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Have 21st Century Skills Made their Way to the University Classroom? A Study to Examine the Extent to which 21st Century Skills are being Incorporated into the Academic Programs at a Small, Private, Church-Related University

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Approval Page

This dissertation was submitted by Christopher Scott Boe under the direction of the persons listed below. It was submitted to the Gardner-Webb University School of Education and was approved in partial fulfillment of the requirements for the degree of Doctor of Education at Gardner-Webb University.

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"Gratitude unlocks the fullness of life. It turns what we have into enough, and more. It turns denial into acceptance, chaos to order, confusion to clarity. It can turn a meal into a feast, a house into a home, a stranger into a friend." - Melody Beattie

A project such as this would not come to a successful end without the assistance and support of a number of individuals. I am sincerely thankful to all of the people who have played a part in the completion of this doctoral dissertation.

My parents started this journey with me more than 40 years ago. They instilled in my brother and me the sense that education is important and that we should, to the best of our abilities, make the most of the opportunities that would be provided. No matter the challenges, they have been supportive along my path to this point – and I can only assume – the rest of my way, wherever it will lead. Thank you for your support.

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As this work comes to a close, I am reminded of a quote by John F. Kennedy that states, "As we express our gratitude, we must never forget that the highest appreciation is not to utter words, but to live by them." It is my hope that the words expressed here will be seen by each of the individuals named in my life and work, now and in the many days to come. With gratitude and appreciation. . . .

Dedication

I think it pisses God off if you walk by the color purple in a field somewhere and don't notice it. People think pleasing God is all God cares about. But any fool living in the world can see it always trying to please us back.

Alice Walker

for David

How many slams in an old screen door?
Depends how loud you shut it.
How many slices in a loaf of bread?
Depends how thin you cut it.
How much good inside a day?
Depends how good you live 'em.
How much love inside a friend?
Depends how much you give 'em.

Shel Silverstein

for Candice

Too often the educational value of doing well what is done, however little, is overlooked. One thing well done prepares the mind to do the next thing better. Not how much, but how well, should be the motto. One problem thoroughly understood is of more value than a score poorly mastered.

Booker T. Washington

From the first, I made my learning, what little it was, useful every way I could.

Mary McLeod Bethune

in memory of Dr. Gwendolyn Witherspoon Henderson

Abstract

Have 21st Century Skills Made their Way to the University Classroom? A Study to Examine the Extent to which 21st Century Skills are being Incorporated into the Academic Programs at a Small, Private, Church-Related University. Boe, Christopher Scott, 2013: Dissertation, Gardner-Webb University, Rigor/Teaching Strategies/Curriculum and Instruction/Assessment/21st Century Skills/Postsecondary

With the increased expectation of college or university attendance as a prerequisite for workforce entry, the criticism of business leaders and the general public, and the increasing cost of postsecondary education, it becomes critical for institutions of higher education to know what they are offering students and how well those offerings are being presented. Meaningful, engaged learning that prepares students for life and the ever-changing world of work is what these consumers are seeking. It becomes, then, the responsibility of the institution of higher education to evaluate its programs to determine what it is actually providing students in terms of these needs. Through the solicitation of student and faculty perceptions of practice, this dissertation was designed to explore the extent to which 21st century skills were being incorporated into the academic programs of study at a small, private, church-related university located in the southeastern United States.

The researcher administered a survey of 21st century practices developed by Ravitz, Hixson, English, and Mergendoller (2012) to 682 students and 76 faculty members at the institution where the study took place to gauge the levels of incorporation of eight 21st century practices (critical thinking, collaboration, communication, creativity and innovation, self-direction, global connection, local connection, and use of technology as a tool). Descriptive statistical analyses were conducted for each participant group. Independent samples *t*-tests were used to compare the two groups' responses.

Results of the various analyses of data showed that 21st century skills instruction was taking place in all eight domains. The levels of instruction or incorporation, though, varied between domains and between the specific practices listed within each domain. The greatest implementation was reported in the use of technology as a tool by both students and faculty. Critical thinking and self-direction proved to be areas with high reports of student engagement with many of the specific practices. The greatest room for improvement came in global connection as reported by both students and faculty. Collaboration, creativity and innovation skills, and local connections were other areas where the practices included on the survey were not being universally implemented.

An increased emphasis on unit evaluation and comprehensive planning initiatives were recommended by the researcher. Included in this might be advisory panels of workforce leaders, alumni, and community members who can assist in evaluating curricula to ensure that it remains current and future focused. Likewise, ongoing professional development to address each of the domains reviewed would be suggested.

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Chapter 1: Statement of the Problem

Introduction

Are today's high school and college graduates prepared to enter the complex workplace that exists in the 21st century? Are students who have spent 13 to 17 or even more years in the classrooms of our schools and colleges ready for the challenges that they will have in the world of work they are entering?

In gathering data on whether the "public believe education adequately prepares students for a future in college and work," the researchers conducting the 44th annual Phi Delta Kappa/Gallup Poll of the Public's Attitudes toward the Public Schools found that

> Fewer than one of 10 believe a high school dropout is ready for the world of work. High school graduates fare only slightly better; about one of five say high school graduates are prepared for the workplace. And one-third believe high school graduates are ready for college. Parents of school-aged children and their counterparts with no children in school agree on these points. (Bushaw & Lopez, 2012, p. 13)

Furthermore, the researchers found that Americans set college graduation as the benchmark for readiness or preparedness for work. In fact, more than one half of those polled (54%) agreed or strongly agreed that today's college graduate is ready for the world of work. Only 17% of the respondents disagreed or strongly disagreed with the statement (Bushaw & Lopez, 2012).

The Phi Delta Kappa/Gallup Poll also asked respondents to grade American schools using a letter grading system. Forty-seven percent of those polled graded the schools at the marginal (C) level; 30% rated them unsatisfactory (Bushaw & Lopez, 2012).

Accordingly, opinion leaders across the country have called for reform, improvement, and even transformation of schooling. With schools and colleges tasked with preparing students for jobs that do not currently exist, several researchers believe that schooling as we know it will not produce workers and citizens ready for the world in which we will be living (Daggett, 2005; Houle & Cobb, 2011; National Center on Education and the Economy, 2007; Tucker, 2007). Furthering this call, Thomas Friedman (2005), author of *The World is Flat: A Brief History of the Twenty-First Century*, described the American education system as one in disarray or "quiet crisis" (p. 323). He contended that this is a result of student apathy, lack of quality teachers, decentralized curriculum standards, decline in mathematics and science education, and lack of funding for schools and innovation.

The matter of reform has become the focus of discussion of elected officials, educators, researchers, authors, media, and foundations. One major area of emphasis has been on the knowledge, skills, and dispositions needed by young people as they maneuver their way through the world of work after high school and/or college. What skills will the 21st century worker need to find success throughout his/her career? Are students being provided opportunities to master these skills in their educational careers?

Statement of the Problem

Casner-Lotto and Benner (2006), on behalf of a consortium of interested nonprofit organizations working on initiatives in workforce readiness, launched a comprehensive survey of 431 employers, representing a combined workforce of over two million U.S. based employees. The survey focused on employers' perspectives on the basic knowledge and applied skills of new entrants to the 21st century U.S. workforce. After collecting and analyzing the data, the results were published in a report entitled *Are They*

Really Ready to Work? Employers' Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century U.S. Workforce (Casner-Lotto & Benner).

The findings indicated dissatisfaction with the preparedness of high school, 2-year college, and 4-year college graduates. In fact, the report stated that the future U.S. workforce is "woefully ill-prepared for the demands of today's (and tomorrow's) workplace" (Casner-Lotto & Benner, 2006, p. 9). Among the most important skills needed to succeed in the workplace were professionalism/work ethic, oral and written communications, teamwork/collaboration, creativity/innovation, and critical thinking/problem solving. While the report indicated that 2-year and 4-year college graduates were better prepared than high school graduates for the entry-level jobs they filled, they were still rated deficient in writing in English, written communication, leadership, and professionalism/work ethic. The report also suggested that skills such as critical thinking/problem solving, information technology applications, teamwork/collaboration, creativity/innovation, foreign languages, and diversity will increase in importance, according to employers. As these skills gain prominence, employers will place more scrutiny on new workforce entrants' skills specifically related to them.

This report was but one of many recent criticisms of institutions of higher education (Arum & Roksa, 2011; Pietka, 2007; Taylor, 2010). Businesses, elected officials, parents, and the public have called on colleges and universities to answer for the lack of preparation their graduates exhibit upon entry into the workforce. Many faculty members in many institutions have been accused of teaching the same course, the same way, with the same slides for their entire careers. To retain students and to raise course evaluation results, many instructors have participated in workshops on how to connect

with the digital native or how to engage the net generation. These activities, as well as those campus-wide ones such as laptop or tablet initiatives, often place faculty at odds with students. There is often an assumption by administrators that what is being done is not good enough, is old-fashioned, or is unwanted. This scenario often creates conflict (Pietka, 2007).

Additional criticisms related to outdated practices and long-standing traditions in colleges have also been made. Taylor (2010) noted that colleges and universities need to be mindful of the modern world in which graduates will look for work. If leaders and teachers in these institutions were putting students and their futures first, some of the separatism and in-fighting might be eliminated. Taylor suggested that collaboration within and between divisions and outside the university walls might lead to meaningful learning opportunities for students and faculty members alike. Faculty members at colleges and universities should, then, be actively engaged in 21st century learning, as both learners and lecturers.

In *Academically Adrift: Limited Learning on College Campuses*, Arum and Roksa (2011) painted a very unflattering picture of American higher education. The authors argued that colleges and universities have lost their focus on their main mission of educating students. Rather, they were engaged in advancing prime-time athletics, producing pharmaceutical patents, helping the economy, and advancing knowledge. These were all admirable pursuits, the authors suggested, but they were not at the core of the traditionally stated university mission.

In their book, Arum and Roksa (2011) reported the findings from their collected data from over 2,300 students at 24 universities (of various statuses) on surveys, transcripts, and the Collegiate Learning Assessment. Evaluating the data collected from

these sources, Arum and Roksa found that 36% of students did not demonstrate any significant improvement in learning over 4 years of college. They also found that 32% of students each semester did not take any courses that required more than 40 pages of reading in a week. Fifty percent of students stated that in a typical semester they had not taken a class in which they had been asked to write 20 pages over the course of the semester. The students reported spending, on average, 12-14 hours per week studying for all of their classes combined.

While the rigor required to earn a college degree has been challenged, the salary benefit of possessing one has not. A college degree has been proven to be worth more than $1 million over a lifetime in the workforce (King & Bannon, 2002). While this is a significant boost in earning power, as tuitions increase and subsidies decrease, students have relied more and more on loans to finance their college degrees. The number of student borrowers graduating with unmanageable levels of debt has escalated (King & Bannon, 2002). According to a September 2010 *USA Today* article written by Susan Tompor, total student loan debt exceeded total credit card debt for the first time in the United States. Similarly, Ken Serrano (2012) reported that the nationwide student loan debt had closed in on $1 trillion.

With calls from the business community for better prepared workers, criticisms of rigor in higher education, and tuition costs and student debt at levels never before seen, it seems a prudent time to examine the programs of study being offered at colleges and universities to determine what they are actually offering students matriculated into those programs.

Purpose Statement

With the increased expectation of college or university attendance as a

prerequisite for workforce entry, the criticism of business leaders and the general public, and the increasing cost of postsecondary education, it becomes critical for institutions of higher education to know what they are offering students and how well those offerings are being presented. Recruiters are under increasing scrutiny by potential students and their families as to the benefits and rewards of earning the degree from the college or university they are representing. More and more, extracurricular activities and dorm life are not the major selling points for prospects. Meaningful, engaged learning that prepares students for life and the ever-changing world of work is what these consumers are seeking. It becomes, then, the responsibility of the institution of higher education to evaluate its programs to determine what it is actually providing students in terms of these needs.

The purpose of this doctoral dissertation research was to determine the extent to which 21st century learning skills are being incorporated into the academic programs of study at a small, private, church-related university located in the southeastern United States.

Concept Definitions

To provide clarity and reduce misunderstanding, several key concepts for this doctoral dissertation research study need to be defined.

Critical thinking skills refer to students being able to analyze complex problems, investigate questions for which there are no clear-cut answers, evaluate different points of view or sources of information, and draw appropriate conclusions based on evidence and reasoning (Ravitz, Hixson, English, & Mergendoller, 2012).

Collaboration skills refer to students being able to work together to solve problems and answer questions, to work effectively and respectfully in teams to

accomplish a common goal, and to assume shared responsibility for completing a task (Ravitz et al., 2012).

Communication skills refer to students being able to organize their thoughts, data, and findings so they can share them effectively through the use of a variety of media, as well as orally and in writing (Ravitz et al., 2012).

Creativity and innovation skills refer to students being able to generate and refine solutions to complex problems or tasks based on synthesis and/or analysis and then combining or presenting what they have learned in a new or original way (Ravitz et al., 2012).

Self-direction skills refer to students being able to take responsibility for their learning by identifying topics to pursue and processes for their own learning, and being able to review their own work and respond to feedback (Ravitz et al., 2012).

Global connections refer to students being able to understand global, geopolitical issues including awareness of geography, culture, language, history, and literature from other countries (Ravitz et al., 2012).

Local connections refer to students being able to apply what they have learned to local contexts and community issues (Ravitz et al., 2012).

Using technology as a tool for learning refers to students being able to manage their learning and produce products using appropriate information and communication technologies (Ravitz et al., 2012).

Overview of the Methodology

Prior to beginning the dissertation research, the researcher found and sought permission to use an established 21st century skills survey that has been proven to be both valid and reliable as part of the study. The researcher adjusted the instructional

components of the survey instrument for better alignment with the participants in the current research study.

The researcher identified the students and faculty members who would be eligible to participate in the research project. Once participants had been identified, the researcher sought the appropriate permissions to conduct the dissertation research through his dissertation committee, the Gardner-Webb Institutional Review Board (IRB), the administration at the institution where the research was conducted, and the IRB of that institution.

Once all permissions were secured, the researcher distributed the surveys to the student participants using electronic mail (e-mail) correspondence. Students had the option to respond using a link in the e-mail. Two reminder e-mails were sent to students asking them to complete the survey if they had not done so already.

As the student phase of the data collection process came to an end, the faculty component began. Faculty members were asked to participate by e-mail correspondence. The faculty e-mail contained a link to the survey. In congruence with the student survey process, two reminder e-mails were sent to faculty members asking them to complete the survey if they had not done so already.

Once all of the data were collected, they were entered into the Statistical Package for the Social Sciences (SPSS) for analysis. Once the data were analyzed, the results were reported. Based on the findings, recommendations were developed and shared with administrators and faculty leaders at the university where the research took place and with other interested parties at appropriate academic conferences and research symposia.

