these factors, indicated that the institution is prosperous, partially because of its fiscal operations. Improved financial condition can translate to creation of more programs, hiring of quality faculty, or improvement to student services.

Operational definition. Financial Performance was measured as follows:

1. The increase (or decrease) of the value of each of the two factors was calculated. The result was based on the comparison of the respective values for the years 2010 and 2016.

2. Because the values of these factors were very different, the results of the change of each factor were normalized utilizing the z statistical test.
3. The Financial Performance value for each institution was estimated by adding the three z scores specific to that HEI and dividing them by 2.

Technology adoption. Values of the factors measuring Technology Adoption were retrieved from IPEDS.

Conceptual definition. The level of Technology Adoption for educational purposes by an institution is the degree by which it has implemented an e-learning platform and continues to offer online courses or programs. It is expressed by the increase (or decrease) of the value of the following factors over a period of four years, from 2012 to 2016:

- The percentage of student enrollment exclusively in distance education courses;
- The percentage of undergraduate students enrolled in some but not all distance education courses; and
- The number of undergraduate programs offered via distance education.

Growth in the values of these factors, indicated that the institution adopted the new pedagogy trends.

Operational definition. Technology Adoption was measured as follows:

1. The increase (or decrease) of the value of each of the three factors was calculated. The result was based on the comparison of the respective values for the years 2012 and 2016.
2. Because the values of these factors were very different, the results of the change of each factor were normalized utilizing the z statistical test.
3. The Technology Adoption value for each institution was estimated by adding the three z scores specific to that LAC and dividing them by 3.

Aggressiveness gap. Aggressiveness Gap acted as independent variable in hypothesis H1 and H2.

Conceptual definition. The Aggressiveness Gap indicates the degree of variance between the Aggressiveness an institution exhibits and the level of Turbulence in its environment. Given the fact that the array of possible values of these two variables is from 1 to 5, the value of the variance range from 0 to 4. A small gap (variance) meant that the institution's Aggressiveness was the appropriate strategic stance for the specific environmental conditions.

Operational definition. The Aggressiveness Gap was measured by the absolute difference of the scores of Aggressiveness and Turbulence for each respondent.

Responsiveness gap. This variable was an independent variable in hypothesis H3 and H4.

Conceptual definition. The Responsiveness Gap is the difference between a LAC's Responsiveness and the level of Turbulence in its environment. Given the fact that the spread of possible values of these two variables is from 1 to 5, the value of the gap ranges from 0 to 4. A small gap means that the institution's Responsiveness is close to the appropriate profile for the specific environmental conditions.

Operational definition. The Responsiveness Gap was expressed as the absolute difference of the scores between the Responsiveness and the Turbulence of each respondent.

Research Questions and Hypothesis

Based on the earlier discussion, the following research questions arise:

Question 1: What is the relation between LAC's Aggressiveness Gap and Academic Performance?

Question 2: What is the relation between LAC's Aggressiveness Gap and Financial Performance?

Question 3: What is the relation between LAC's Responsiveness Gap and Academic Performance?

Question 4: What is the relation between LAC's Responsiveness Gap and Financial Performance?

Question 5: What is the relation between LAC's Technology Adoption level and Academic Performance?

Question 6: What is the relation between LAC's Technology Adoption level and Financial Performance?

Question 7: What is the relation between LAC's Technology Adoption level and Aggressiveness?

Question 8: What is the relation between LAC's Technology Adoption level and Responsiveness?

These questions formed the basis for the formulation of the following research hypotheses:

Hypothesis 1: There is a reliable relationship between LAC's Aggressiveness Gap and Academic Performance.

Hypothesis 2: There is a reliable relationship between LAC's Aggressiveness Gap and Financial Performance.

Hypothesis 3: There is a reliable relationship between LAC's Responsiveness Gap and Academic Performance.

Hypothesis 4: There is a reliable relationship between LAC's Responsiveness Gap and Financial Performance.

Hypothesis 5: There is a reliable relationship between LAC's Technology Adoption level and Academic Performance.

Hypothesis 6: There is a reliable relationship between LAC's Technology Adoption level and Financial Performance.

Hypothesis 7: There is a reliable relationship between LAC's Technology Adoption level and Aggressiveness.

Hypothesis 8: There is a reliable relationship between LAC's Technology Adoption level and Responsiveness.

Research Strategy

Data sources. The population targeted for this research study was small LACs. This cohort was retrieved from IPEDS, a system of interrelated surveys conducted annually by the U.S. Department of Education's NCES. The group of institutions was identified by the Carnegie Classification®, CCBASIC 21 defined as, Baccalaureate Colleges-Arts and Sciences: Institutions where bachelor's degrees represented at least half of all undergraduate degrees, and at least half of the bachelor's degrees majored in arts and sciences fields.

Data for this research were collected by two methods.

Primary data. For the collection of primary data, the online service called Qualtrics was selected. Within this application, a user can develop and archive multiple versions of a questionnaire, distribute it via personal email to selected targets, and provide summary reports based on the responses. Survey questionnaires were distributed electronically to the presidents or chancellors of the targeted institutions. The following variables were measured based on the respondent's answers to the questionnaire: Turbulence, Aggressiveness, and Responsiveness.

Secondary data. Additional data relating to the sample population were collected from the IPEDS database. The data retrieved referred to the variables, Academic Performance, Financial

Performance, and Technology Adoption. The secondary data were matched to the primary data of the corresponding institution based on the university's name.

Survey Instrument

The survey instrument was a questionnaire comprised of 37 multiple choice questions. For the dissemination of the questionnaire, the on-line survey application, Qualtrics, was selected. Via this application emails were sent to presidents or chancellors of the selected institutions. The emails included a brief introduction to the research project and the respondent's bill of rights. A link directed the recipients to their private copy of the Qualtrics questionnaire to provide their responses.

Data Collection and Analysis

The total sample population numbered 260 institutions. Of those, 39 presidents or chancellors responded to the questionnaire. The response rate was 15%. The responses from four institutions were not complete and were eliminated from the analysis. The response rate was reduced to 13.5%. Lastly, two of the responding institutions did not have corresponding performance data in IPEDS. They were also eliminated from the analysis, bringing the response rate to 12.7%.

The answers to the questionnaire were archived within the Qualtrics application. The application provided some reports, but for further analysis, the results were extracted to spreadsheets. The hypotheses and the additional findings were tested using Pearson's Correlation Coefficient. The criterion for accepting or rejecting a hypothesis was a statistical significance level of less than 5% ($p < 0.05$). This significance level represents the probability of rejecting a null hypothesis that is true.

Assumptions and Limitations

In planning and executing this research project, the following limitations were accepted and assumptions were made:

- The respondents understood the purpose of the questions in the questionnaire.
- The respondents were knowledgeable or could easily find the information required by the questions in the questionnaire.
- The responses to the questions were honest and they were not offered to make the institution look good.
- The data from the IPEDS database were correct and accurate.
- The small sample of the population assumed not to have a detrimental effect on the study. The LAC is a small subgroup of the more than 4,000 very diverse HEIs. Altering the criteria to increase the sample size, including larger universities, was deemed obstructive as it would have increased the variability of the sample.
- The population of LACs studied was assumed to be a homogeneous group.
- The data that were analyzed in this research project was collected in two ways. Primary data relating to the current understanding of environmental and operational conditions were collected via electronic survey. Secondary data on the performance of the institutions were collected from the IPEDS database relating to years 2010 and 2016.
- Data for the Academic and Financial Performance were collected for the years 2010 through 2016. Data for Technology Adoption were collected for the years 2012 through 2016, because that information was not compiled for the years prior to 2012.