Limitations

This study was limited to one small, private, church-related university located in

the southeastern United States. The knowledge, perceptions, and understandings of the faculty members and students who participated in the research were unique to this one institution.

With a myriad of frameworks developed around 21st century skills, this study was also limited by the specific set of 21st century skills selected for examination through the survey instrument distributed to the participants.

Because of the deadlines governing the dissertation process at Gardner-Webb University, this project was limited by the time of year the surveys were distributed to participants. With the distribution occurring at the end of an academic term, between Thanksgiving and Christmas, participation may have been limited.

This dissertation research was also limited by the willingness of faculty and students at the university where it was conducted to participate and offer accurate information regarding perceptions of practices at the institution.

While generalizations may not be made to other institutions or to higher education in general, the results may provide opportunities for comparison to other institutions and a springboard from which additional research may be completed. It is hoped that the information and knowledge gained through this doctoral research study will assist other colleges and universities as they evaluate the curricula within their programs of study.

Organization of the Dissertation

This doctoral dissertation is comprised of five chapters, including this one in which the problem has been stated. Following the introductory chapter in which the stage is set, the researcher reviews the existing literature pertinent to 21st century skills in an age of educational reform. A thorough research methodology chapter, Chapter 3, follows describing the participants, setting, and research instrumentation. A detailed

research plan is described from proposal review through data analysis. Chapter 4 contains the statistical results derived from the analysis of the data collected from both students and faculty at the university. The dissertation concludes with a discussion chapter in which findings are stated and connected back to the literature that was reviewed. Implications for teaching and learning are shared, recommendations for further research are reviewed, and policy revisions are considered.

Chapter 2: Review of Pertinent Literature

Introduction

Bountiful literature exists related to curriculum and instruction and its movement toward the current 21st century skills movement. This chapter seeks to review the pertinent literature that frames the debate surrounding curriculum reform and leads to the need to examine the research questions posed as part of this doctoral dissertation. The chapter begins with a brief review of American educational history, proceeds to examine reform efforts from a historical perspective, defines the 21st century skills movement, introduces the 21st century learner, and examines ways to affect change by moving educators toward 21st century skills inclusion and by recognizing instruction that supports 21st century learning. The review concludes by identifying a gap in the literature that can be addressed by this research project. Following the formal literature review, the reader will find the statement of the doctoral dissertation's research questions.

The Foundation of American Education

Education in the United States of America has been molded and reshaped by the prevailing forces of the times through which it has endured. The views and beliefs of society often have been used to affect changes in curriculum or alter instruction in the schools and classrooms where students were learning the essential skills for success for that time.

Within 15 years of the establishment of the Plymouth Colony in Massachusetts, the Boston Latin Grammar Schools were founded, providing educational opportunities for those young men destined for leadership roles in either the church or the community. The primary goal of these schools was the preparation of young men for the entrance exams for Harvard (Wiles, 2005).

By 1647, Massachusetts had passed the Old Deluder Satan Act which compelled communities with 50 or more households to establish a school. Within 3 years of that act, Massachusetts enacted the first tax support of schools (Wiles, 2005).

One hundred years would pass before Benjamin Franklin would establish the first academy, or secondary school, where training in practical subjects was emphasized (Marsh & Willis, 2007). Additional initiatives were undertaken to establish schooling in territories as a requisite to becoming states. Likewise, public monetary support for education slowly grew (Wiles, 2005).

By the 1830s, individuals such as Horace Mann and Henry Barnard, representatives of the common school movement, were arguing for the need "to democratize American education by making the same kind of schooling available to all" (Marsh & Willis, 2007, p. 34). They, like other proponents of the movement, believed that "no longer would differences in wealth or social status be abetted by differences in the amount, kind, or quality of schooling available" (Marsh & Willis, 2007, p. 34). Based in part on their efforts, the first compulsory school laws were passed in 1852 (Wiles, 2005).

To support the continuing educational needs of the growing number of educated citizens in the United States, Congress passed the Morrill Act in 1862. This act provided support, through land grants, for the creation of public colleges in every state with a focus on agriculture and mechanical studies (Marsh & Willis, 2007; Wiles, 2005).

With compulsory attendance laws and the establishment of public colleges, the foundation on which education in America currently rests was built. Buttressing that original American schoolhouse are the initiatives, committees, and regulations that have been undertaken over the past quasquicentennial.

Curriculum and Change

According to Marsh and Willis (2007), for early settlers formal education was primarily focused on "bringing people into conformity with some prevailing ideal of what an educated person should be" (p. 30). In the case of the Puritans, it was for the making of ministers and community officials who would maintain order and justice for a wholesome, civilized society. This notion of the "prevailing ideal of what an educated person should be" has been the impetus for most curriculum development and change ever since (Marsh & Willis, p. 30).

The National Education Association (NEA), in 1876, published a report entitled "A Course of Study from Primary School to University" in which subject-centered curricula was extolled. This report was in contrast to the society-centered curricula that was being developed and offered as a result of the common school movement (Marsh & Willis, 2007). The NEA (1876) delineated five critical groupings of knowledge: (1) inorganic nature (mathematics, physics); (2) organic nature (natural history, natural sciences); (3) theoretical man or intellect (philosophy); (4) practical man or will (civil history, social and political science); and (5) aesthetical man or phantasy (fine arts, literature). After identifying the five critical groupings, the report went on to specify school subjects that should represent each of the groupings at the elementary, secondary, and college levels. While this report had its proponents and its detractors, it did provide a basis for a single, unifying, universal curriculum. In fact, many of its divisions can be seen in the common core or general education divisions within many liberal arts institutions today (Marsh & Willis, 2007).

From this endeavor came several other committees from the NEA. In 1893, the Committee of Ten was established to deal with a problem related to college admissions.

With various types of schools requiring different coursework from students for graduation, it was becoming increasingly difficult for students to know whether they had taken and mastered the coursework needed for admission into a particular college. Entrance requirements were becoming as varied as the curricula in the secondary schools. The committee recommended that all secondary schools offer a range of subjects including traditional and classical subjects (Latin, English literature, mathematics) as well as more modern subjects (bookkeeping, commercial arithmetic). From this, four courses of study were proposed with each being appropriate for college or for life (Marsh & Willis, 2007).

Secondary education was not the only area where the NEA spent its time and efforts in reform. In 1895, the NEA formed the Committee of Fifteen to address the needs of elementary curriculum at the turn of the century. From the report, a strict, prescribed curriculum for the first 8 years of schooling was developed. It went so far as to mandate the number, length, and type of lessons to be taught. Classical subjects took primary focus and little time was devoted to subjects of "social usefulness" (Marsh & Willis, 2007, p. 40).

The National Education Association, Commission on the Reorganization of Secondary Education (1918) published a report entitled Cardinal Principles of Secondary Education. In this document, the commission reversed the direction of the NEA reports of the 1890s and created a "statement of principles intended to broaden the curriculum of American secondary schools to encompass virtually all of life's experiences, not merely academic subjects" (Marsh & Willis, 2007, p. 44). In doing its work, the commission examined education in light of changes in society, the secondary school population, and educational theory. As a result, the commission concluded that there were seven main

goals of education: (1) health; (2) command of fundamental processes; (3) worthy home membership; (4) vocation; (5) citizenship; (6) worthy use of leisure; and (7) ethical character (Marsh & Willis, 2007). While broad in scope, the other noticeable difference in these objectives was how far they had moved from the subject-bound, classical approach to curriculum that had been celebrated in the past (Glatthorn, Boschee, & Whitehead, 2005). These goals set the stage for a more multifaceted and integrated curriculum.

While underappreciated and somewhat unknown in its own time, the Eight Year Study published in 1942 has proven to be the "most important and comprehensive curriculum experiment ever carried on in the United States" (Tanner & Tanner, 1990, p. 227). The premise of the experiment was whether alternative preparation in high school, other than the prescribed Carnegie Units, could satisfactorily prepare students for college study (Aikin, 1942).

Thirty secondary schools were identified and charged with developing curricula. Three hundred colleges were enlisted to participate and accept students without regard to course requirements or entrance exams. Students were studied for the 4 years of high school and the 4 years of college (Aikin, 1942).

Upon conclusion of the study, these students were matched with similar students who completed the traditional secondary program of study. Multiple factors were taken into account in the matches to provide as much similarity in matched subjects as possible. The students were not only compared in academic success, but also in terms of personal characteristics or traits such as resourcefulness, participation in extracurricular activities, systematic thinking, and curiosity (Marsh & Willis, 2007). According to Aikin (1942),

First, the graduates of the Thirty Schools were not handicapped in their college

> work. Second, departures from the prescribed pattern of subjects and units did not lessen the students' readiness for the responsibilities of college. Third, students from the participating schools which made most fundamental curriculum revision achieved in college distinctly higher standing than that of students of equal ability with whom they were compared. (p. 117)

This study seemed to demonstrate that alternatively prepared secondary students were at least as prepared for college as their traditionally prepared counterparts, but were even more prepared for life in general. Because the report was published in the midst of World War II, it was under noticed. Since that time, though, it has proven to be a foundational document in curriculum study and has been cited in the advancement of many reform efforts (Marsh & Willis, 2007).

After the economic hardships of the Great Depression, there was a greater dissatisfaction with the social status quo. This individual-centered focus toward curriculum advancement turned with America's entry into World War II. Society-centered curricula, focused on training and preparedness, took prominence (Marsh & Willis, 2007).

This preparedness and excellence model increased in demand as the Cold War advanced. With the successful launch of Sputnik in October 1957, many Americans saw the Soviet Union as superior in science and technology, making it a threat to the nation's security (Kennedy, 2005). The belief that the Soviet Union had a superior educational system pushed policymakers toward the idea of a universal, or single, curriculum for America's schools with an increased emphasis in science, technology, and mathematics (Kennedy, 2005; Marsh & Willis, 2007; Wiles, 2005).

To support this universal, society-centered curriculum model, the federal

government made funds available for the development of curricula materials that could be used in schools and classrooms, quickly transforming the education of students (Marsh & Willis, 2007).

According to Marsh and Willis (2007), "the curriculum movement of the 1960s seems to have been born of exaggerated criticisms of American schools and exaggerated fears about national security" (p. 55). Even so, they suggested that the reform effort was an honest and forthright way of improving the curricula used in schools. Education was gaining a more important place in American life (Glatthorn et al., 2005).

The National Commission on Excellence in Education (NCEE), an 18-member panel chaired by David Gardner with representation drawn from the private sector, government, and education, released a report in April 1983 titled *A Nation at Risk: The Imperative for Educational Reform*. The report began:

> Our Nation is at risk. Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world. This report is concerned with only one of the many causes and dimensions of the problem, but it is the one that undergirds American prosperity, security, and civility. We report to the American people that while we can take justifiable pride in what our schools and colleges have historically accomplished and contributed to the United States and the well-being of its people, the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people. What was unimaginable a generation ago has begun to occur – others are matching and surpassing our educational attainments.
>
> If an unfriendly foreign power had attempted to impose on America the

> mediocre educational performance that exists today, we might well have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves. We have even squandered the gains in achievement made in the wake of the Sputnik challenge. Moreover, we have dismantled essential support systems which helped make these gains possible. We have, in effect, been committing an act of unthinking, unilateral educational disarmament. (NCEE, 1983, p. 5)

From this woesome report on the crisis in education facing the nation came five major recommendations:

1. High school graduation should require study of the five new basics (4 years of English, 3 years of mathematics, 3 years of science, 3 years of social studies, and one-half year of computer science) as well as 2 years of foreign language for those students who were college bound.

2. Schools, colleges, and universities should adopt more rigorous and measurable standards.

3. The school day and school year should be lengthened so that significantly more time could be devoted to learning the new basics.

4. Salary and working conditions should be improved to attract and retain better quality teachers.

5. Citizens should hold educators and elected officials responsible for providing the leadership necessary to achieve the reforms (NCEE, 1983).

Through a savvy media campaign which accompanied the release of this report, President Ronald Reagan made clear to the nation that the federal government had shown its leadership in providing the report but that no additional money needed to support the recommendations in it would be allocated at the federal level. He called on the citizens

to adopt the recommendations and provide the fiscal support necessary at the state and local levels (Marsh & Willis, 2007).

There were many critics of *A Nation at Risk* (NCEE, 1983), in part due to its own use of data and reporting. In one case, the report noted that "it is important, of course, to recognize that the average citizen is better educated and more knowledgeable than the average citizen of a generation ago–more literate and exposed to more mathematics, literature, and science" (NCEE, 1983, p. 11). It went on to say that "the positive impact of this face on the well-being of our country and the lives of our people cannot be overstated" (NCEE, 1983, p. 11). Nevertheless, *A Nation at Risk* (NCEE, 1983) did awaken discourse across the nation and within the states about curriculum reform. Educators were reviewing existing curricula, policies, and methods; people were talking.

The 1994 passage of the Goals 2000 Educate America Act (Goals 2000) put in place eight national education goals, six of which had been developed as part of the 1989 education summit of the National Governors' Association. The goals included school readiness; high school completion; student achievement and citizenship; teacher education and professional development; mathematics and science; adult literacy and lifelong learning; safe, disciplined, alcohol- and drug-free schools; and parental participation (Goals 2000, 1994).

Along with formalizing the national education goals, this act formalized the development of national standards and new assessment systems in an effort to improve the nation's educational system (Webb, Metha, & Jordan, 2010). According to Goertz (2001), the enactment of this legislation marked a turning point in education policy. "Emphasis shifted from inputs to educational outcomes and from procedural accountability to educational accountability. Equity was reconceptualized as ensuring all

students access to high-quality educational programs rather than providing supplemental and often compensatory services" (Goertz, p. 62).

As part of the overall Goals 2000 (1994) package was the reauthorization of the Elementary and Secondary Education Act (ESEA). In this reauthorization, comprehensive reform at the state and local levels was encouraged. School improvement plans were initiated, assessments to measure student progress were undertaken, and measures to hold schools accountable for student achievement were adopted. Unlike most previous federal education initiatives, Goals 2000 was designed to be integrated with state and local initiatives (Goertz, 2001).

As the new century dawned, a new educational enterprise was enacted. The No Child Left Behind Act of 2001 (2002) drove the direction of education reform for the first decade of the 21st century. Included in this legislation were requirements for states to develop standards for what every child should know and learn in math and reading test 95% of all students in Grades 3-8 annually and at least once in Grades 10-12 to determine their progress in meeting the standards, meet a 100% proficiency level on state standards by 2014, document the progress of schools by whole school populations and by subgroups of the school's population, publish annual report cards on annual yearly progress toward established goals, offer technical assistance and options to transfer to underperforming schools, and ensure that all teachers in core academic subjects were highly qualified (Webb et al., 2010). Many criticisms of the No Child Left Behind Act were voiced. States struggled to implement the mandates. As budget shortfalls increased, finding funds to support the efforts and bolster failing schools became increasingly difficult (Webb et al., 2010).

One result of the No Child Left Behind Act (2002) has been the more active role

of the federal government in education (Ornstein & Hunkins, 2009). This involvement grew under President Barack Obama's school reform program called Race to the Top. In 2009, Congress approved an allocation of $4.35 billion to the Race to the Top program, making it the largest competitive grant program ever administered by the U.S. Department of Education. The program awards were based on the extent to which states committed to reform in the following areas: adopting standards and assessments that were valid and reliable for all students and that prepared students for success in college and the workplace; building data systems that measured student growth and success and informed educators about how instruction could be improved; recruiting, developing, retaining, and rewarding highly effective teachers and principals; and providing support and intervention necessary to turn around the lowest performing schools (Webb et al., 2010). One part of the Race to the Top initiative was the adoption of standards that prepare students for college and career. The National Governors' Association and the Council of Chief State School Officers worked collaboratively to develop a universal curriculum called the Common Core State Standards prior to Race to the Top, but gained great support with its passage.

According to the Common Core State Standards Initiative (2012), "the standards were developed in collaboration with teachers, school administrators, and experts, to provide a clear and consistent framework to prepare children for college and the workforce" (¶ 1). The standards defined the knowledge and skills students should possess within their K-12 careers. The standards were informed by other top performing countries, employed best practices from existing state standards, included rigorous content and application of knowledge through higher-order skills, and were aligned with college and work expectations. To date, 48 states, two territories, and the District of

Columbia have formally joined the Common Core State Standards Initiative by adopting the standards.

While still in its infancy, the Race to the Top initiative has received a mixed reception. Some suggest that it is due to the economic crisis in which many states find themselves. In some states, policymakers and superintendents are hoping to pad their budgets with these funds while others are afraid that these reforms will cost more than the money brought in from the U.S. Department of Education (Webb et al., 2010). Critics argue that some of the requirements, such as using test data as one measure of teacher and principal effectiveness and expanding the reach of charter schools, are either unfair or detrimental to low-income and minority children (McNeill, 2010; Ravitch, 2010).

Twenty-First Century Skills

The world of work has changed significantly over the past 20 or more years in America.

> In 1991, the total money spent on Industrial Age goods in the United States – things like engines and machines for agriculture, mining, construction, manufacturing, transportation, energy production, and so on – was exceeded for the first time in history by the amount spent on information and communications technologies: computers, servers, printers, software, phones, networking devices and systems, and the like. (Trilling & Fadel, 2009, p. 3)

This change amounted to more than $5 billion that year. In 1991, the Knowledge Age, an information-driven, globally networked economy, came into its own.

This colossal shift from the Industrial Age characterized by production to that of the Knowledge Age celebrating information was as world-changing and life-altering as the move from the Agrarian Age to the Industrial more than 350 years ago. While

manufacturing and production will always be needed, industrial work in Knowledge Age countries will continue to decline. This work will be increasingly automated and outsourced to lower-wage, industrial-equipped countries (Friedman, 2005; National Center on Education and the Economy, 2007; Trilling & Fadel, 2009).

To be employable in this new world of information-based and technology-supported work, students will need to show mastery of the skills hiring managers are seeking. What skills are necessary for Knowledge Age work? What are these 21st century skills?

According to the Partnership for 21st Century Skills (P21), an initiative led by a group of corporate giants including Apple, Ford Motor Company, Microsoft, Texas Instruments, and Verizon, 21st century skills include core content, 21st century content, learning and thinking skills, information and communications technology literacy, and life skills (Trilling & Fadel, 2009). P21 has identified skills within each of the areas listed above that, when combined, help students develop the knowledge, practices, and dispositions necessary for success in a 21st century workforce.

Under the umbrella of core subjects and 21st century themes, P21 includes traditional content courses offered in schools and required for college admission, such as English, mathematics, science, history, government and civics, geography, economics, and World languages. In addition, P21 includes arts as core subjects. To accompany these core subjects, the Partnership endorsed five interdisciplinary theses that were intended to "promote understanding of academic content at much higher levels" including global awareness, financial literacy, civic literacy, health literacy, and environmental literacy (P21, 2009, p. 2).

According to P21 (2009), "learning and innovation skills increasingly are being

recognized as those that separate students who are prepared for a more and more complex life and work environments in the 21st century, and those who are not" (p. 3). Included in this grouping of skills are creativity and innovation, critical thinking and problem solving, and communication and collaboration.

Living in an ever-increasingly connected world with new tools to access the overabundance of information available, P21 (2009) identified information, media, and technology skills as another area for great focus in its framework. P21 (2009) argued that "to be effective in the 21st century, citizens and workers must be able to exhibit a range of functional and critical thinking skills related to information, media, and technology" (p. 5). Under information literacy, individuals are asked to access, evaluate, use, and manage information. In media literacy, students would analyze media and create media products. To show competence in ICT (Information, Communications, and Technology) literacy, learners would apply technology effectively and ethically.

P21 (2009) also focused on dispositional skills related to life and career success. P21 stated that

> today's life and work environments require far more than thinking skills and content knowledge. The ability to navigate the complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills. (p. 6)

Among the dispositional categories developed are flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility.

Similarly, Tony Wagner (2008), in his book *The Global Achievement Gap: Why Even Our Best Schools Don't Teach the New Survival Skills Our Children Need – And*

What We Can Do about It, listed critical thinking, problem solving, strong communication, agility and adaptability, ability to organize and analyze data, imagination, and entrepreneurialism. In *A Whole New Mind: Why Right-Brainers Will Rule the Future*, Daniel Pink (2006) awakened the discussion of 21st century skills related to creativity and innovation. He argued that as the routine work done by people and machines is moved elsewhere, workers in developed countries (America) will need to employ a different skill set. This skill set, according to Pink, is associated with the right brain. In probing the right brain, he endorsed design, story, empathy, symphony, play, and meaning.

Another perspective on 21st century thinking and learning came from Howard Gardner (2010). In describing his most recent work in the intelligence field, he began by discussing the slowness of change in education. While this was often seen as a bad thing, Gardner stated that it "discourages faddism and encourages educators to build upon tried-and-true methods" (p. 9). He continued by stating that at the beginning of the 21st century, we live in a time when major changes are required. He believed that there are five kinds of minds that educators need to cultivate in the future. He argued that three of these kinds of minds are primarily cognitive in nature. These include the disciplined mind, the synthesizing mind, and the creating mind. The other two kinds of minds deal primarily with the human sphere. These are the respectful mind and the ethical mind. All in all, Gardner felt that these five components should be massaged together, where possible, and included in the teaching and learning cycle. He suggested that we look for insightful ways to teach, implement, and assess these characteristics with students. In doing so, we will be creating 21st century thinkers who can attack problems from various perspectives and reach decisions in a collaborative manner.

In examining the frameworks for 21st century skills developed by the North Central Regional Education Laboratory and the Metiri Group, the Organisation for Economic Co-operation and Development, the National Leadership Council for Liberal Education, the International Society for Technology in Education, the Educational Testing Service, Henry Jenkins' work with the Macarthur Foundation, and P21, Dede (2010) summarized that there were more similarities between them than there were differences. While one group might have placed a slightly higher emphasis on one skill than another, when they were examined as a whole, the same skills reappeared. He argued that each set of standards deals with similar content knowledge coupled with skills development in future-focused and technology-infused ways. Higher order thinking skills were employed and/or encouraged in each set of standards. Dede noted that there are skills stressed by various organizations in their frameworks, due to the fact that those skills "are inconsistent with current classroom culture," highlighting a "substantial challenge to infusing these 21st century frameworks into educational practice and policy" (p. 68).

Moving beyond the skills or basic literacy necessary for success in the 21st century world of work and life, Crockett, Jukes, and Churches (2011) began to explore the next step in the cycle. They described this next step as 21st century fluencies. In their book *Literacy is Not Enough 21st Century Fluencies for the Digital Age*, the authors began with a discussion of a quote from a former Canadian minister of education who stated in a presentation that their students were among the very best performers academically in the world according to various statistics that were on the screen behind him. He noted that almost none of those statistics showed that the students could think. He said it made him wonder if what they were producing was "nothing but highly

educated, useless people" (Crockett et al., p. 1).

From this, the discussion began as to what it meant to be well-educated. Were book smarts the answer? Were street smarts the answer? Was there something between the two extremes that would prove to be the answer to adequately prepare students for life, however they defined that for themselves?

In the end, these authors decided that the difference was between literacy and fluency.

> When we are at the level of literacy with a language, we are able to communicate. However, our focus is on the structure, on the language, on the translation, on the pronunciation, and on getting the words out. When we are fluent with a language, the concepts flow from our brain and out of our mouths. The process is transparent to us. (Crockett et al., 2011, p. 13)

Changing the focus to thinking, Crockett et al. (2011) developed a taxonomy of 21st century fluencies. Included in the fluencies are solution fluency, information fluency, creativity fluency, media fluency, collaboration fluency, and global digital citizenship.

In her article "Measuring Skills for 21st Century Learning," Silva (2009) pointed out that 21st century skills are not new skills; they "are just newly important" (p. 631). She discussed the current definitions of these skills and reviewed the teaching skills necessary for successful mastery of the skills by students. Silva argued that "imparting these newly important skills is not an option or an add-on" (p. 631). Rather, they should be masterfully woven into the curriculum for all students. From this introductory point, the focus of the article shifted to assessing the skills that are taught. At the core of Silva's argument was the idea that educators should be spending less time rewriting

standards and more time focusing on instruction and redesigning assessment. If assessment does not connect to the intent of the 21st century skills and match more closely the skills being demanded of workforce entrants, educators have not gotten it right; they have failed students. While Silva admitted that assessment, by itself, would not resolve the many problems of education, she believed that it would provide momentum for the implementation of 21st century skills.

The 21st Century Learner

Students in PK-12 classrooms today are the first generation born into the digital world. As such, they are often referred to as digital natives. Houle and Cobb (2011) painted a picture:

> They cannot remember living in a house that does not have a computer, or at least having access to one. They cannot remember when mom and dad didn't have cell phones. They have experienced television as a portal to dozens if not hundreds of channels. They cannot remember not having access to the Internet. They are the first generation to be able to text on their first cell phones in childhood. (p. 61)

Houle and Cobb noted that these children are the first to spend their entire lives in a digital world. As the current and future consumers of education at all levels, they deserve closer examination.

"Digital natives have spent, are spending, and will spend their childhood with the entire world and everyone in it just a few keystrokes away" (Houle & Cobb, 2011, p. 62). They have access to more knowledge at a faster rate than anyone in history. These young people have been criticized for their inability to focus or concentrate deeply; others see this as demonstrating interactivity and engagement (Houle & Cobb, 2011; Prensky, 2010). Certainly, it can be said that this student's approach to experiencing the world is

much different from that of the Baby Boomer or Gen Xer.

Social media have played an increased role in communication for the digital native. Short messaging and oral (video) communication have replaced letter writing and other forms of communication, including e-mail. The ability to always be connected has created a demand for 24/7 communication with no restriction on time, place, or distance (Houle & Cobb, 2011; Prensky, 2010). What does this mean for the educator and the learning environment? According to Houle and Cobb (2011), transformation is the key. In their eyes, education does not need to be changed; it must be transformed. It must see significant changes in form, appearance, and nature. This is a monumental undertaking.

P21 (2007) noted that crucial for framing an agenda for 21st century learning work is the alignment of educational agencies' vision, mission, and value statements. Once these have been developed, they can be aligned with their strategic plans, strategies, and accountability systems. Among the most important pieces in this second tier are two support systems: professional development and 21st century learning environments (Pacific Policy Research Center, 2010).

Moving Educators toward 21st Century Skills Inclusion

Having identified what 21st century skills are or include, what comes next? Kay and Honey (2006) suggested the establishment of a research and development agenda. They argued that the global goals of education, preparing students to succeed as citizens, thinkers, and workers, have not changed over the years; what have changed, though, are the specific objectives or standards that students should master to show competence. The research and development agenda about which they wrote included four components: (1) identification and definition of 21st century skills; (2) professional development; (3) assessment reform; and (4) critical reflection and evaluation. While identification and

reflection were important components of their work, the major focus of their writing has been on high-quality professional development and meaningful assessment. They wrote that professional development was the key to radically changing practices in classrooms and schools. Without it, there would be a slow, uncertain road to increasing 21st century skills in students. Since, according to Kay and Honey (2006), assessment drives curriculum and instruction, it has to be gotten right. Critical thinking and innovation must be at the forefront in designing these assessments. If these factors come together, Kay and Honey (2006) suggested, impressive change could be made in advancing the 21st century learning agenda.

Arguably, students may not master 21st century content or skills without the support of teachers who are adept at integrating 21st century skills into learning standards and classroom instruction. For this to happen, funds should be allocated for professional development of 21st century skills, higher education institutions should be supported in identifying and disseminating the best practices for teaching and assessing 21st century skills, and higher education institutions should be encouraged to ensure that all preservice teachers graduate prepared to employ 21st century teaching and assessment strategies in their classrooms (Pacific Policy Research Center, 2010).

Trilling and Fadel (2009) argued that successful professional development programs tend to be experimental, engaging teachers in designing, implementing, managing, and assessing learning activities and projects, and observing other teachers' methods and skills; grounded in teachers' own questions, problems, and issues; collaborative; connected to a teacher's own work with students and his/her curriculum; sustained and intensive, with ongoing support; and integrated with other aspects of school transformation.

In relation to professional development on the use of technology, Bybee and Starkweather (2006) suggested that it focus not just on how to use the resource or tool, but on how to infuse the tool or technology into a standards-based lesson to improve student achievement. The goal should not be to use technology for technology's sake; rather, it should be to use technology as a vehicle to increase connection to the standard, content, skill, or instruction being presented. To do this successfully, professional development should take a long-term, ongoing approach where participants are supported within and outside their work environments (Burns, 2002; Bybee & Starkweather; Gusky, 2002).

Instruction that Supports 21st Century Learning

Much research has been conducted related to instruction that supports 21st century learning in the K-12 setting. Moos and Honkomp (2011) conducted a study in which they explored the effectiveness of an adventure-learning experience on seventh- and eighth-grade students' motivations to learn and master social studies content. One hundred eighty-two students participated in this mixed-method study. Prior to the adventure-learning experience, participants took the Motivation Strategies for Learning Questionnaire (MSLQ) and a pretest on African knowledge. The students participated in the Kilimanjaro climb of one of their teachers through distance learning as the treatment; this is defined within the study as adventure learning. After the adventure-learning treatment, available students participated in semi-structured interviews. All participants completed the MSLQ and a posttest on African knowledge after the treatment. Results in this study indicated that the adventure-learning experience positively impacted student motivation toward learning and increased the content knowledge of students related to the social studies content taught.