Research Findings

The analysis of the data showed that hypotheses 1, 2, 3, 4, 5, 6, and 8 were not supported at $p < 0.05$ (see Figures 5, 6, 7, 8, 9, 10 and 12). Hypothesis 7 was supported at significance level of less than 5% ($p = 0.029$) (see Figure 11). This hypothesis illustrated that the greater the Aggressiveness

stance a LAC adopted the higher Technology Adoption it achieved. Along with hypothesis 7 there were additional findings that were supported at a significance level of less than 5% ($p < 0.05$).

The first additional finding showed that there was a relationship between Turbulence and Academic Performance (see Figure 13). This indicated that as Turbulence level increased LACs took progressively adequate actions to improve their academic profile.

The second additional finding showed a reliable relationship between Aggressiveness and Responsiveness (see Figure 14). This suggested that as the Aggressiveness of a LAC intensified, the institution supported its strategy by adopting analogous Responsiveness measures.

The third additional finding showed that there is a positive relationship between the Responsiveness Gap and the Technology Adoption level of a LAC (see Figure 15).

Discussion of the Findings

This research study targeted specifically small LACs because they were perceived as a vulnerable group in academia and more susceptible to the changing environmental conditions. It was also expected that the characteristics of the schools would have been generally homogeneous in order to generate results of some significance. However, after testing the hypotheses, it was shown that seven out of the eight were not supported. Closer examination of the data revealed that the subjects had too diverse characteristics to generate significant results. Review of the 2016 values of the below factors illustrated this point.

Academic performance. Academic Performance was the dependent variable for hypotheses H1, H3, and H5. It was defined as a factor of Total Admissions, Graduation Rate, and Retention Rate. The data indicated that the values of these factors vary significantly.

Total admission. In 2016, 18% of the LACs had less than 1,000 freshmen admitted. The top 27% of the colleges admitted more than 3,000 students, and the middle 55% ranged from 1,004 to

2,976 admitted students. The difference between the smallest and the biggest admissions value was more than 5,300 students. Figure 18 illustrates these values.

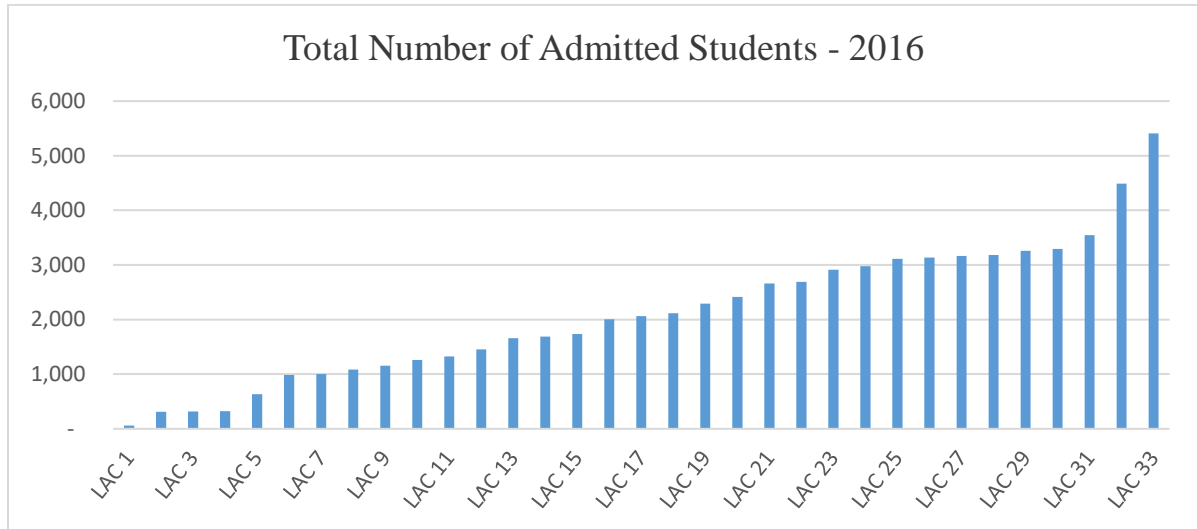


Figure 18. Bar graph of total number of admitted students.

Graduation rate. In 2016, the bottom 24% of the schools had graduation rates of less than 40%. The top 18% of the LACs had graduation rates in the range of 80%-89%. The graduation rate values of the remaining 58% of the schools ranged from 46% to 79%. The overall spread of the graduation rate values of the cohort was 82 basis points. Figure 19 illustrates these values.

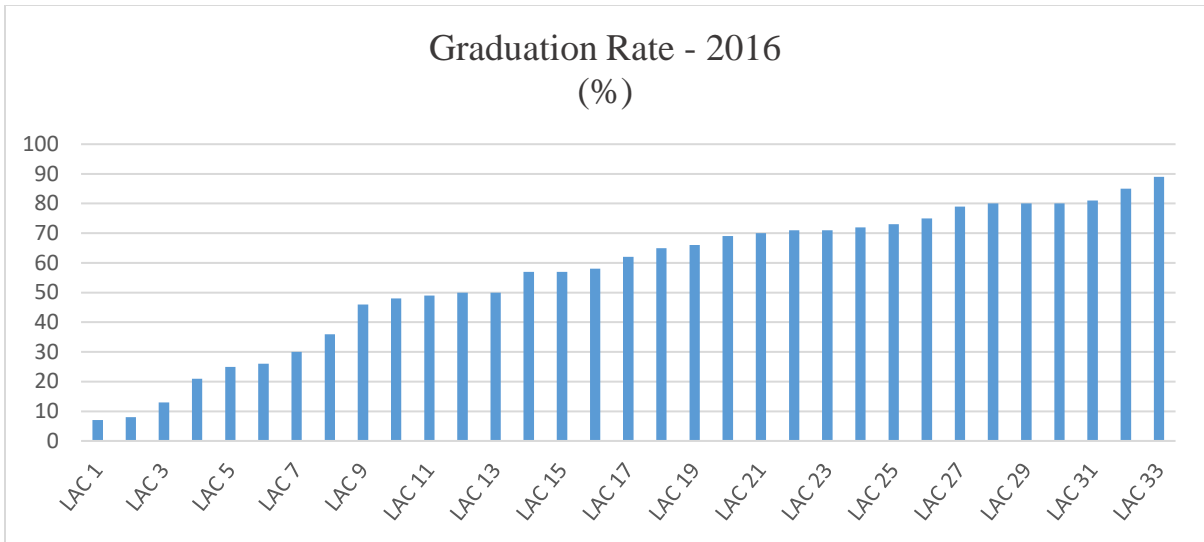


Figure 19. Bar graph of graduation rates from selected LACs.

Retention rate. In 2016, the bottom 9% of the LACs had retention rates of up to 70%. The top 58% had retention rates from 80%-98%. The retention rate value of the middle 39% of the LACs ranged from 70% to 78%. The overall spread of retention rate values from the weakest to the strongest rate was 49 basis points. Figure 20 illustrates these values.

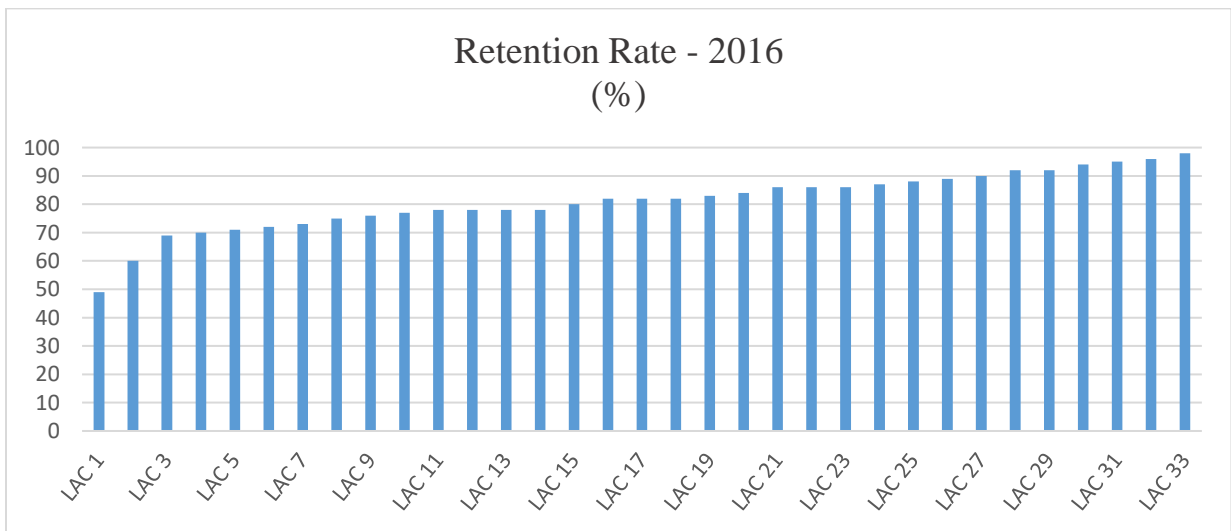


Figure 20. Bar graph of retention rates from selected LACs.

Figure 21 compares the Graduation Rate and the Total Admission values. The data are sorted by the Graduation Rate values. There were dissimilarities across the sample population but revealing

are the values of the bottom eight universities in terms of Graduation Rates. Amongst these few colleges the Graduation Rate ranged by 29 basis points and the Total Admissions number fluctuated by 4,776 students.

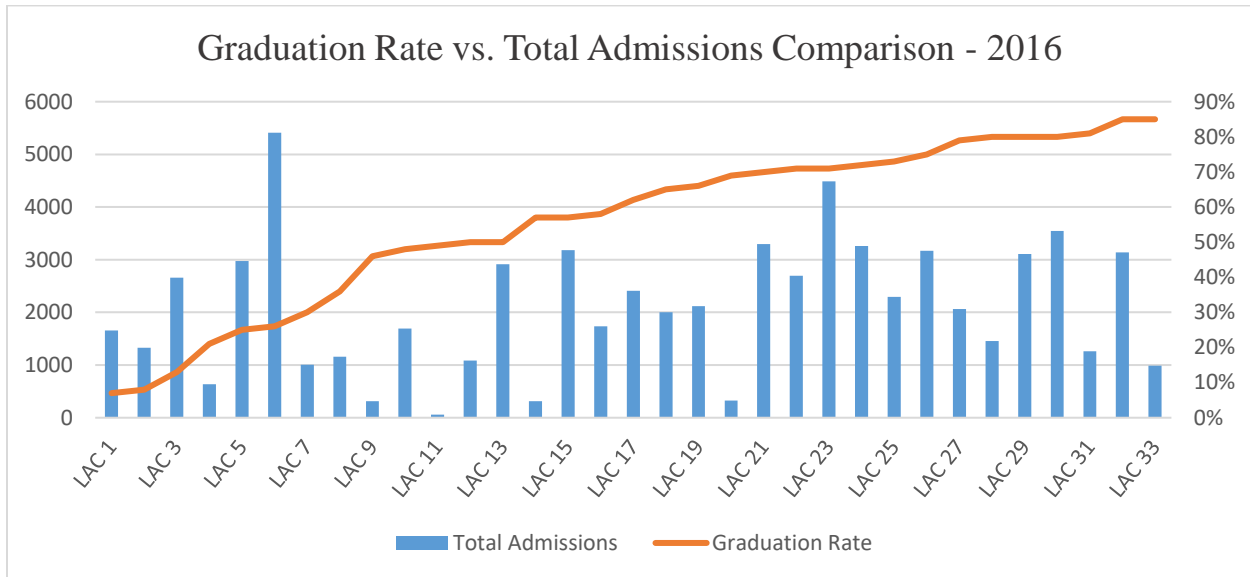


Figure 21. Bar graph of the graduation rates versus total admissions.

Financial performance. Financial Performance was the dependent variable for hypotheses H2, H4, and H6. For the purpose of this research, Financial Performance was defined as a factor of Revenues and the value of the Endowment. The data indicated that the revenues of some institutions increased in the years between 2010 and 2016. Nonetheless, the total revenues of the cohort were reduced significantly in the same years. At the same time, the value of the endowment funds skyrocketed adding close to three billion to the total assets of the cohort. We can infer that some of the institutions depend on their substantial endowment to fund part of their operations.

Revenues. In 2016, 52% of the institutions had revenues below \$50 million, ranging from below \$4.9 million to \$48.2 million. Interestingly enough, both the oldest and the newest institution belonged to this sub-group. The top 15% of the institutions had revenues of over \$101 million and

the middle 33% had revenues from \$50 million to \$100 million. The range from the lowest to the highest revenue generating school was more than \$163 M. Figure 22 illustrates these values.

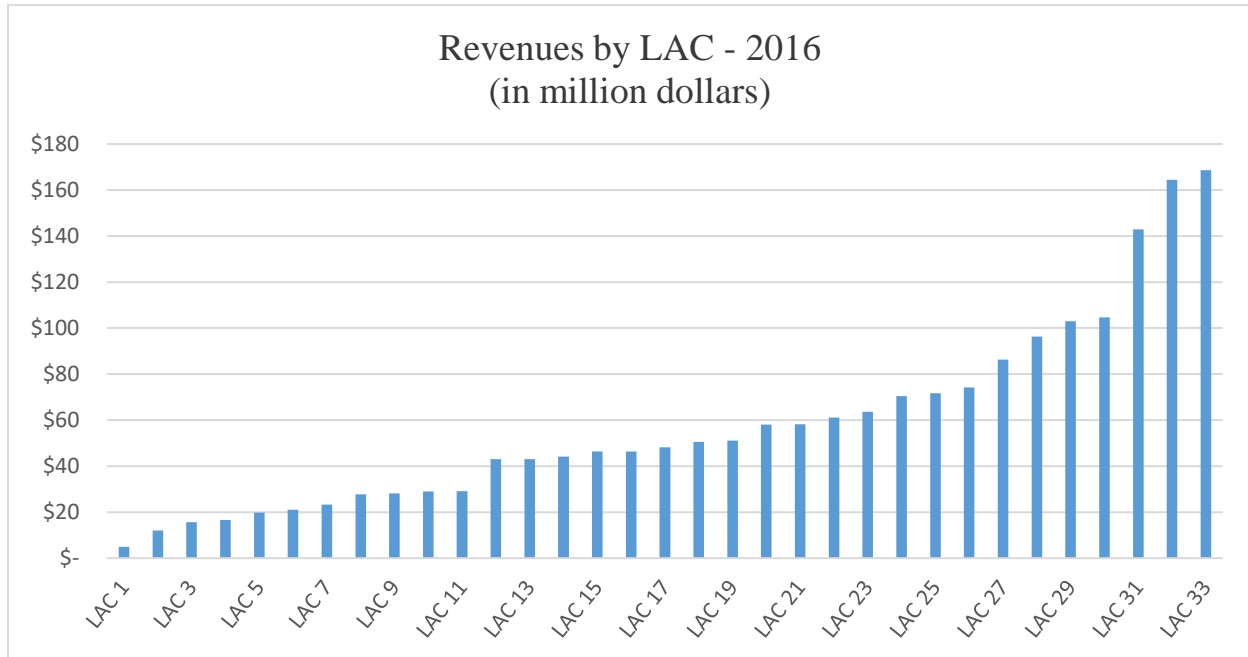


Figure 22. Bar graph of revenues by LAC.