One goal of any high school is to ensure that its students have the knowledge and skills necessary to be successful in college and the workplace. To better meet this goal, O'Sullivan and Dallas (2010) developed a research class that focused on 21st century skills. The course was designed around teaching students how to develop a comprehensive research paper. The teacher collaborated with the media specialist to prepare students for this task by teaching all of the components of research. They began by selecting topics, concept mapping, and formulating a research question. Searching and research strategies were then introduced. Specific, guided instruction was provided in writing the actual research paper including format, grammar, revision, and editing. Information literacy assessments were administered at various points throughout the project. Students showed growth in all of the areas assessed. Students reported that this program was beneficial in preparing them for college-level coursework related to research. Similarly, students indicated that they were less intimidated by the research paper writing process and were inclined to request the assistance of the research librarian.

Fewer studies were available that focused on the college/university learner. One study conducted at the University of Florida involved more than 1,000 undergraduate students. The students participated in a campus-wide alternative reality game as a means for developing 21st century skills in the students. *Humans vs. Zombies* was developed in a partnership between librarians and game designers. In the game, students applied 21st century learning skills such as communication; collaboration; critical thinking; problem solving; creativity; and information, media, and technology literacy. The reaction to the program was very positive. Students enjoyed the game and showed increased aptitude in the skills incorporated into the game. Both qualitative and quantitative methods were employed. The program proved so popular with students that additional iterations were

scheduled (Johnson, Buhler, & Hillman, 2010).

These endeavors support the ideas expressed by P21 when it describes best practices for implementing 21st century skills. Project-based learning, design-based learning, and problem-based learning are certainly among the most frequently listed initiatives that can be undertaken to capitalize on the myriad of skills required for successful completion (Darling-Hammond, Barron, Pearson, Schoenfeld, & Stage, 2008). Trilling and Fadel (2009) noted in their text that educators should focus on real-world problems and processes, support inquiry-based learning experiences, provide opportunities for collaborative projects, and focus on teaching students how to learn rather than what to learn.

Summary

As can be seen from this preliminary review of the literature, 21st century skills have been defined by a number of organizations; consensus on which skills should be included is moving forward. A strong area of focus in the research has been on the K-12 school setting. Less research has been done on college and university students and the incorporation of 21st century skills. This doctoral dissertation seeks to fill a void in the field.

Research Questions

The purpose of this quantitative doctoral dissertation research study was to examine the extent to which 21st century skills were being incorporated into the academic programs offered at a small, private, church-related university located in the southeastern United States. The research questions that were developed and explored under this purpose were:

1. What are the perceptions of students and faculty in terms of the extent to

which critical thinking skills have been incorporated into the overall academic program at the university being studied?

2. What are the perceptions of students and faculty in terms of the extent to which collaboration skills have been incorporated into the overall academic program at the university being studied?

3. What are the perceptions of students and faculty in terms of the extent to which communication skills have been incorporated into the overall academic program at the university being studied?

4. What are the perceptions of students and faculty in terms of the extent to which creativity and innovation skills have been incorporated into the overall academic program at the university being studied?

5. What are the perceptions of students and faculty in terms of the extent to which self-direction skills have been incorporated into the overall academic program at the university being studied?

6. What are the perceptions of students and faculty in terms of the extent to which global connections have been incorporated into the overall academic program at the university being studied?

7. What are the perceptions of students and faculty in terms of the extent to which local connections have been incorporated into the overall academic program at the university being studied?

8. What are the perceptions of students and faculty in terms of the extent to which using technology as a tool has been incorporated into the overall academic program at the university being studied?

Chapter 3: Research Methodology

Introduction

The purpose of this doctoral dissertation study was to determine the extent to which 21st century learning skills were being incorporated into the academic programs of study at a small, private, church-related university located in the southeastern United States.

The research questions explored and examined through this research initiative were:

1. What are the perceptions of students and faculty in terms of the extent to which critical thinking skills have been incorporated into the overall academic program at the university being studied?
2. What are the perceptions of students and faculty in terms of the extent to which collaboration skills have been incorporated into the overall academic program at the university being studied?
3. What are the perceptions of students and faculty in terms of the extent to which communication skills have been incorporated into the overall academic program at the university being studied?
4. What are the perceptions of students and faculty in terms of the extent to which creativity and innovation skills have been incorporated into the overall academic program at the university being studied?
5. What are the perceptions of students and faculty in terms of the extent to which self-direction skills have been incorporated into the overall academic program at the university being studied?
6. What are the perceptions of students and faculty in terms of the extent to

which global connections have been incorporated into the overall academic program at the university being studied?

7. What are the perceptions of students and faculty in terms of the extent to which local connections have been incorporated into the overall academic program at the university being studied?

8. What are the perceptions of students and faculty in terms of the extent to which using technology as a tool has been incorporated into the overall academic program at the university being studied?

Research Design

This research study was designed to explore eight questions. It was a quantitative study that employed a non-experimental research design in that it sought to describe "participants, traits, scores, and other characteristics without direct or active intervention" (McMillan, 2012, p. 175). This design was chosen in an effort to "investigate the current . . . status of something" (McMillan, 2012, p. 176). Within this design, the researcher primarily employed descriptive design components. Some comparative components were introduced.

McMillan (2012) delineated the several subtypes of non-experimental research. For this study, the researcher employed survey research that incorporated both descriptive as well as comparative design components. These were used to provide a "description of a phenomenon" and to "compare values of two or more levels of an independent variable" (McMillan, p. 176).

Setting

This quantitative research study was conducted at a small, comprehensive, private, church-related university located in the southeastern region of the United States.

The university was regionally accredited and was approved to award degrees at both the baccalaureate and master's degree levels. "It is the vision of the university that its students embrace the Christian values of human dignity, integrity, and service and become servant leaders and lifelong learners" (University Catalog, p. 5).

The university had multiple campus locations and delivered courses through seated, hybrid, and online formats. It offered a traditional undergraduate on-campus experience, degree completion programs, and master's degree programs for working adults. The university had partnerships with regional community colleges and businesses to deliver instruction on-site, making the programs offered more accessible to students in underserved regions. This was in keeping with the institution's mission to be

> a comprehensive United-Methodist related university, with multiple campuses and delivery systems, committed to educational excellence, service, and scholarship. Within nurturing communities of learners, the university values diversity and promotes the attainment of full academic and personal potential through accessible undergraduate and graduate programs. (University Catalog, p. 5)

Participants

Participants in this research study were students currently matriculated into programs of study who had completed at least one semester of coursework at the university leading to either the baccalaureate or master's degree as well as those students who completed their degree requirements one semester prior to the beginning of this research study. Two thousand fifty-two students were eligible for participation in the research study. Six hundred eighty traditional undergraduate students, 274 students enrolled in the adult degree completion program, and 1,098 graduate students comprised

the initial list of student participants who would be asked to complete the survey instrument measuring their perceptions on the extent to which eight distinct sets of 21st century skills had been incorporated into the overall academic program at the university in which they were enrolled as students.

Additionally, full-time, part-time, and adjunct faculty members who had taught courses at the University during the 2011-2012 or current (2012-2013) academic years were eligible to participate in the study. One hundred four full-time faculty representing both undergraduate and graduate programs and 37 part-time and adjunct instructors were on the initial faculty participant list for participation in completing the survey instrument measuring their perceptions on the incorporation of these skills in the overall academic program at the university where the study took place.

Instrumentation

One survey instrument was used in collecting data for this research study related to 21st century skills incorporation in the college or university instructional setting (Appendix A). The instrument focused on experiences and perceptions related to 21st century skills inclusion in instructional settings.

The researcher sought permission to use the survey from the developers of the instrument which was validated as part of a previous research study related to problem-based learning and 21st century skills (Ravitz et al., 2012) (Appendix B). According to Ravitz et al. (2012), each of the measures within the tool was analyzed for both reliability and for factor structure.

> Perception measures were highly correlated with each skill, allowing them to be combined into an overall index for each skill with strong reliability (standardized alpha - .90 or greater, with inter-item correlations all above .58). The overall

index for all items combined had alpha = .986. (Ravitz et al., p. 9)

The researcher, informed by collegial expert opinion, made minor wording adjustments in the instructional components of the tool so that students and faculty could easily understand what they were rating.

Procedures for Data Collection and Analysis

To comply with Gardner-Webb University policies, the researcher completed the Institutional Review Board (IRB) training modules and filed his Collaborative Institutional Training Initiative (CITI) compliance certificate with his dissertation committee chairperson and the Graduate School (Appendix C).

After locating an appropriate survey tool and securing permission for its use in this study, the researcher began the formal processes for seeking approval for this doctoral dissertation research study. The researcher submitted his final proposal to the chairperson and members of his dissertation committee for review and defended that proposal formally. Once the researcher successfully defended his proposal, he submitted an application to conduct research with human subjects to the Gardner-Webb University IRB (Appendix D). According to the *Gardner-Webb Institutional Review Board Policies and Procedures Manual* (Gardner-Webb University, 2009), since the research undertaken did not collect controversial information, did not involve vulnerable populations, and guaranteed respondent anonymity, an exempt application was submitted for approval. Upon receipt of IRB approval, the researcher sought approval from the IRB of the institution where the research took place.

Once all of the approvals and permissions were received, the researcher requested the names and e-mail contact information for the students and faculty who had been identified to participate in the research study. Distribution lists were developed for ease

in communication with the participants throughout the study and for the communication of results at the conclusion of the process.

The researcher prepared the surveys for electronic distribution. An informed consent statement was included on the initial screen of the electronic survey; a debriefing statement was included on the final screen of the survey (Appendices E and F). Once the survey was prepared and tested to ensure that responses would be captured accurately, the researcher distributed the survey to the student participant distribution list. "One of the most serious limitations of survey research is a low response rate" (McMillan, 2012, p. 198). To increase response rates, educational researchers suggested using several contacts with the participants including reminders and reissuing the survey (Gall, Gall, & Borg, 2007; Jones & Kottler, 2006; McMillan, 2012). Likewise, these researchers suggested that the researcher clearly articulate the benefits of participation in the survey. Taking these ideas into account, the researcher followed up with participants after 6 days thanking those who had responded for completing the survey and reminding those who had not of the value of participation and encouraging them to complete the survey (Appendix G). A similar notice was sent after another 6 days (Appendix H).

Once the student process was complete, the researcher began the distribution process for the faculty. The survey was distributed electronically to all of the identified faculty members. Again, just as in the student process, to increase participation, a thank you and reminder were issued after 6 days (Appendix G). A final thank you and reminder notice were issued to the faculty participants after another 6 days (Appendix H).

At the conclusion of the data-gathering portion of the study, all of the data were uploaded into the Statistical Package for the Social Sciences (SPSS) for analysis. Descriptive statistics were run to define and describe the phenomenon being studied

(McMillan, 2012). Since the data being collected fell under the category of Likert-type data, several options for comparative analysis were available (Boone & Boone, 2012; deWinter & Dodou, 2010). Based on the recommendations from deWinter and Dodou (2012), the researcher elected to employ the *t*-test to compare or determine the differences between the practices and perceptions reported by the two groups of participants. Findings related to the eight established research questions are reported in the results section of this paper. After the final defense of the dissertation, the researcher made the results of the study available to all of the participants.

Role of the Researcher

The role of the researcher in this doctoral dissertation research project was to facilitate the distribution of surveys to the selected participants and manage the data that were collected as a result of those surveys. It was essential that the investigator maintain the highest degree of professional ethics concerning research participants throughout the research process including seeking consent, protecting sensitive information, and maintaining confidentiality. Likewise, it was the investigator's responsibility to maintain professional and ethical standards for himself as a researcher including avoiding or reducing bias, using an appropriate research methodology, correctly reporting the results, and using information for the purposes described (Kumar, 1996). Beyond facilitating the collection and analysis of data and reporting the results, the investigator ensured that IRB and other appropriate protocols concerning the study, as well as ethical considerations, were followed.

Summary

This research study employed a quantitative, non-experimental research design. The researcher administered a 21st century skills survey to student and faculty

participants at the university selected for the study. The survey data were analyzed using both descriptive and comparative statistics through SPSS. The researcher reported the results in terms of the eight established research questions.

Chapter 4: Findings

Introduction

This doctoral dissertation research study examined the extent to which 21st century skills are being incorporated into the teaching and learning environment at a small, private, church-related institution of higher education in the southeastern United States. In an effort to answer the eight research questions posed, a quantitative research design was used to collect data for this study. To elicit student and faculty perceptions, surveys were distributed electronically at the university where the study took place.

The purpose of this chapter is to present the analyses of the response data collected through the student and faculty surveys. The chapter begins with a description of the sample. Following that description, the researcher presents an analysis of the data addressing the eight research questions established for this study.

Description of the Sample

The population of this study consisted of two distinct groups. The first group consisted of students currently enrolled or immediately graduated from the university where the study took place. The list of eligible participants was compiled through an information request to the enrollment management office of the institution. Students with active e-mail addresses and more than one semester of completed coursework on their academic transcript were invited to participate. Also invited to participate were students who had completed their programs of study the previous academic term. In doing this, the group invited to participate would encompass a program of study from start through finish. The total number of students invited to participate was 971.

The second group to participate in the study was faculty members teaching at the university where the study took place. All faculty members who had taught at the

university more than one semester were included in the electronic invitation to participate in the study. Faculty assignment in terms of program or degree level was not a limiting factor in selecting participants; all groups were included. In all, 108 faculty members were invited to participate in the survey.

Both groups of participants, students and faculty members, were sent an initial invitation to participate in the study through e-mail. The message included the purpose of the study and a link to the online survey tool. Additional e-mails were distributed to those who did not initially respond asking for their participation and providing another link to the online survey tool after 6 and 12 days.

At the end of the data collection period, 682 students had responded to the survey. This yielded a 70.24% response rate. From the faculty member pool, 76 individuals responded. This yielded a response rate of 70.37%. According to McMillan (2012), "response rates around 70% are considered adequate" (p. 198). Response rates for both groups in this research study were above this threshold.

Data Analysis

Data were collected through the use of an online survey system, *Survey Monkey*, which collects and stores respondents' answers to the questions loaded into the system. The system also tracks who responds to the survey so that they are not solicited to participate again. This helped the researcher ensure that a single response was provided by each individual surveyed.

Once all of the responses were captured in the online survey system, the researcher exported those data to the Statistical Package for the Social Sciences (SPSS) to begin the analysis phase of the research project. Within SPSS, descriptive and comparative statistical analyses were run using the data in an effort to answer each of the

eight research questions posed as part of this study.

Student respondent demographics. Of the 682 students who responded to the survey, 30.2% were enrolled through the traditional undergraduate program; 8.7% were enrolled through the Center for Professional Advancement, the college's adult studies program; and 61.6% were enrolled through the graduate school. The majority of the respondents for all levels indicated that they were more than one half of the way through their program of study (11.7%, more than half way; 30.4%, close to completion; 14.9% just completed); 43.1% of the students were less than one half of the way to graduation (27.0%, just beginning; 16.1%, almost half way). The majority of the student respondents were female (75.3%); 24.7% were male. When asked to describe their ethnicity, students responded as follows: 62.1% Caucasian, 27.8% African American, 3.1% Hispanic, 2.8% Other, 2.5% Asian or Pacific Islander, 1.6% Multi-Racial, and 0.1% American Indian. All of the majors/programs of study offered through the college had representation in the survey. Table 1 shows the major or program of study the student respondents were pursuing at the college.

Table 1

Major or Program of Study Student Respondents were Pursuing

Major/Program of Study	Frequency	Valid Percent
Master of Business Administration	68	10.1
Master of Health Administration	106	15.8
Master of Science in Leadership	40	5.9
MBA/MHA	53	7.9
MBA/MSL	20	3.0
MHA/MSL	7	1.0
MA Marriage & Family Therapy	33	4.9
MA Practical Theology	11	1.6
MA Elementary Education	17	2.5
MA Special Education	15	2.2
MS Elementary Education	14	2.1
Accounting	11	1.6
Biology	2	0.3
Business Administration	37	5.5
Chemistry	2	0.3
Communication	10	1.5
Computer Information Systems	9	1.3
Criminal Justice	21	3.1
Elementary Education	31	4.6
English	7	1.0
Environmental Science	1	0.1
Exercise Science	15	2.2
Financial Fraud/Investigation	2	0.3
Health Administration	40	5.9
Health and Physical Education	3	0.4
History	2	0.3
Human Relations	6	0.9
Human Services	6	0.9
Interdisciplinary Studies	6	0.9
Mathematics	4	0.6
Music	3	0.4
Nursing	22	3.3
Pre-Medical	5	0.7
Psychology	14	2.1
Religion/Practical Theology	10	1.5
Social Studies	1	0.1
Special Education	13	1.9
Sports Management	5	0.7
Studio Art	1	0.1

Faculty respondent demographics. Seventy-six members of the faculty

responded to the survey. More than one half of the responses came from faculty members whose primary teaching assignments were in the undergraduate college (56%); 6.7% of the responses came from faculty members identified with the Center for Professional Studies; and 37.3% of the responses came from faculty members assigned to the graduate school. Twenty-eight percent of the faculty respondents indicated that they were in the first stages of their careers (just beginning); 20% noted they were between one fourth and one half of the way to retirement; 26.7% noted they were between one half and three fourths of the way to retirement; and 25.3% stated that they were close to completion (more than three fourths of the way to retirement). The majority of the faculty respondents were male (55.4%); female respondents made up 44.6% of the sample. When asked to describe their ethnicity, faculty members responded as follows: 88% Caucasian, 6.7% African-American, 2.7% Asian or Pacific Islander, and 2.7% Other. Table 2 shows the major or program of study in which the faculty respondents held their primary teaching responsibility.

Table 2

Major or Program of Study in which Faculty Respondents Primarily Teach

Major/Program of Study	Frequency	Valid Percent
Master of Business Administration	5	6.8
Master of Health Administration	5	6.8
Master of Science in Leadership	3	4.1
MBA/MHA	1	1.4
MA Marriage & Family Therapy	6	8.2
MA Elementary Education	2	2.7
MS Elementary Education	1	1.4
Accounting	3	4.1
Biology	2	2.7
Business Administration	3	4.1
Chemistry	3	4.1
Communication	2	2.7
Computer Information Systems	2	2.7
Criminal Justice	2	2.7
Elementary Education	4	5.5
English	3	4.1
Exercise Science	2	2.7
Health Administration	2	2.7
Health and Physical Education	2	2.7
History	1	1.4
Human Relations	1	1.4
Mathematics	2	2.7
Music	4	5.5
Nursing	3	4.1
Psychology	1	1.4
Religion/Practical Theology	4	5.5
Social Studies	1	1.4
Special Education	2	2.7
Studio Art	1	1.4

Research Question 1. What are the perceptions of students and faculty in terms of the extent to which critical thinking skills have been incorporated into the overall academic program at the university being studied?

To determine the extent to which critical thinking skills have been incorporated

into the overall academic program at the university, students and faculty members were asked how often students were asked to engage in six practices that served as exemplars for helping students learn critical thinking skills. There was much agreement in responses from students and faculty members on rating the frequency of use of the practices noted (Table 3). While not exactly matching, the trends in responses showed that students and faculty members perceived that there was an expectation to compare information from different sources before completing a task or assignment regularly with 52.8% of students responding that this was expected 1-3 times per week or daily and 41.7% of faculty responding the same way. Even greater emphasis was placed on drawing their own conclusions based on analysis of numbers, facts, or relevant information (65.6% of students stating 1-3 times per week or daily and 65.3% of faculty responding the same way) and summarizing or creating their own interpretation of what they have read or been taught (63.9% of faculty responded 1-3 times per week or almost daily and 71% of students responded the same way). Analyzing competing arguments, perspectives, or solutions to a problem was another area where students and faculty perceived regular work being done (63.7% of students noted 1-3 times per week or daily and 59.7% of faculty noted the same way). The one area where there was less attention paid was in developing a persuasive argument based on supporting evidence or reasoning. In this area, 52.7% of faculty members responded that it happened 1-3 times per month or a few times a semester; 8.3% reported that it almost never happened. Table 3 shows the frequency and valid percent for each category of response in this area, separated by student and faculty responses.

When comparing responses between student and faculty respondents in relation to the frequency of the practices for learning critical thinking skills, there were two items

where significant differences were found. On the item "can supply and transfer what they have learned to new tasks and situations," the student respondents reported a significantly higher level of incorporation of this skill (3.1106 ±0.70516) compared to the faculty respondents (2.8514 ±0.78831) ($t(87.2) = 2.705$, $p=.008$). Similarly, student respondents reported a significantly higher incorporation of "developing a persuasive argument based on supporting evidence or reasoning" (3.4778 ±1.07142) as compared to the faculty respondents (3.1507 ±1.12634) ($t(88.3) = 2.357$, $p=.021$).

Table 3

Responses to Examples of Practices for Learning Critical Thinking Skills

How often are students asked to do the following?		almost never (1)	a few times a semester (2)	1-3 times per month (3)	1-3 times per week (4)	almost daily (5)
compare information from different sources before completing a task or assignment	Student #	19	142	130	234	92
	%	3.1%	23.0%	21.1%	37.9%	14.9%
	Faculty #	2	17	23	21	9
	%	2.8%	23.6%	31.9%	29.2%	12.5%
draw their own conclusions based on analysis of numbers, facts, or relevant information	Student #	14	85	112	261	141
	%	2.3%	13.9%	18.3%	42.6%	23.0%
	Faculty #	3	12	10	35	12
	%	4.2%	16.7%	13.9%	48.6%	16.7%
summarize or create their own interpretation of what they have read or been taught	Student #	11	52	115	282	153
	%	1.8%	8.5%	18.8%	46.0%	25.0%
	Faculty #	2	6	18	24	22
	%	2.8%	8.3%	25.0%	33.3%	30.6%
analyze competing arguments, perspectives, or solutions to a problem	Student #	19	73	130	264	125
	%	3.1%	11.9%	21.3%	43.2%	20.5%
	Faculty #	2	8	19	32	11
	%	2.8%	11.1%	26.4%	44.4%	15.3%
develop a persuasive argument based on supporting evidence or reasoning	Student #	28	89	157	240	99
	%	4.6%	14.5%	25.6%	39.2%	16.2%
	Faculty #	6	15	23	19	9
	%	8.3%	20.8%	31.9%	26.4%	12.5%
try to solve complex problems or answer questions that have no single correct solution or answer	Student #	30	84	146	223	128
	%	4.9%	13.7%	23.9%	36.5%	20.9%
	Faculty #	1	11	20	20	20
	%	1.4%	15.3%	27.8%	27.8%	27.8%

Research Question 2. What are the perceptions of students and faculty in terms of the extent to which collaboration skills have been incorporated into the overall

academic program at the university being studied?

Six practices were presented on the survey questionnaires related to collaboration skills (Table 4). The practice with the greatest frequency of occurrence in the programs of the participants was "work in pairs or small groups to complete a task together" with 66.5% of student respondents and 67.6% of faculty respondents indicating that this happened at least one time per month. Each of the other practices related to working together received ratings with less frequent occurrences. Of particular note was the practice "create joint products using contributions from each student." On this, the number of responses in the almost never category was almost double, indicating that respondents viewed completing a task as something different from creating joint products. When asked to focus on their opportunities to "work as a team to incorporate feedback on group tasks or products," 43% of student participants and 52.9% of faculty participants responded that this occurred almost never or only a few times a semester. Similarly, the practice "give feedback to peers or assess other students' work" was noted to occur infrequently with 44.4% of students and 63.4% of faculty responding by marking almost never or a few times a semester. Although the trend in data between student and faculty responses on this practice shows similarity by category of response, there was a significant difference noted by mean; the student respondents reported a significantly higher level of incorporation of this skill (2.8492 ±1.22230) compared to the faculty respondents (2.5278 ±1.18645) ($t(90.2) = 2.165$, $p=.033$).

Table 4

Responses to Examples of Practices for Learning Collaboration Skills

How often are students asked to do the following?		almost never (1)	a few times a semester (2)	1-3 times per month (3)	1-3 times per week (4)	almost daily (5)
work in pairs or small groups to complete a task together	Student #	44	158	156	175	69
	%	7.3%	26.2%	25.9%	29.1%	11.5%
	Faculty #	8	15	12	20	16
	%	11.3%	21.1%	16.9%	28.2%	22.5%
work with other students to set goals and create a plan for their teams	Student #	78	178	143	144	40
	%	13.0%	29.7%	23.8%	24.0%	6.7%
	Faculty #	13	19	13	15	6
	%	18.8%	27.5%	18.8%	21.1%	8.5%
create joint products using contributions from each student	Student #	86	186	143	144	40
	%	14.4%	31.1%	23.6%	24%	6.7%
	Faculty #	14	23	13	15	6
	%	19.7%	32.4%	18.3%	21.1%	8.5%
present their group work to the class, teacher, or others	Student #	56	224	151	123	41
	%	9.4%	37.6%	25.4%	20.7%	6.9%
	Faculty #	9	30	15	10	7
	%	12.7%	42.3%	21.1%	14.1%	9.8%
work as a team to incorporate feedback on group tasks or products	Student #	65	193	149	146	47
	%	10.8%	32.2%	24.8%	24.3%	7.8%
	Faculty #	16	21	12	13	8
	% %	22.9%	30.0%	17.1%	18.6%	11.4%
give feedback to peers or assess other students' work	Student #	86	181	131	143	60
	%	14.3%	30.1%	21.8%	23.8%	10.0%
	Faculty #	12	33	10	10	6
	%	16.9%	46.5%	14.1%	14.1%	8.5%

Research Question 3. What are the perceptions of students and faculty in terms of the extent to which communication skills have been incorporated into the overall

academic program at the university being studied?

The survey distributed to participants noted five practices for learning communication skills. These practices, when considered together, assisted the researcher in answering Research Question 3 (Table 5). The only practice where the majority of respondents of both faculty members and students noted the occurrence of it as happening at least once per month was "answer questions in front of an audience" (students = 55.6%, faculty = 55.7%).

On all of the other practices noted, at least 45% of respondents indicated that the practices were undertaken either a few times a semester or never. The one item where a significant difference was found was "convey their ideas using media other than a written paper." On this item, the student respondents (2.6389 ±1.17724) reported a significantly higher level of incorporation of this skill compared to the faculty respondents (2.2029 ±1.10586) ($t(87.38) = 2.962$, $p=.004$).

Table 5

Responses to Examples of Practices for Learning Communication Skills

How often are students asked to do the following?		almost never (1)	a few times a semester (2)	1-3 times per month (3)	1-3 times per week (4)	almost daily (5)
structure data for use in written products or oral presentations (e.g., creating charts, tables, graphs)	Student #	73	220	149	100	39
	%	12.6%	37.9%	25.6%	17.2%	6.7%
	Faculty #	12	30	17	7	4
	%	17.1%	42.9%	24.3%	10.0%	5.7%
convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.)	Student #	105	185	139	110	40
	%	18.1%	32.0%	24.0%	19.0%	6.9%
	Faculty #	20	28	11	7	3
	%	29.0%	40.6%	15.9%	10.1%	4.3%
prepare and deliver an oral presentation to the teacher or others	Student #	84	256	126	87	27
	%	14.5%	44.1%	21.7%	15.0%	4.7%
	Faculty #	12	30	18	7	3
	%	17.1%	42.9%	25.7%	10.0%	4.3%
answer questions in front of an audience	Student #	96	162	107	162	54
	%	16.5%	27.9%	18.4%	27.9%	9.3%
	Faculty #	12	19	17	11	11
	%	17.1%	27.1%	24.3%	15.7%	15.7%
decide how they will present their work or demonstrate their learning	Student #	79	189	135	129	49
	%	13.6%	32.5%	23.2%	22.2%	8.4%
	Faculty #	11	27	15	12	5
	%	15.7%	38.6%	21.4%	17.1%	7.1%

Research Question 4. What are the perceptions of students and faculty in terms of the extent to which creativity and innovation skills have been incorporated into the overall academic program at the university being studied?

Five examples of practices for learning creativity and innovation skills were presented to collect data in relation to Research Question 4. There were no significant

differences between the student and faculty perceptions on this subset of data. Three of the practices were perceived to be undertaken regularly (Table 6). On the practice "use idea creation techniques such as brainstorming or concept mapping," 58.1% of students and 53% of faculty reported that students were asked to do it at least one time per month. On the practice "test out different ideas and work to improve them," 56.2% of students and 63.3% of faculty indicated that students were asked to engage in it more than one time per month. The most engaged practice according to the data collected was "generate their own ideas about how to confront a problem or question" with 46.1% of students and 45.5% of faculty noting that students were asked to engage in it one time per week or more.

In contrast, 41.9% of students and 43.2% of faculty reported that students were asked to "invent a solution to a complex, open-ended question or problem" a few times a semester or almost never. On the practice "create an original product or performance to express their ideas," 49.6% of students and 52.9% of faculty reported that students were asked to do it a few times a semester or less.