Endowment. The value of the endowment fund was less than \$100 million for 27% of the institutions. The sub-group of institutions with endowment from \$100 million to \$200 million was 49% and with endowments of over \$200 million is 24% of the cohort. The difference in endowment assets from the weakest to the wealthiest college was more than \$1.8 billion. Figure 23 shows these values.

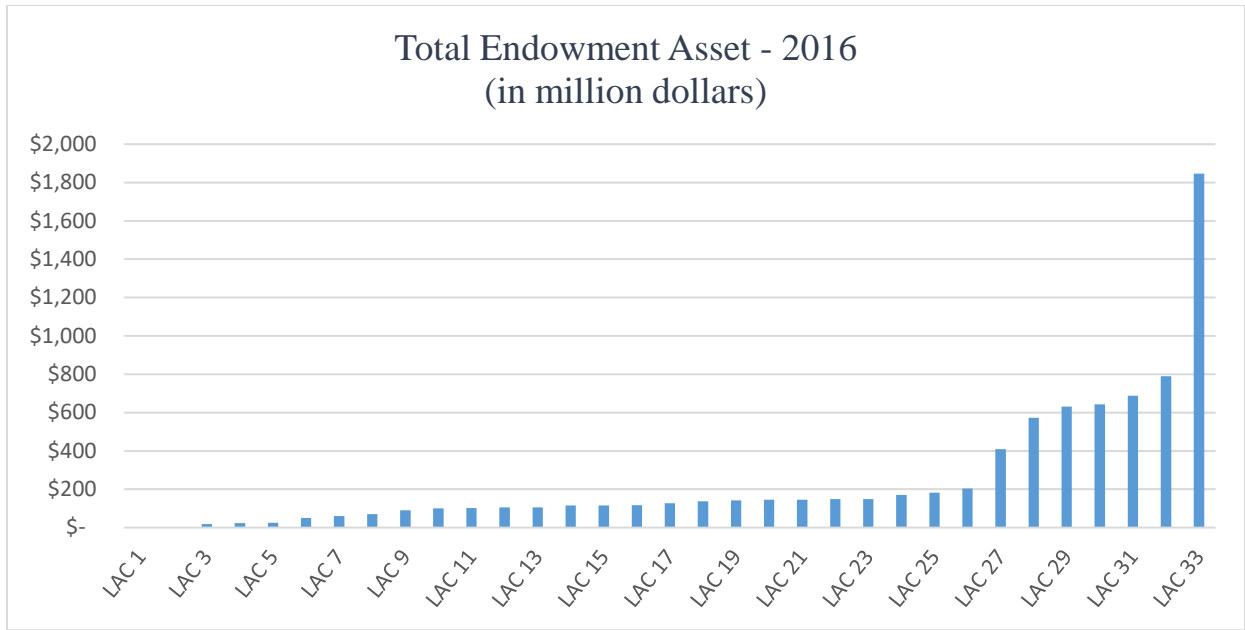


Figure 23. Bar graph of the total endowment assets per selected LAC.

Figure 24 illustrates the variances in the financial characteristics of the LACs. It shows the variances between the Revenues and the Endowment values. The data were sorted by the Revenues. Indicative of the variances are the top eight universities in terms of Revenues. In this sub-group the Revenues ranged by \$95 million while the corresponding Endowment fluctuated by \$647 million.

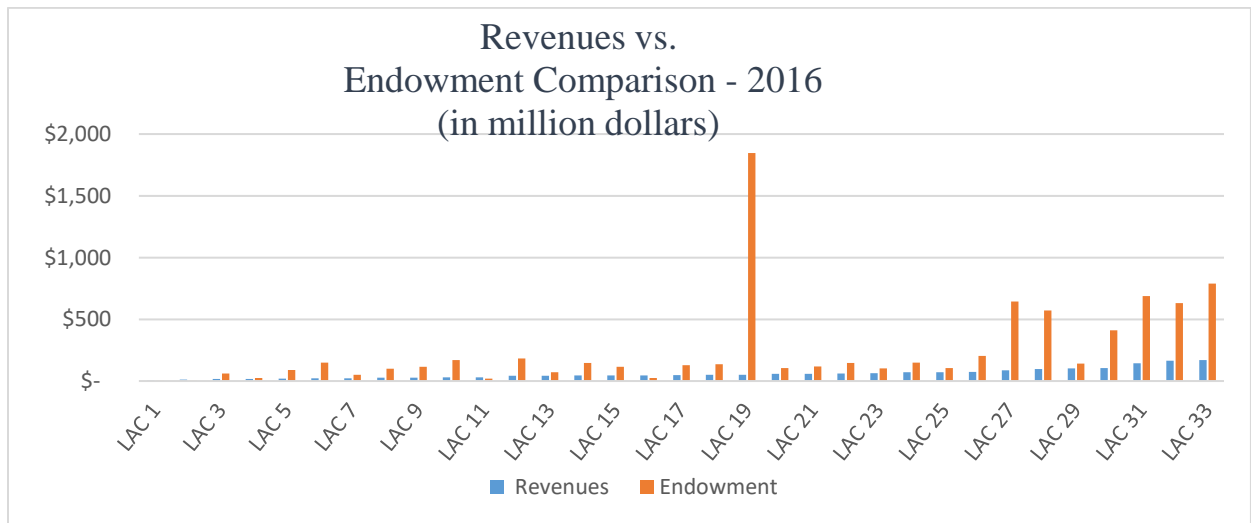


Figure 24. Bar graph of revenue vs. endowment comparison per selected LAC.

Recruiting focus. Recruitment was an additional variation factor that directly affect the LAC admissions and by extension their financial performance. Traditionally, the defining attributes of the LACs are, amongst other, emphasis in the humanities, arts and science curriculums and little attention on vocational training or professional disciplines. Although the challenges of our times force some institutions to move closer to the format of a typical university, many LACs continue to offer a traditional liberal arts program (Baker, Baldwin, & Makker, 2012). The sample population included some institutions that have professionally oriented curriculums and others that focus on the traditional liberal arts disciplines.

In addition to the curriculum orientation, certain colleges experience further recruiting limitations as they are selective in the prospective student population they are targeting. For example, the historically black colleges such as Fisk University recruit predominantly from the African American community. In Tennessee, where Fisk University is located, African Americans make up only 22% of the college age population (Statistical Atlas, 2019a). Likewise, institutions such as, Hollins University, recruit women exclusively. Females make up 49% of the college age population in Virginia, where Hollins University is situated (Statistical Atlas, 2019b). In addition, colleges with religious affiliations are typically open to students of various faiths. However, students that have various religious believes may be discouraged from attending an institution that offered any specific spiritual curriculum. All these colleges had diverse goals and employed different strategies to recruit in their corresponding target markets.

Figure 25 shows the composition of the sample population by institution type. The sample population consisted of 6% public institutions, 12% minority focused, 30% with religious affiliations, and 52% non-affiliated private colleges. Furthermore, Figure 26 illustrates the sample population type distribution based on the Total Admissions values.