Table 6

Responses to Examples of Practices for Learning Creativity and Innovation Skills

How often are students asked to do the following?		almost never (1)	a few times a semester (2)	1-3 times per month (3)	1-3 times per week (4)	almost daily (5)
use idea creation techniques such as brainstorming or concept mapping	Student #	80	160	139	128	66
	%	14.0%	27.9%	24.3%	22.3%	11.5%
	Faculty #	15	17	14	17	5
	%	22.1%	25.0%	20.6%	25.0%	7.4%
generate their own ideas about how to confront a problem or question	Student #	46	131	131	161	102
	%	8.1%	22.9%	22.9%	28.2%	17.9%
	Faculty #	1	19	17	19	12
	%	1.5%	27.9%	25.0%	27.9%	17.6%
test out different ideas and work to improve them	Student #	88	159	130	124	64
	%	15.6%	28.1%	23%	21.9%	11.3%
	Faculty #	6	19	21	14	8
	%	8.8%	27.9%	30.9%	20.6%	11.8%
invent a solution to a complex, open-ended question or problem	Student #	90	148	142	126	62
	%	15.8%	26.1%	25%	22.2%	10.9%
	Faculty #	8	21	15	16	7
	%	11.9%	31.3%	22.4%	23.9%	10.4%
create an original product or performance to express their ideas	Student #	111	170	133	104	48
	%	19.6%	30.0%	23.5%	18.4%	8.5%
	Faculty #	13	23	13	14	5
	%	19.1%	33.8%	19.1%	20.6%	7.4%

Research Question 5. What are the perceptions of students and faculty in terms of the extent to which self-direction skills have been incorporated into the overall academic program at the university being studied?

The set of practices for learning self-direction skills analyzed to answer Research Question 5 included seven discrete items. All but one of the practices were reported by

both students and faculty to be asked of students at least one time per month (Table 7). The item "monitor their own progress towards completion of a complex task and modify their work accordingly" was reported to be the most frequently asked practice of students by both students (44.7% stated one or more times per week or daily) and faculty (48.5% stated one or more times per week or daily). The only practice among this set where more than 40% of both students and faculty reported it occurring only a few times a semester or almost never was "choose their own topics of learning or questions to pursue."

Among this set of data, there were no significant differences between student and faculty responses to how often students were asked to engage in each of the practices noted.

Table 7

Responses to Examples of Practices for Learning Self-Direction Skills

How often are students asked to do the following?		almost never (1)	a few times a semester (2)	1-3 times per month (3)	1-3 times per week (4)	almost daily (5)
take initiative when confronted with a difficult problem or question	Student #	45	127	136	164	95
	%	7.9%	22.4%	24.0%	28.6%	16.8%
	Faculty #	5	21	17	14	10
	%	7.5%	31.3%	25.4%	20.9%	14.9%
choose their own topics of learning or questions to pursue	Student #	77	172	141	114	61
	%	13.6%	30.4%	25.0%	20.2%	10.8%
	Faculty #	9	27	17	9	5
	%	13.4%	40.3%	25.4%	13.4%	7.5%
plan the steps they will take to accomplish a complex task	Student #	35	145	142	144	99
	%	6.2%	25.7%	25.1%	25.5%	17.5%
	Faculty #	4	19	18	17	9
	%	6.0%	28.4%	26.9%	25.4%	13.4%
choose for themselves what examples to study or resources to use	Student #	44	148	152	141	79
	%	7.8%	26.2%	27.0%	25.0%	14.0%
	Faculty #	2	24	16	17	7
	%	3.0%	36.4%	24.2%	25.8%	10.6%
monitor their own progress towards completion of a complex task and modify their work accordingly	Student #	46	115	151	138	114
	%	8.2%	20.4%	26.8%	24.5%	20.2%
	Faculty #	10	13	11	22	10
	%	15.2%	19.7%	16.7%	33.3%	15.2%
use specific criteria to assess the quality of their work before it is completed	Student #	40	132	150	147	96
	%	7.1%	23.4%	26.5%	26.0%	17.0%
	Faculty #	6	14	16	22	9
	%	9.0%	20.9%	23.9%	32.8%	13.4%
use peer, instructor, or expert feedback to revise their work	Student #	53	132	141	151	87
	%	9.4%	23.4%	25.0%	26.8%	15.4%
	Faculty #	8	18	14	16	11
	%	11.9%	26.9%	20.9%	23.9%	16.4%

Research Question 6. What are the perceptions of students and faculty in terms

of the extent to which global connections have been incorporated into the overall academic program at the university being studied?

To evaluate the extent to which global connections have been incorporated into the academic program, six examples of practices for learning to make global connections were presented to study participants on the survey. In all cases, at least one of the groups of respondents reported, at a rate of 50% or more, that each practice was undertaken only a few times a semester or almost never (Table 8). The practice rated by participants with the most frequent incorporation in the classroom was "understand the life experiences of people in cultures besides their own." Even so, only 27.9% of students and 30.3% of faculty indicated that students were asked to do it one or more times per week. The practice that received the lowest rating related to this research question for incorporation in the university instructional setting was "study the geography of distant countries." To this practice related to geography, 53.9% of students and 6.7% of faculty reported students being asked to engage in it almost never. While the trend in the data for this response was similar between students and faculty, a significant difference was found. The student rating for this practice (1.8536 ±1.13332) was significantly higher than the faculty rating (1.4925 ±0.82339) ($t(98.71) = 3.241$, $p=.002$).

Table 8

Responses to Examples of Practices for Learning to Make Global Connections

How often are students asked to do the following?		almost never (1)	a few times a semester (2)	1-3 times per month (3)	1-3 times per week (4)	almost daily (5)
study information about other countries or cultures	Student #	143	210	97	87	29
	%	25.3%	37.1%	17.1%	15.4%	5.1%
	Faculty #	12	22	17	12	4
	%	17.9%	32.8%	25.4%	17.9%	6.0%
use information or ideas that come from people in other countries or cultures	Student #	161	183	109	75	35
	%	28.6%	32.5%	19.4%	13.3%	6.2%
	Faculty #	14	22	13	14	4
	%	20.9%	32.8%	19.4%	20.9%	6.0%
discuss issues related to global interdependency (ex., global environment trends, global market economy)	Student #	134	185	106	101	41
	%	23.6%	32.6%	18.7%	17.8%	7.2%
	Faculty #	15	27	12	10	3
	%	22.4%	40.3%	17.9%	14.9%	4.5%
understand the life experiences of people in cultures besides their own	Student #	124	176	109	101	57
	%	21.9%	31%	19.2%	17.8%	10.1%
	Faculty #	11	21	14	12	8
	%	16.7%	31.8%	21.2%	18.2%	12.1%
study the geography of distant countries	Student #	303	125	67	50	18
	%	53.8%	22.2%	11.9%	8.9%	3.2%
	Faculty #	44	18	2	2	1
	%	65.7%	26.9%	3.0%	3.0%	1.5%
reflect on how their own experiences and local issues are connected to global issues	Student #	131	178	113	95	49
	%	23.1%	31.4%	20%	16.8%	8.7%
	Faculty #	12	23	19	6	7
	%	17.9%	34.3%	28.4%	9.0%	10.4%

Research Question 7. What are the perceptions of students and faculty in terms of the extent to which local connections have been incorporated into the overall academic

program at the university being studied?

To collect data as to the extent to which local connections have been incorporated into the academic program at the studied institution, five exemplars of practice were identified for learning to make local connections (Table 9). In reviewing participant responses and analyzing the data, no significant differences between student and faculty responses were found.

In two instances, practices were found to be occurring at least one time per month. Fifty-eight point one percent (58.1%) of the students and 58.2% of the faculty reported that students were asked to "investigate topics or issues that are relevant to their family or community" one or more times per month. On the practice "apply what they are learning to local situations, issues, or problems," 68% of students and 64.2% of faculty indicated that students were asked to do it one or more times per month.

Dissimilarly, the remaining three practices were seen as occurring infrequently, a few times a semester or almost never. On the practice "talk to one or more members of the community about a class project or activity," 57.7% of students and 68.7% of faculty reported that students were asked to do this a few times a semester or almost never. When it came to the practice "analyze how different stakeholder groups or community members view an issue," 51.8% of student respondents and 58.2% of faculty respondents noted that students are asked to engage in this a few times a semester or almost never.

Table 9

Responses to Examples of Practices for Learning to Make Local Connections

How often are students asked to do the following?		almost never (1)	a few times a semester (2)	1-3 times per month (3)	1-3 times per week (4)	almost daily (5)
investigate topics or issues that are relevant to their family or community	Student #	90	144	114	132	79
	%	16.1%	25.8%	20.4%	23.6%	14.1%
	Faculty #	11	17	17	14	8
	%	16.4%	25.4%	25.4%	20.9%	11.9%
apply what they are learning to local situations, issues, or problems	Student #	57	122	120	158	102
	%	10.2%	21.8%	21.5%	28.3%	18.2%
	Faculty #	5	19	18	14	11
	%	7.5%	28.4%	26.9%	20.9%	16.4%
talk to one or more members of the community about a class project or activity	Student #	154	169	98	101	38
	%	27.5%	30.2%	17.5%	18.0%	6.8%
	Faculty #	18	28	11	8	2
	%	26.9%	41.8%	16.4%	11.9%	3.0%
analyze how different stakeholder groups or community members view an issue	Student #	130	160	126	98	46
	%	23.2%	28.6%	22.5%	17.5%	8.2%
	Faculty #	17	22	13	10	5
	%	25.4%	32.8%	19.4%	14.9%	7.5%
respond to a question or task in a way that weighs the concerns of different community members or groups	Student #	128	140	123	109	59
	%	22.9%	25.0%	22.0%	19.5%	10.6%
	Faculty #	19	19	14	10	5
	%	28.4%	28.4%	20.9%	14.9%	7.5%

Research Question 8. What are the perceptions of students and faculty in terms of the extent to which using technology as a tool has been incorporated into the overall academic program at the university being studied?

Eight examples made up the subset of practices used to evaluate the extent to which using technology as a tool was incorporated into the academic program. In five of

the eight pairings of data related to this research question, significant differences between student respondents and faculty respondents were found.

In seven instances, both students and faculty indicated that students were asked to participate in the practices at least one time per month as is evidenced by their ratings of more than 50% when combining the scores in 1-3 times per month, 1-3 times per week, and almost daily (Table 10). The most practiced example was "use technology of the Internet for self-instruction" as evidenced by 71.6% of students and 68.6% of faculty stating that students are asked to do this one or more times per week.

The only item in this subset where there were large numbers of responses in the "a few times a semester" and "almost never" was "use technology to interact directly with experts or members of local/global communities." Here, 41.5% of student respondents and 59.7% of faculty respondents marked those two categories. This was one of the five areas where statistical significance was found between the two groups. Student respondents (2.9982 ±1.49520) reported a higher level of incorporation of this trait than did their faculty counterparts (2.4030 ±1.44662) (t(83.89) = 3.170, p=.002).

While the trends in the data between the two groups of respondents were similar, four additional pairings showed significant differences. Student respondents (3.6865 ±1.21769) reported significantly higher incidences of "evaluate the credibility and relevance of online resources" when compared to faculty respondents (3.2985 ±1.29117) (t(80.82) = 2.337, p=.022). Student respondents (3.6212 ±1.24012) also reported significantly higher occurrences of "use technology to help them share information" than the faculty respondents (3.2985 ±1.25547) (t(82.27) = 1.99, p=.05). A third area where a statistically significant difference was shown was in the area "use technology to support teamwork or collaboration" where the student respondent mean was 3.7107 (±1.22082)

and the faculty respondent mean was 3.1791 (±1.38088) ($t(78.84) = 3.013$, $p=.003$). "Use technology to keep track of their work on extended tasks or assignments" was the final practice where a significant difference appeared between student (3.8541 ±1.24098) and faculty (3.4925 ±1.37481) respondents ($t(79.53) = 2.054$, $p=.043$).

Table 10

Responses to Examples of Practices for Learning to Use Technology as a Learning Tool

How often are students asked to do the following?		almost never (1)	a few times a semester (2)	1-3 times per month (3)	1-3 times per week (4)	almost daily (5)
use technology or the Internet for self-instruction	Student #	20	50	90	158	254
	%	3.6%	8.9%	16.0%	28.1%	43.5%
	Faculty #	2	11	8	23	23
	%	3.0%	16.4%	11.9%	34.3%	34.3%
select appropriate technology tools or resources for completing a task	Student #	14	56	95	179	219
	%	2.5%	9.9%	16.9%	31.8%	38.9%
	Faculty #	5	8	11	24	19
	%	7.5%	11.9%	16.4%	35.8%	28.4%
evaluate the credibility and relevance of online resources	Student #	34	72	107	167	178
	%	6.4%	12.9%	19.2%	29.9%	31.9%
	Faculty #	6	15	14	17	15
	%	9.0%	22.4%	20.9%	25.4%	22.4%
use technology to analyze information (e.g., databases, spreadsheets, graphic programs, etc.)	Student #	52	85	116	151	157
	%	9.3%	15.2%	20.7%	26.9%	28.0%
	Faculty #	9	4	13	16	14
	%	13.6%	21.2%	19.7%	24.2%	21.2%
use technology to help them share information (e.g., multimedia presentations, presentation software, blogs, podcasts, etc.)	Student #	34	88	106	160	172
	%	6.1%	15.7%	18.9%	28.6%	30.7%
	Faculty #	7	12	15	21	12
	%	10.4%	17.9%	22.4%	31.3%	17.9%
use technology to support teamwork or collaboration (e.g., shared work spaces, e-mail exchanges, giving/receiving feedback, etc.)	Student #	31	79	99	166	188
	%	5.5%	14.0%	17.6%	29.5%	33.4%
	Faculty #	12	9	17	16	13
	%	17.9%	13.4%	25.4%	23.9%	19.4%
use technology to interact directly with experts or members of local/global communities	Student #	132	100	91	111	126
	%	23.6%	17.9%	16.3%	19.8%	22.5%
	Faculty #	27	13	9	10	8
	%	40.3%	19.4%	13.4%	14.9%	11.9%
use technology to keep track of their work on extended tasks or assignments	Student #	37	58	79	160	223
	%	6.6%	10.4%	14.2%	28.7%	40.0%
	Faculty #	9	9	7	24	18
	%	13.4%	13.4%	10.4%	35.8%	26.9%

Summary

Based on the quantitative data collected from students and faculty members at the small, private, church-related institution of higher education where the study took place through the use of the 21st Century Skills Survey, several findings can be made. First and foremost, there was a level of 21st century skill instruction taking place in the institution as reported by both students and faculty in all eight of the subcategories examined. This level varied between subcategories and between specific practices listed within each subcategory.

The area with the greatest implementation at the institution was in the use of technology as a tool for learning. Here, both student and faculty respondents noted that students were asked regularly to participate in the majority of the practices noted. Critical thinking and self-direction proved to be areas with high reports of student engagement with the practices listed on the survey.

The area with the greatest room for growth at the institution was in making global connections. Again, both students and faculty members who completed the survey indicated that most of the practices were not undertaken very often. Collaboration, creativity and innovation skills, and local connections were other areas where the practices included on the survey were not being uniformly implemented within departments and across the institution at a level that students and faculty members see as more than one time a month.

From these findings, some conclusions can be drawn; from the conclusions, recommendations can be made. These components are discussed in Chapter 5 of this doctoral dissertation along with recommendations for additional study.

Chapter 5: Discussion

Introduction

This doctoral research study examined the extent to which 21st century skills were being incorporated into the overall academic program at a small, private, church-related institution of higher education in the southeastern United States. The study described the necessity for curricular and pedagogical reform at the postsecondary level in an effort to better prepare graduates for the ever-increasingly rigorous workforce demands of the 21st century. A quantitative research design was used to collect data for this study. Through the use of a survey, students and faculty at one institution of higher education were asked their perceptions as to the level of incorporation of various practices deemed examples of strategies for learning 21st century skills. The data were analyzed and the findings were presented. This chapter presents conclusions that the researcher drew from the findings, addresses additional limitations to the study, presents recommendations, and suggests areas for future research.

Conclusions

In reviewing the findings presented in Chapter 4 of this dissertation, it can be noted that "use technology as a tool for learning" and "critical thinking" were areas where students and faculty found high levels of incorporation of the practices evaluated in the program of study. "Self-direction" was another area where the practices noted were marked as occurring regularly within the overall program of study.

On the other hand, all of the practices in the "global connections" domain had high reports of infrequent incorporation in the program of study. This proved true in "local connections" as well, when students and faculty were asked about practices related to perspective-taking.

There were a few findings that warrant additional scrutiny. In the domain "collaboration skills," it was clear that "working in pairs or small groups to complete a task" was a practice that was regularly incorporated into instruction in the overall program of study. As this skill was subdivided or as more specificity was added to it, the reported occurrence levels diminished.

It can be concluded from comparing the student and faculty responses across the various domains that there are three particular areas where additional attention could be paid. These include student autonomy in decision making, thinking beyond the student and his/her personal experiences, and responding in alternative or nontraditional ways. By allowing students to choose topics to pursue, make connections, see ideas from various viewpoints, and convey their ideas in a variety of formats, educators are assisting them in building, strengthening, and transferring those practices into meaningful skills that make the students successful in the careers of their choice and attractive to employers of the future.

Additional Limitations to the Study

With all research, there are factors that limit the generalizability of the results beyond the sample studied. As noted in Chapter 1 of this dissertation, this study was limited by the sampling of students and faculty from one institution of higher education, the selection of one specific set of 21st century skills for inclusion on the survey, the imposition of deadlines by the researcher's university and the specific timing during the year for distribution of the surveys, and the willingness of students and faculty to participate and offer accurate information.

As the research began, it became evident that additional limitations would factor into the study. This study was also limited by the availability of accurate and verifiable

e-mail addresses for participants. While students have university issued e-mail addresses, these addresses proved not to be checked regularly, especially by students in the graduate and degree completion programs. Due to this fact, the researcher had to modify the criteria for participation to include alternative e-mail addresses.

A final limitation to note in this study was the lack of full and complete responses to the surveys distributed to students and faculty. In many cases, participants failed to respond to all of the prompts on the survey. In hindsight, the researcher should have considered making the responses mandatory on the online survey system.

Recommendations

Many recommendations could be made from research related to 21st century skills in the postsecondary learning environment. The recommendations being made from this study are focused clearly at higher education administrators and members of the faculty across the curriculum areas.

Higher education administrators should immerse themselves in the literature related to 21st century skills and workforce readiness which suggests that 21st century skills incorporation effectively prepare students for the demands of life and work (Casner-Lotto & Benner, 2006; Conley, 2005; Gardner, 2010; Hayes-Jacobs, 2010; Littky, 2004; Munson, 2011; National Center on Education and the Economy, 2007; Trilling & Fadel, 2009).

As part of a comprehensive planning process, the administration and governing boards of the institutions should incorporate 21st century skills as a meaningful component of its plan. In doing so, the administrators should clearly define what the institution will use as its definition of 21st century skills, how it will measure student mastery of those skills, and how it will support faculty members in developing best

practices in teaching and learning to promote high quality experiences both inside and outside the classroom. From this, each academic unit in the institution can develop more detailed goals, assessments, and professional development opportunities pertinent to their particular fields and student needs.

Along with the planning process, higher education administrators should dedicate appropriate funding for these initiatives. It is not enough to set a goal and inform people that they should work toward it; one must provide adequate resources to support legitimate success (Chickering & Gamson, 1987; Garet, Porter, Desimone, Birman, & Yoon, 2001; Gusky, 2002).

Advisory teams for the various programs within the university are recommended. On these teams could be members of the profession, hiring managers, graduates of the programs, current students, faculty members, and administrators of the institution. The purposes of the advisory teams would be to generate ideas and guide curriculum changes toward that which is necessary for success in the real world of life and work. These teams would assist in quality control and accountability (Wholey, Hatry, & Newcomer, 2010).

Each academic unit within the institution should conduct a program review related to 21st century skills integration. Data from this research study could serve as a first step for discussion and review. Additional data collected within each unit could be added to the mix in an effort to paint a more comprehensive picture of the strengths and areas for continued growth. This could be incorporated into end-of-the-year assessment and beginning-of-the-year planning.

Recommendations aimed toward faculty members fall directly from the administrator recommendations. First, it is incumbent upon all educators to be well-

versed in the knowledge, skills, and dispositions that make up the 21st century skills movement. Reading, investigation, and professional development should be undertaken to enhance their levels of knowledge and skill so that implementation becomes increasingly urgent in the classroom learning environment.

Beyond this, faculty members should work collaboratively, through professional learning communities (PLCs), to learn and grow together. In the PLCs, faculty members can review data, investigate strategies and research, plan together, share successes and failures, and celebrate the learning process (DuFour & DuFour, 2005). In doing this, faculty members are not working alone to solve a problem; rather, they are implementing many of the 21st century skills they seek to investigate more fully in a supportive, collaborative learning environment which could produce its own research or publication outlet.

Suggestions for Future Research

While many valuable insights were gained through this exploratory research study, more research needs to be done in this field and on this topic. To expand the study, additional analyses of the data could be undertaken. Data could be analyzed and compared between levels of students (undergraduate, adult degree completion, and graduate) as well as between degree programs.

Quantitatively, additional research could be undertaken with the same or a similar sample using a different set of 21st century skills. These results could then be compared to the findings from this study. In comparing the results, one might draw more conclusions or gain more insight into the extent to which 21st century skills are incorporated into the overall academic program at the institution.

Beyond this study, it is suggested that qualitative research techniques be applied.

Focus groups would be a useful tool for finding out why participants marked the questions the way they did. These explanations might have proved helpful in explaining some of the findings.

Similarly, syllabus analysis could have been undertaken to determine the level to which instructors were integrating 21st century skills into the goals and objectives of the courses being offered and into the activities and projects being assigned.

To expand the scope and generalizability of the study, expanding the sample to include participants from more than one institution of higher education would be suggested. Likewise, sampling from both public and independent colleges and universities of varying sizes would be necessary to see if any differences exist based on those criteria.

References

Aikin, W. M. (1942). *The story of the Eight-Year Study*. New York: Harper & Brothers.

Arum, R., & Roska, J. (2011). *Academically adrift: Limited learning on college campuses.* Chicago, IL: University of Chicago Press.

Boone, H. N., & Boone, D. A. (2012). Analyzing Likert data. *Journal of Extension, 50*(2). Retrieved from www.joe.org/joe/2012april/tt2.php

Burns, M. (2002). From black and white to color: Technology professional development and changing practice. *THE Journal, 29*(6), 36-42.

Bushaw, W. J., & Lopez, S. J. (2012). Public education in the United States: A nation divided. *Phi Delta Kappan, 94* (1), 9-25.

Bybee, R. W., & Starkweather, K. N. (2006). The twenty-first century workforce: A contemporary challenge for technology education. *The Technology Teacher*, 27-32.

Casner-Lotto, J., & Benner, M. W. (2006). *Are they really ready to work? Employers' perspectives on the basic knowledge and applied skills of new entrants to the 21st century U.S. workforce.* New York: The Conference Board, Inc., Partnership for 21st Century Skills, Corporate Voices for Working Families, & Society for Human Resource Management.

Chickering, A. W., & Gamson, Z. F. (1987). Seven principles for good practice in undergraduate education. *Washington Center News.* Retrieved from http://wwwtemp.lonestar.edu/multimedia/SevenPrinciples.pdf

Common Core State Standards Initiative. (2012). *About the standards*. Retrieved from http://www.corestandards.org/about-the-standards

Conley, D. (2005). *College knowledge: What it really takes for students to succeed and what we can do to get them ready*. San Francisco, CA: Jossey-Bass.

Crockett, L., Jukes, I., & Churches, A. (2011). *Literacy is not enough: 21st century fluencies for the digital age*. Kelowna, British Columbia: The infoSavvy Group.

Daggett, W. R. (2005). *Achieving academic excellence through rigor and relevance*. Rexford, NY: International Center for Leadership in Education.

Darling-Hammond, L., Barron, B., Pearson, P. D., Schoenfeld, A. H., & Stage, E. K. (2008). *Powerful learning: What we know about teaching for understanding.* San Francisco, CA: John Wiley & Sons, Inc.

Dede, C. (2010). Comparing frameworks for 21st century skills. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. 51-75). Bloomington, IN: Solution Tree Press.

deWinter, J. C. F., & Dodou, D. (2010). Five-point Likert items: T test versus Mann-Whitney-Wilcoxon. *Practical Assessment, Research & Evaluation, 15*(11), 1-16.

DuFour, B., & DuFour, R. (2005). *On common ground: The power of professional learning communities*. Bloomington, IN: Solution Tree Press.

Friedman, T. L. (2005). *The world is flat: A brief history of the twenty-first century*. New York: Farrar, Straus, and Girioux.

Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational research: An introduction (8th ed.)*. Boston, MA: Allyn and Bacon.

Gardner, H. (2010). Five minds of the future. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. 9-21). Bloomington, IN: Solution Tree Press.

Gardner-Webb University. (2009). *Gardner-Webb Institutional Review Board policies and procedures manual.* Boiling Springs, NC: Gardner-Webb University.

Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal, 38*(4), 915-945.

Glatthorn, A. A., Boschee, F., & Whitehead, B. M. (2005). *Curriculum leadership: Development and implementation*. Thousand Oaks, CA: Sage Publications.

Goals 2000 Educate America Act, Pub. L. No. 103-227, § 101 (1994).

Goertz, M. E. (2001). Redefining government roles in an era of standards-based reform. *Phi Delta Kappan, 83*, 62-66.

Gusky, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice, 8*(3/4), 381-391.

Hayes-Jacobs, H. H. (2010). *Curriculum 21: Essential education for the changing world*. Alexandria, VA: Association for Supervision and Curriculum Development.

Houle, D., & Cobb, J. (2011). *Shift ED: A call to action for transforming k-12 education*. Thousand Oaks, CA: Corwin Press.

Johnson, M., Buhler, A. G., & Hillman, C. (2010). The library is undead: Information seeking during the zombie apocalypse. *Journal of Library Innovation, 1*(2), 29-43.

Jones, W. P., & Kottler, J. A. (2006). *Understanding research: Becoming a competent and critical consumer*. Upper Saddle River, NJ: Pearson Education, Inc.

Kay, K., & Honey, M. (2006). Establishing the R & D agenda for twenty-first century learning. *New Directions for Youth Development, 110*(2), 63-80.

Kennedy, I. H. (2005). *The Sputnik crisis and America's response* (unpublished master's thesis). University of Central Florida, Orlando, FL.

King, T., & Bannon, E. (2002). *The burden of borrowing: A report on the rising rates of student loan debt*. Washington, DC: State PIRGs' Higher Education Project. Retrieved from http://www.pirg.org/highered/BurdenofBorrowing.pdf

Kumar, R. (1996). *Research methodology: A step-by-step guide for beginners.* Thousand Oaks, CA: Sage Publications.

Littky, D. (2004). *The big picture: Education is everyone's business*. Alexandria, VA: Association of Supervision and Curriculum Development.

Marsh, C. J., & Willis, G. (2007). *Curriculum: Alternative approaches, ongoing issues (4th ed.).* Upper Saddle River, NJ: Pearson Education.

McMillan, J. H. (2012). *Educational research: Fundamentals for the consumer (6th ed.).* Boston, MA: Pearson Education, Inc.

McNeill, M. (2010, July 26). Civil rights groups call for a new federal agenda. *Education Week Online.* Retrieved from http://www.blogs.edweek.org.edweek/campaign-k-12/2010/07civil_rights_groups_call_for_new_federal_education_agenda.html

Moos, D. C., & Honkomp, B. (2011). Adventure learning: Motivating students in a Minnesota middle school. *Journal of Research on Technology in Education, 43*(3), 231-252.

Munson, L. (2011). What students really need to learn. *Educational Leadership, 68*(6), 10-14.

National Center on Education and the Economy. (2007). *Tough choices or tough times: The report on the new commission on the skills of the American workforce*. San Francisco, CA: Jossey-Bass.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: United States Government Printing Office.

National Education Association. (1876). A course of study from primary school to university. *Journal of Addresses and Proceedings of the National Education Association: Session of the Year 1876.* Washington, DC: National Education Association.

National Education Association, Commission on the Reorganization of Secondary Education. (1918). *Cardinal principles of secondary education: A report*. Washington, DC: United States Government Printing Office.

No Child Left Behind Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002).

Ornstein, A. C., & Hunkins, F. P. (2009). *Curriculum: Foundations, principles and issues (5th ed.).* Boston, MA: Pearson Education, Inc.

O'Sullivan, M. K., & Dallas, K. D. (2010). A collaborative approach to implementing 21st century skills in a high school senior research class. *Education Libraries, 33*(1), 3-9.

Pacific Policy Research Center. (2010). *21st century skills for students and teachers*. Honolulu: Kamehameha Schools, Research and Evaluation Division.

Partnership for 21st Century Skills. (2007). *Building 21st century skills.* Tucson, AZ: Author. Retrieved from http://www.p21.org/route21/index.php

Partnership for 21st Century Skills. (2009). *P21 framework definitions.* Tucson, AZ: Author. Retrieved from http://www.p21.org/storage/documents/P21_Framework_Definitions.dic.pdf

Pietka, B. (2007). *Educating the net generation: How to engage students in the 21st century*. Santa Monica, CA: Santa Monica Press.

Pink, D. H. (2006). *A whole new mind: Why right-brainers will rule the future*. New York: Riverhead.