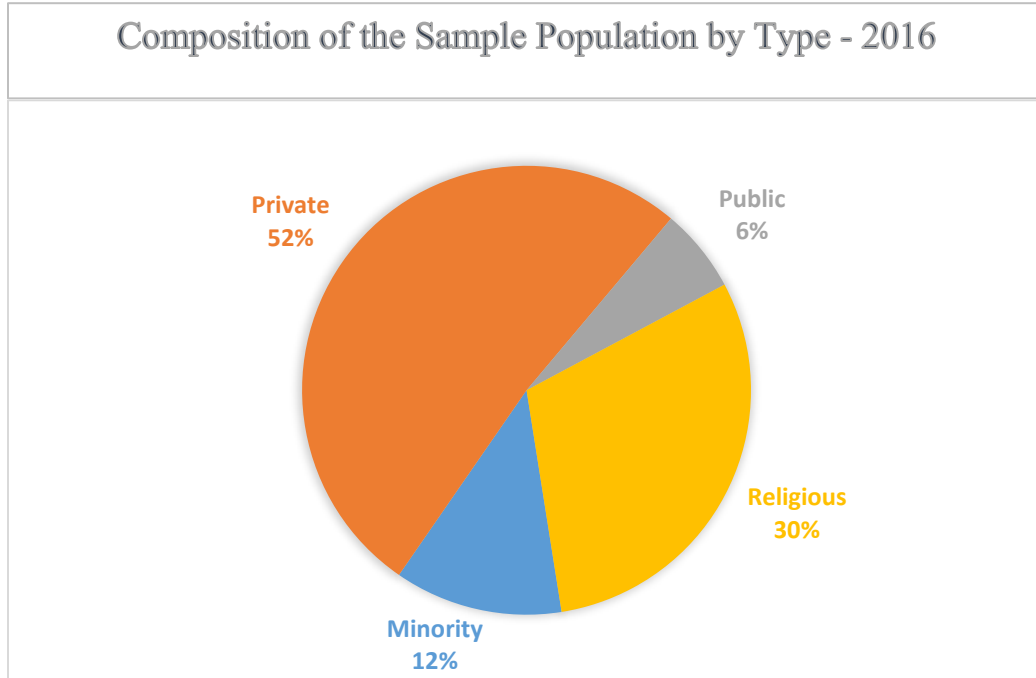


Figure 25. Pie chart of the composition of the sample population by institution type.

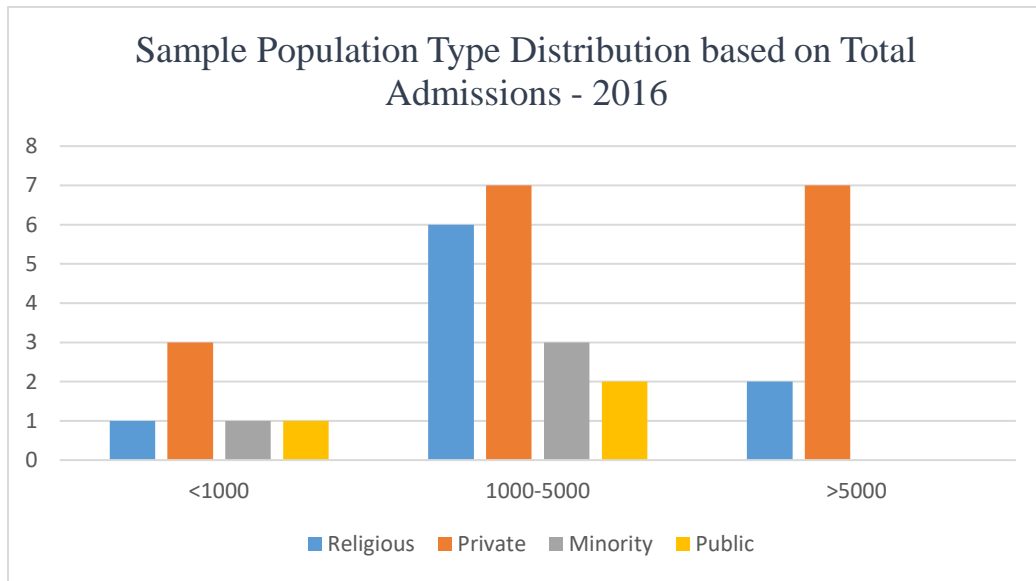


Figure 26. Bar graph of the sample population type distribution based on the total admissions values.

Strategic Response

As stated above, the traditional focus of the LACs is predominantly local or national. The challenging conditions of today's environment has forced some institutions to be more aggressive. A review of the strategic plans of the colleges revealed a diverse reaction to today's turbulence. Institutions like Albion College have adopted an outward stance by fostering local partnerships and international collaborations amongst other strategies. Approximately 39% of the sample population have established and/or are pursuing to create relations with international institutions or targets international markets. However, the strategic goals of other schools remain true to their historical mission, by improving their internal operations, developing engaging academic programs, improving the student experience, and not jumping on the bandwagon of dramatic changes.

Figure 27 indicates the breakdown of the sample population based on strategic goals. "Internal" characterizes schools whose strategic goals are to improve the student experience and their internal operations. "Local" reflects schools that are expanding into local or domestic markets. "Int'l" indicates schools that, amongst other actions, plan on establishing global partnerships or targeting international markets. "N/A" flags schools for which there are no sufficient data.

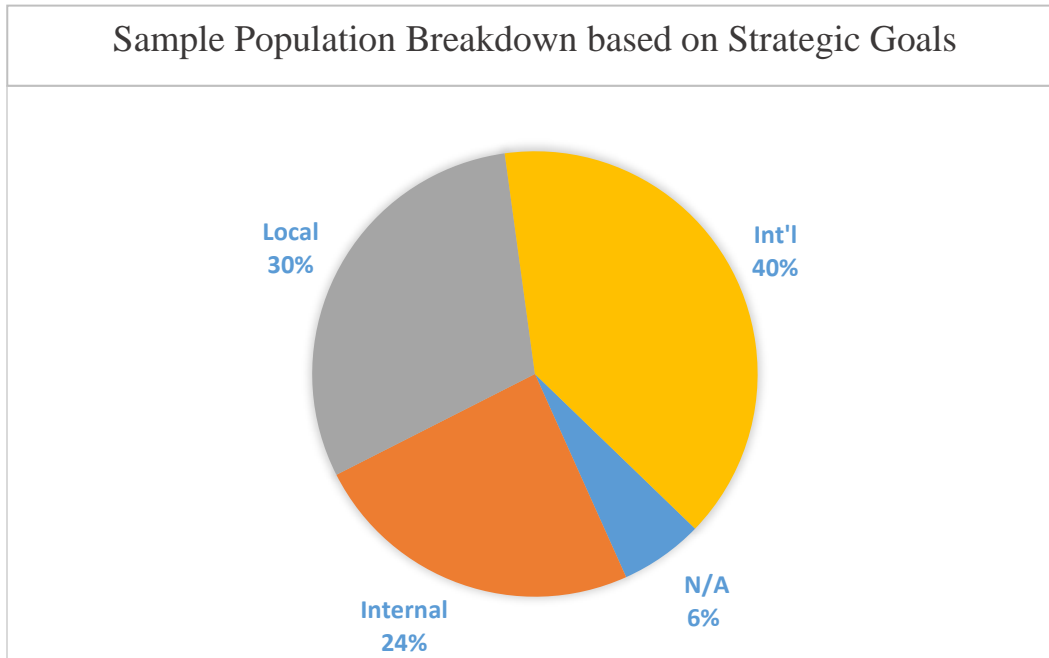


Figure 27. Pie chart of the sample population breakdown based on strategic goals.

Technology

Technology has been praised as a game changer in academia. Many schools have adopted the distance education model in various degrees to boost their revenues. However, the data show that the majority of the selected schools shy away from distance education programs. In 2016, about 42% of the institutions had distance education courses or degrees. Some of the reasons for these differences is that the infrastructure to offer remote courses comes with a high sticker price. LACs with a small student body would not be able to cover the cost of the automation. Furthermore, one of the advertised benefits of attending such a school is the close faculty-student interaction, the small class size, and the close-knit campus community that a student can experience. Offering remote courses and/or degrees would weaken the very community philosophy that LACs try to promote.

Turbulence

The perception of the turbulence level was identified by the answers to the questionnaire given by the presidents or chancellors of the LACs. The average response was 3.30, but the range of

the scores was rather wide. The lowest score was 2.63 and the highest value was 4.13. Figure 26 illustrates the values of the perceived Turbulence. The wide range showing here, shows that the perception of the turbulence in the environment varied widely amongst the institutions of the sample population. At the same time, the Aggressiveness Gap ranged from 0.05 to 1.57 and the Responsiveness Gaps from 0.01 to 1.38. (see Table 12). Values at the lower ranges of the gap variables suggested that the specific LACs' strategic responses, capabilities, and structures were appropriate for the perceived level of turbulence. LACs at the higher ranges showed that they adopt somewhat incompatible strategies for the perceived levels of Turbulence. This leads to the paradoxical observation that within the same cohort are institutions with very different perceptions of the environmental conditions. As such, they deploy diverse strategies some of which are unsuitable for the level of challenges in the environment. Yet, all LACs continue to operate and are successful by some measures (i.e., increasing endowment).

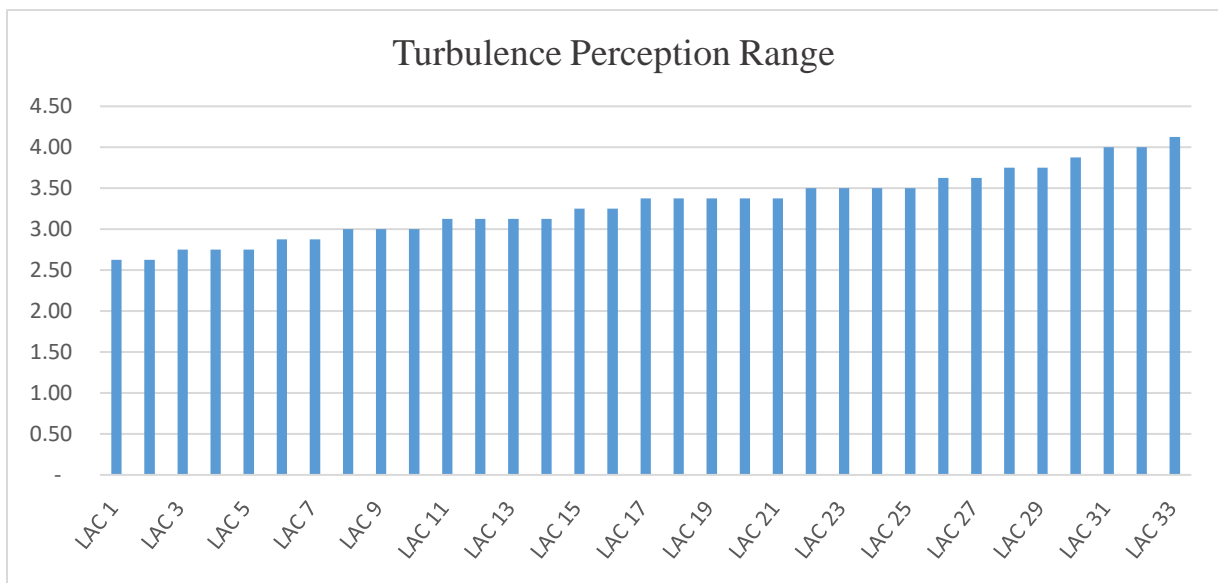


Figure 28. Bar graph of the Turbulence value range within the sample population.

In short, it has been observed that the small LACs have a varying and multidimensional identity. They interpret the environmental conditions differently and they respond to it in various ways. They have a variety of recruitment strategies and wide range of financial, academic, and technology characteristics. A reason that they all continue to operate is the alternative funding sources unique to academia. Some level of federal and state assistance is available to these schools. Of course, it is not sufficient to finance the whole operation, but for small colleges any amount goes a long way. An additional funding factor is the student loans. There have not been many industries where the federal government subsidizes the customer to keep the vendor (in this case the LACs) paid. Colleges can offer a good financial aid packets as an incentive for students to attend and increase their revenue flow. Lastly, the endowment, plays a significant role in keeping some of the LACs open. This asset is independent of the actual enrollment or the tuition revenue attainments of an institution. It acts as a supplemental funding source and provides a shield against many challenges. Schools can draw from this asset for some time before any environmental condition force them to take any meaningful action and alter their operations. As such, a LAC that operate in a level 4 turbulent environment, but perceive the conditions as level 2, could still “succeed.” Its strategy may not be aggressive enough for a highly competitive environment, but it can cover its deficiencies by utilizing its endowment for a period of time.

An alternative explanation of the results can be that the factors used to made up the measures for Aggressiveness and Responsiveness were not actually aligned for optimal performance at the given Turbulence levels. These factors can be viewed as very generic and not having any specific association with an institution’s characteristics at the specific Turbulence levels. Furthermore, the lower level factors can be perceived as negative while the higher-level factors can be seen as progressive. Based on the concept of respondent’s bias, respondents to the multiple-choice questions

may have intentionally avoided selecting the lower level options, trying to avoid embarrassment. Similarly, they may have gravitated towards the higher-level options intending to provide a more favorable image of their institution.

Also, a different interpretation of the research results points to the narrow ranges of the Aggressiveness and Responsiveness Gaps. In this research the Gap values were very narrow, 0.13 and 0.23, respectively. This means that the aggressiveness stance and the capabilities adopted by each institution, were the appropriate profile for the given environmental conditions. Ansoff's Strategic Success Model is designed to evaluate a wide range of characteristics, something that contributes significantly to the success of the model. The almost identical values of the Gaps of each institution in this study, made them a weak measure and unsuitable to provide significant results.

A limitation of the current research is the varying timeframes involving the project. At the time the data collection took place, the latest and most accurate dataset offered by the IPEDS database was that of the year 2016. The decision was made to focus on the years after the financial crisis of 2008-2009. That ensured that the data would not reflect the initial extreme reaction to the conditions that could have skewed the results. As such, the performance data were collected for the years 2010-2016.

The intent was to collect the Technology Adoption data for the same years. However, these data were not compiled for the years prior to 2012. Therefore, there was a slight mismatch in the variable timeframes. As the research took place in the years 2018-2019, the respondents offered their perception of the environmental turbulence on the current years.

Future research should have tighter timeframes. Once the latest confirmed dataset from the IPEDS database is one to two years old, the researcher should collect the performance data from a

more current database. Alternatively, he/she can reach out to finance and academic executives of the LACs via questionnaire, a practice which ensures the collection of valid and current data.

Contribution of this Study

The intent of this research was to validate Igor Ansoff's (1987) theory of Strategic Success Model as a framework for strategy formulation at small liberal arts colleges. The results were not considered weakness of the Strategic Success Model. They were rather attributed to the dissimilar elements of the sample population and the unique usage of the Endowment funds by the LACs. It was shown that the Carnegie Classifications® may not be the most appropriate division of the HEIs for this type of research. Below are some suggestions for grouping HEIs under some different criteria.

Recommendations

The prevailing classification of HEIs groups institutions based on a variety of common characteristics, such as curriculum, size, or revenue source amongst others. For example, Ivy League schools are large research institutions with significant reputations, broad curriculum, and large endowments. Another college sub-group is the for-profit one that refer to the mainly online and private education organizations that have proliferated in the last decade. These two groups appear to be homogenous in the characteristics of the institutions within each cohort. The same uniformity does not appear to be present in the liberal arts colleges group. Over the last several years, some institutions have evolved and changed to such a degree that they are now categorized in other HEI sub-groups. Based on the above discussion, the remaining institutions that today are classified as liberal arts colleges show significant differences.

As such, it is suggested that the Carnegie Classifications® of the HEIs is not the proper construct for this type of study. The following recommendations are offered for future research:

- a) Select a different classification of HEIs. Other Carnegie Classifications® may identify more populous groups and possibly more homogenous, that can provide more significant results.
- b) Construct a new classification model. Future research can combine similar schools that may not necessarily have the same Carnegie Classification®. A useful criterion would be to examine similar schools based on their strategic goals. Many schools pursue global collaborations and exposure, but belong in different Carnegie Classifications®. The new criteria should be applied across categories and select institutions with similar strategic ambitions. These institutions should have generally comparable characteristics. An Ivy League university, such as Harvard, cannot be compared with a small university even though they both may have global ambitions. A collection of schools with a more reasonable range of resources and other characteristics can be a more useful study population.
- c) The researcher can categorize schools base on generally acceptable measures, such as Endowment, Tuition, Financial Aid and Donations. As mentioned above, the sample populations should be relatively uniform. A school that receives a significant donation amount, for example, cannot be compared with an institution receiving minimal or no gifts at all. Because performance on all these factors varies, it is suggested that the future researcher creates two or three, or even more sample populations. Each of these populations should include schools with comparable values. For example, one group can be comprised of schools managing endowment funds of up to \$50M, have Tuition income of up to \$20M, donations of up to \$5M and students that receive Financial Aid in the sum of up to \$5M. The next grouping should have values that are double these amounts and the next one another 50% higher than the second. Of course, these values are arbitrary. The principal of this design is to create homogenous groupings. The future researcher should be the one to

determine what the scale should be based on the size of the overall sample and the values of the above factors. The Strategic Success Model should be applied to each one of these groups.

- d) Different variables may present a better picture for the performance of the cohort. Future researchers can select from a plethora of factors offered through the IPEDS database. As it has been shown, in terms of performance it may be difficult to identify a number of commonly accepted variables. One solution may be to survey the respondents and allow them to identify what are the goals of their organization. Then the analysis can focus on comparing schools with common goals. More useful variables can be selected in conjunction with the criteria identified on point b. For example, a group of schools analyzed based on their international exposure will require analogous variables, such as the number of international students they recruit or the number of international affiliations they establish.
- e) Although the response rate of this research was considered good at 13%, more responses could have provided more significant results. Receiving more answers to the questionnaire would require a lengthy and insistent communication campaign. The future researcher should connect with the targeted institutions via email, telephone, or even personal visits. In addition, incentives in the form of small gifts can be offered for the willing participants.
- f) Enriching the questionnaire with more questions can offer more comprehensive information on the topics of Turbulence, Aggressiveness, Responsiveness, and Performance. These questions should be directly relating to the elements of the above topics identified by Ansoff. The researcher needs to be mindful of a balanced questionnaire. One which has a sufficient number of questions to acquire the correct picture, but not too many to discourage the responders from answering them.

- g) Specifically on Aggressiveness and Responsiveness, further research need to be done on identifying more precise factors that result in optimal performance at each level of Turbulence. The presidents along with academic and financial leaders of the LACs can provide useful factors, based on their knowledge and experience. In addition, further analysis of the data collected in this research may provide an understanding of the effects of each of the Aggressiveness and Responsiveness factors on performance at the given environmental conditions.
- h) The future researcher can solicit responses from more than one LAC executive. The current research targeted the presidents or chancellors of the selected institutions. The expectation was that as the top executives, these individuals should be ultimately aware and thoroughly informed about the condition of both the environment and their own institution. The reality is that there are several matters demanding the president's attention. It is not practical for one individual to attend to all these issues and so, many important projects are assigned to trusted lieutenants to be managed and run. Some of these positions may be the V.P. of Academic Affairs, V.P. of Business Affairs, V.P. of Finance or any similar role. These individuals are responsible for a vital function of the institution and they are ultimately knowledgeable of the measures relating to finance, academics or organizational matters of their colleges. They have first-hand knowledge of issues relating to Aggressiveness, Responsiveness and even Performance. It may be beneficial to reach out to the president with questions on Turbulence, and to one or two other appropriate executives for answers on the other concepts of the Ansoffian model. Utilizing multiple respondents per questionnaire eliminates the possibility of "response bias". Either due to lack of knowledge, embarrassment or desire to show his school in a good light, the president may select the more complementary of the answers.

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APPENDIX A
Turbulence Questions

Turbulence Questions

- A. Which statement best describes the rate of change in the field of higher education?
1. Change is very rare
 2. Changes occur occasionally and we can react easily
 3. Changes occur frequently and we are just able to keep pace with them
 4. Changes occur very frequently and we occasionally struggle to keep up with them
 5. Changes are constant and we almost always struggle to keep up with them
- B. To what extent are you able to anticipate change in the field of higher education?
1. Changes are usually so rare that we do not worry about them
 2. We know what changes are coming well in advance
 3. We can anticipate that changes will occur, but not always when
 4. We can sometimes anticipate changes, but we are occasionally surprised
 5. We can rarely anticipate changes. The changes are often surprising
- C. How difficult and complex are technology issues to deal with?
1. Not at all difficult and complex
 2. Only slightly difficult and complex
 3. Moderately difficult and complex
 4. Usually very difficult and complex
 5. Always extremely difficult and complex
- D. How difficult and complex are financial issues to deal with?
1. Not at all difficult and complex
 2. Only slightly difficult and complex
 3. Moderately difficult and complex
 4. Usually very difficult and complex
 5. Always extremely difficult and complex
- E. How difficult and complex are competition issues to deal with?
- 1 Not at all difficult and complex
 - 2 Only slightly difficult and complex
 - 3 Moderately difficult and complex
 - 4 Usually very difficult and complex
 - 5 Always extremely difficult and complex
- F. Your institution's constituents (students, parents, alumni, donors, etc.):
1. Have a few demands that can be easily addressed
 2. Have numerous goals that our historical capabilities can meet
 3. Are demanding, but we are able to meet their goals
 4. Have high expectations that are difficult to meet
 5. Have expectations beyond our reach

G. Institutions you compete with have:

1. Comparable curriculum
2. Minimal academic program differences
3. Most academic programs will be the same, but there are several differences
4. Most academic programs will be different, although there are several similarities
5. Academic programs will be significantly different

H. Institutions you compete with concentrate on:

1. Maintaining the current curriculum
2. Cost reduction and improve programs as needed
3. Anticipate and implement program improvements
4. Actively forming competitive academic programs
5. Aggressive academic program innovations

APPENDIX B

Aggressiveness Questions

Aggressiveness Questions

- A. How would you characterize your institution's approach in addressing new challenges in higher education?
1. Maintain the status quo
 2. Change only when necessary
 3. Change in response to current threats or opportunities
 4. Change in anticipation of potential future threats and opportunities
 5. Pursue creative change
- B. Your institution's student recruiting strategy is best described by:
1. We only recruit locally
 2. We recruit students from our region
 3. We market ourselves nationally
 4. We actively target specific international markets
 5. We aggressively recruit globally
- C. The academic development at your institution is primarily characterized by:
1. We follow colleges like us
 2. We improve existing programs
 3. We expand to traditional fields of study
 4. We add new but familiar programs
 5. We create new cutting-edge programs
- D. Our education market share is best characterized by
1. Defend the existing market area
 2. Increase our market area
 3. Develop new market areas
 4. Control the market area
 5. Dominate the market area

	1	2	3	4	5
E. Over the last ten years, how often have new degreeed program been introduced? (1 means rarely, if at all - 5 means very frequently)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
F. Over the last ten years, how often have amendments to existing degreeed programs been introduced, to reflect new developments in dynamic fields of study? (1 means rarely, if at all - 5 means very frequently)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
G. Over the last ten years, what is the frequency of organizational changes, in your institution? (1 means rarely, if at all - 5 means very frequently)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX C

Responsiveness Questions

Responsiveness Questions

	1	2	3	4	5
A. To what extent is top administration involved in new educational issues? <i>(1 means not at all - 5 means regularly involved, acting as change agent)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B. To what extent is top administration involved in new organizational issues? <i>(1 means not at all - 5 means regularly involved, acting as change agent)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
C. To what extent is top administration involved in new technology issues? <i>(1 means not at all - 5 means regularly involved, acting as change agent)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
D. How much time does you or your staff devote to keeping up to date with developments in the field of higher education? <i>(1 means not at all – 5 means substantial amount of time)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E. To what extent are university performance factors included in top administrators' goals and objectives? <i>(1 means not at all – 5 means substantially included)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
F. To what extent are employees rewarded for contributions that improve the institution's performance? <i>(1 means not at all – 5 means substantial rewards given)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
G. To what extent are the institution's performance factors integrated into the overall strategic planning effort? <i>(1 means not at all – 5 means fully integrated)</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

H. In your judgment, what is the administration's risk propensity?

1. In general, we tend to avoid risk as much as possible
2. In general, we accept only minimal risk
3. In general, we take risks but in familiar areas
4. In general, we take some risks in unfamiliar areas
5. In general, we venture into new and unfamiliar territories

I. What is your institution's administration's attitude towards open communication?

1. Communicates only through formal channels
2. Communicates only when there is an immediate need
3. Communicates when it sees a future benefit
4. Maintains open lines of communication
5. Promotes and encourages exchange of information

J. Your institution's promotion and advertising are best characterized by:

1. Promotional programs are limited
2. We respond to competitor's campaigns
3. We try to reach local markets
4. We market aggressively
5. We pursue marketing innovation

K. The administration's leadership style mostly characterized by:

1. Trying to meet annual budget goals
2. Focusing on increasing profitability
3. Be market driven
4. Be highly charismatic
5. Be visionary

L. The administration's prevailing problem-solving approach in our institution is characterized by:

1. We use solutions that worked in the past
2. We use solutions that worked in the past with minimal changes
3. Diagnose and pursue different solutions from what we used in the past
4. Find the best possible solution under the circumstances
5. Search for novel alternatives, not previously used

M. Our top administrator's (VPs) focus is primarily on:

1. Stability
2. Operational changes as reaction to environmental changes
3. Changes in the traditional markets
4. Development of national markets
5. Development of global markets

N. Our rewards and incentives are best characterized by:

1. Length of service and past performance
2. Achievements in operating efficiencies
3. Improving performance
4. Contribution to future developments
5. Creativity

O. Our values and attitudes are best characterized by:

1. We appreciate stability
2. "Roll with the punches"
3. We value growth
4. We are innovators
5. We create and expand into new exciting areas

P. Our attitude toward change is best characterized by:

1. Our programs are well established so that there is no need for change
2. In general, we try to keep up with changes in our segment
3. In general, we seek familiar changes
4. In general, we seek novel change
5. In general, we change beyond our comfort zone

Q. Our institutional structure is best characterized by:

1. Hierarchical
2. Functional
3. Divisional
4. Matrix
5. Flexible/Adaptive

R. Our top administrators' job descriptions are best characterized by:

1. Maintain operational stability
2. Maintain efficient operations
3. Contributions to academic growth
4. Seek new opportunities
5. Create desirable environment

S. Information we need about decisions for our future needs is predominately based on:

1. We use historical information and data
2. We use information based on our current experiences
3. Extrapolation of past successes
4. Upcoming needs
5. New/future oriented needs

T. The number of top administrators is:

1. Significantly above our needs
2. Above our needs
3. According to our needs
4. Below our needs
5. We struggle to achieve our tasks

U. The number of staff is:

1. Significantly above our needs
2. Above our needs
3. According to our needs
4. Below our needs
5. We struggle to achieve our tasks

V. What is the dominant focus of your institution?

1. Focus on maintaining stability
2. Focus on maintain efficient operations
3. Focus primarily on the needs of the internal stakeholders (students, faculty, staff etc.)
4. Focus primarily on the needs of the external stakeholders (society, professional bodies etc.)
5. Focus on being an innovative leader in higher education

APPENDIX D

Cover Letter of the Emailed Survey

Dear President _____,

Per an earlier communication sent by Mrs. Bothwell, I am providing you with this online survey, which is part of my dissertation research project relating to strategic management of higher education institutions.

I know your time is valuable and scarce, but I would appreciate it very much if you would take the time to complete the survey. The questionnaire is comprised of 37 multiple choice questions and it should take less than 10 minutes to complete.

Participation is voluntary and will remain anonymous. No identifying information is being requested as part of this survey. Only aggregated results from all of the responses will be included in the final research findings.

My hope is that this thesis will provide leaders, such as yourself, with the strategic tools to guide your institution in managing future challenges. A copy of the results will be available to you upon request.

Follow this link to the Survey:

[\\${!://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${!://SurveyURL}](#)

Follow the link to opt out of future emails:

[\\${!://OptOutLink?d=Click here to unsubscribe}](#)

Your prompt response will be greatly appreciated.

Thanos Karavokiris

Master of International Business Administration



PARTICIPANT BILL OF RIGHTS

Regulations require that participants in academic research studies consent to participate and be notified of their rights and obligations. In accordance with the policies of the Institutional Review Board of Alliant International University (AIU) for academic research in the social sciences, education, and business, your rights and expectations are listed below.

Your participation in this survey is voluntary and is limited to filling out the online form. No additional activity is required. There is no significant risk anticipated in participating in this survey. The risk is the same as that involved in filling out any business, technical, or professional questionnaire.

Consent to participate in the study is implicitly indicated by completing and submitting the online survey. However, you may refuse to participate or withdraw from the study at any time.

Your response will be anonymous and confidential. No identifying information is requested. All survey results will be handled in confidence and secured in a password protected file. Only the aggregated results of all respondents will be presented in the dissertation and any subsequent publication.

I reserve the right to not include any surveys in the analysis that are not answered sufficiently to develop measurable data.

In accordance with AIU policy, AIU's Institutional Review Board has approved this survey. If you have questions about your rights and expectations or the Institutional Review Board, please write to the Alliant International University, Institutional Review Board located at 10455 Pomerado Road, San Diego, CA 92131.

A summary of the results will be available after the survey responses are collected and analyzed. If you wish to receive the results and conclusions, please send me an email to akaravokiris@alliant.edu