Prensky, M. (2010). *Teaching digital natives: Partnering for real learning*. Thousand Oaks, CA: Corwin Press.

Ravitch, D. (2010). *Obama's Race to the Top will not improve education.* Retrieved from http://www.huffingtonpost.com/diane-ravitch/obama's-race-to-the-top-will-not-improve-education_666598.html

Ravitz, J., Hixson, N., English, M., & Mergendoller, J. (2012). *Using project based learning to teach 21st century skills: Findings from a statewide initiative.* Paper presented at Annual Meetings of the American Educational Research Association. Vancouver, BC. April 16, 2012. Retrieved from http://www.bie.org/research/study/ PBL_21CS_WV

Serrano, K. (2012, June 23). Massive college debt can burden graduates for decades. *USA Today*. Retrieved from http://usatoday30.usatoday.com/news/education/story/2012-06-24/college-debt-burdens-graduates

Silva, E. (2009). Measuring skills for 21st-century learning. *Phi Delta Kappan, 90*(9), 630-634.

Tanner, D., & Tanner, L. N. (1990). *History of the school curriculum*. New York: Macmillan.

Taylor, M. C. (2010). *Crisis on campus: A bold plan for reforming our colleges and universities.* New York: Knopf.

Tompor, S. (2010, September 10). Student loan debt exceeds credit card debt in USA. *USA Today*. Retrieved from http://usatoday30.usatoday.com/money/perfi/college/2010-09-10-student-loan-debt_N.htm

Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times.* San Francisco, CA: Jossey-Bass.

Tucker, M. (2007). Making tough choices. *Phi Delta Kappan, 88*(10), 728-732.

Wagner, T. (2008). *The global achievement gap: Why even our best schools don't teach the new survival skills our children need – and what we can do about it*. New York: Basic Books.

Webb, L. D., Metha, A., & Jordan, K. F. (2010). *Foundations of American education (6th ed.)*. Boston, MA: Pearson Education, Inc.

Wholey, J. S., Hatry, H. P., & Newcomer, K. E. (2010). *Handbook of practical program evaluation*. San Francisco, CA: Jossey-Bass.

Wiles, J. (2005). *Curriculum essentials: A resource for educators (2nd ed.)*. Boston, MA: Allyn and Bacon.

Appendix A

21st Century Skills Survey

21st Century Skills Research Survey

Section I: In section one, please mark the response to each question that best describes you.

1. Through which program are you enrolled or primarily assigned to teach?
   _____ Traditional Undergraduate
   _____ Center for Professional Advancement (Adult Studies)
   _____ Graduate School

2. At what stage are you in your program or college teaching career?
   _____ just beginning (less than ¼ of the way)
   _____ almost half-way (between ¼ and ½ of the way)
   _____ more than half-way (between ½ and ¾ of the way)
   _____ close to completion (between ¾ and graduation)

3. Which major or program of study are you pursuing or primarily assigned to teach?
   _____ Accounting
   _____ Biology
   _____ Business Administration
   _____ Chemistry
   _____ Communication
   _____ Comprehensive Science Education
   _____ Computer Information Systems
   _____ Criminal Justice
   _____ Elementary Education
   _____ English
   _____ Environmental Science
   _____ Exercise Science
   _____ Financial Fraud/Fraud Examination
   _____ Health Administration
   _____ Health and Physical Education
   _____ History
   _____ Human Relations
   _____ Human Services
   _____ Interdisciplinary Studies
   _____ Mathematics
   _____ Music
   _____ Nursing
   _____ Political Science
   _____ Pre-Medical
   _____ Psychology
   _____ Religion and Practical Theology
   _____ Social Studies
   _____ Special Education
   _____ Sports Management
   _____ Studio Art
   _____ Master of Business Administration
   _____ Master of Health Administration
   _____ Master of Science in Leadership
   _____ MBA/MHA
   _____ MBA/MSL
   _____ MHA/MSL
   _____ Master of Marriage & Family Therapy
   _____ Master of Arts in Practical Theology
   _____ MAT – Elementary Education
   _____ MAT – Special Education
   _____ Master of Science – Elementary Ed.

4. What is your gender?
   _____ female
   _____ male

5. Which of the following best describes your ethnicity?
   _____ African-American or Black
   _____ American Indian
   _____ Asian or Pacific Islander
   _____ Caucasian
   _____ Hispanic
   _____ Multi-Racial
   _____ Other

6. Which best describes you?
   _____ I am a student.
   _____ I am a faculty member.

Section II: In section two, you are asked to think about or focus on student learning of ACADEMIC CONTENT in your program of study or primary teaching assignment.

1. Please estimate how many students in your program of study…

		very few	some	most	nearly all
a.	have learned what they will need to know to do well on standardized tests.				
b.	can supply and transfer what they have learned to new tasks and situations.				
c.	feel that what they learned was personally relevant.				
d.	are motivated to learn more about the subjects they studied.				

2. For your program, how many HOURS PER WEEK does the average student spend working OUTSIDE OF CLASS – doing homework, completing assignments, or studying?

__ less than one hour per week
__ 1 – 2 hours
__ 3 – 5 hours
__ 6 – 9 hours
__ 10 or more hours

Section III: Here are some examples of practices that may help students learn CRITICAL THINKING SKILLS.

3. In your program of study, how often are students asked to do the following?

		almost never	a few times a semester	1-3 times per month	1-3 times per week	almost daily
a.	compare information from different sources before completing a task or assignment					
b.	draw their own conclusions based on analysis of numbers, facts, or relevant information					
c.	summarize or create their own interpretation of what they have read or been taught					
d.	analyze competing arguments, perspectives, or solutions to a problem					
e.	develop a persuasive argument based on supporting evidence or reasoning					
f.	try to solve complex problems or answer questions that have no single correct solution or answer					

Section IV: Here are some examples of practices that may help students learn COLLABORATION SKILLS.

4. In your program of study, how often are students asked to do the following?

		almost never	a few times a semester	1-3 times per month	1-3 times per week	almost daily
a.	work in pairs or small groups to complete a task together					
b.	work with other students to set goals and create a plan for their teams					
c.	create joint products using contributions from each student					
d.	present their group work to the class, teacher, or others					
e.	work as a team to incorporate feedback on group tasks or products					
f.	give feedback to peers or assess other students' work					

Section V: Here are some examples of practices that may help students learn COMMUNICATION SKILLS.

5. In your program of study, how often are students asked to do the following?

		almost never	a few times a semester	1-3 times per month	1-3 times per week	almost daily
a.	structure data for use in written products or oral presentations (e.g., creating charts, tables, graphs)					
b.	convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.)					
c.	prepare and deliver an oral presentation to the teacher or others					
d.	answer questions in front of an audience					
e.	decide how they will present their work or demonstrate their learning					

Section VI: Here are some examples of practices that may help students learn CREATIVITY AND INNOVATION SKILLS.

6. In your program of study, how often are students asked to do the following?

		almost never	a few times a semester	1-3 times per month	1-3 times per week	almost daily
a.	use idea creation techniques such as brainstorming or concept mapping					
b.	generate their own ideas about how to confront a problem or question					
c.	test out different ideas and work to improve them					
d.	invent a solution to a complex, open-ended question or problem					
e.	create an original product or performance to express their ideas					

Section VII: Here are some examples of practices that may help students learn SELF DIRECTION SKILLS.

7. In your program of study, how often are students asked to do the following?

		almost never	a few times a semester	1-3 times per month	1-3 times per week	almost daily
a.	take initiative when confronted with a difficult problem or question					
b.	choose their own topics of learning or questions to pursue					
c.	plan the steps they will take to accomplish a complex task					
d.	choose for themselves what examples to study or resources to use					
e.	monitor their own progress towards completion of a complex task and modify their work accordingly					
f.	use specific criteria to assess the quality of their work before it is completed					
g.	use peer, teacher, or expert feedback to revise their work					

Section VIII: Here are some examples of practices that may help students learn to make GLOBAL CONNECTIONS.

8. In your program of study, how often are students asked to do the following?

		almost never	a few times a semester	1-3 times per month	1-3 times per week	almost daily
a.	study information about other countries or cultures					
b.	use information or ideas that come from people in other countries or cultures					
c.	discuss issues related to global interdependency (ex., global environment trends, global market economy)					
d.	understand the life experiences of people in cultures besides their own					
e.	study the geography of distant countries					
f.	reflect on how their own experiences and local issues are connected to global issues					

Section IX: Here are some examples of practices that may help students learn to make LOCAL CONNECTIONS.

9. In your program of study, how often are students asked to do the following?

		almost never	a few times a semester	1-3 times per month	1-3 times per week	almost daily
a.	investigate topics or issues that are relevant to their family or community					
b.	apply what they are learning to local situations, issues, or problems					
c.	talk to one or more members of the community about a class project or activity					
d.	analyze how different stakeholder groups or community members view an issue					
e.	respond to a question or task in a way that weighs the concerns of different community members or groups					

Section X: Here are some examples of practices that may help students learn to USE TECHNOLOGY AS A TOOL FOR LEARNING.

10. In your program of study, how often are students asked to do the following?

		almost never	a few times a semester	1-3 times per month	1-3 times per week	almost daily
a.	use technology or the Internet for self-instruction					
b.	select appropriate technology tools or resources for completing a task					
c.	evaluate the credibility and relevance of online resources					
d.	use technology to analyze information (e.g., databases, spreadsheets, graphic programs, etc.)					
e.	use technology to help them share information (e.g., multimedia presentations, presentation software, blogs, podcasts, etc.)					
f.	use technology to support teamwork or collaboration (e.g., shared work spaces, e-mail exchanges, giving/receiving feedback, etc.)					
g.	use technology to interact directly with experts or members of local/global communities					
h.	use technology to keep track of their work					

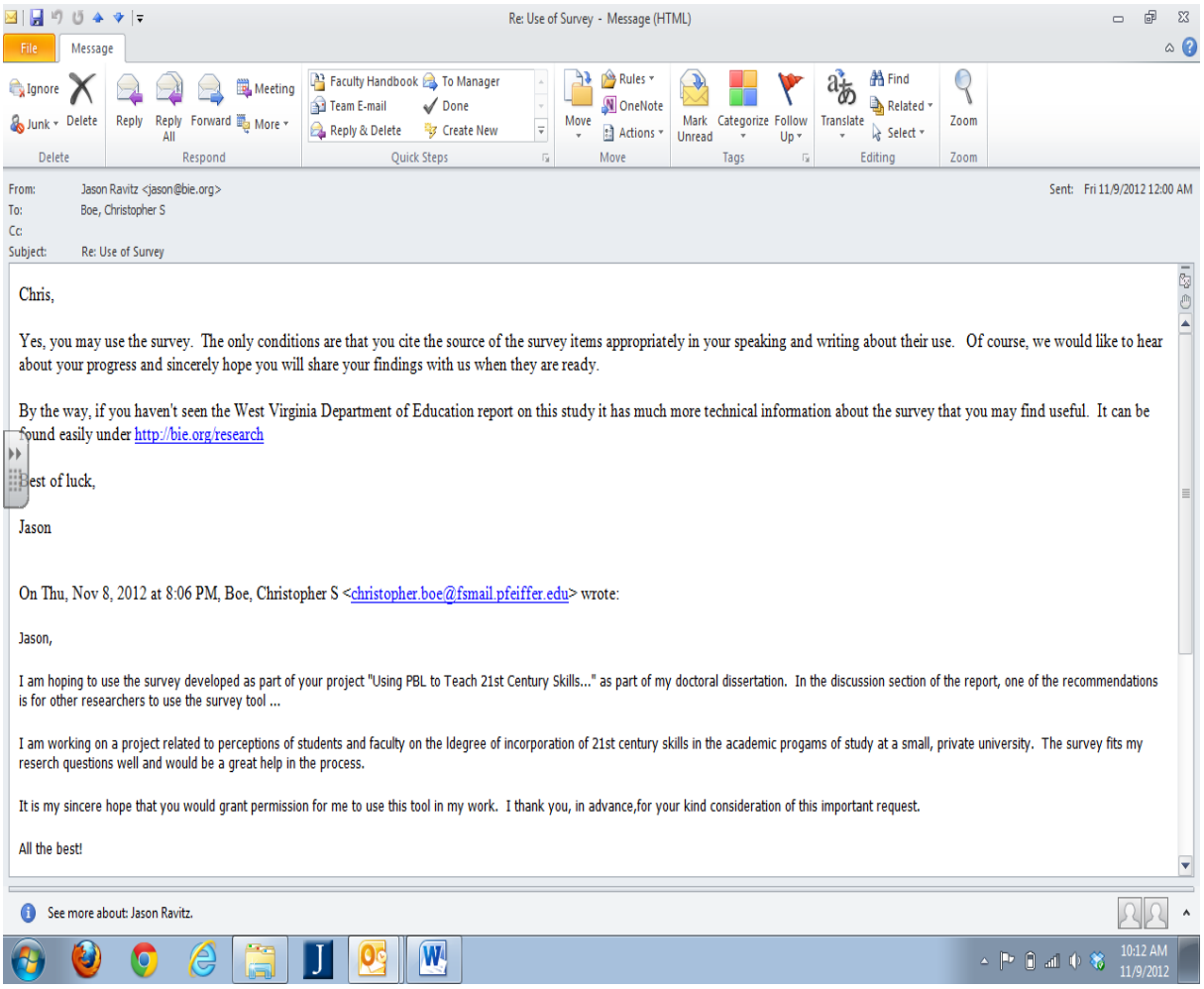
	on extended tasks or assignments					

(Ravitz, J., Hixson, N., English, M., & Mergendoller, J., 2012)

Permission by the survey's authors has been granted for its use in this context.

Appendix B

Permission for Use Survey Instrument



Re: Use of Survey - Message (HTML)

File | Message

Ignore | Junk | Delete | Reply | Reply All | Forward | Meeting | More | Delete | Respond

Faculty Handbook | To Manager | Team E-mail | Done | Reply & Delete | Create New | Quick Steps

Move | Rules | OneNote | Actions | Move

Mark Unread | Categorize | Follow Up | Tags

Translate | Find | Related | Select | Editing

Zoom | Zoom

From: Jason Ravitz <jason@bie.org>
To: Boe, Christopher S
Cc:
Subject: Re: Use of Survey

Sent: Fri 11/9/2012 12:00 AM

Chris,

Yes, you may use the survey. The only conditions are that you cite the source of the survey items appropriately in your speaking and writing about their use. Of course, we would like to hear about your progress and sincerely hope you will share your findings with us when they are ready.

By the way, if you haven't seen the West Virginia Department of Education report on this study it has much more technical information about the survey that you may find useful. It can be found easily under http://bie.org/research

Best of luck,

Jason

On Thu, Nov 8, 2012 at 8:06 PM, Boe, Christopher S <christopher.boe@fsmail.pfeiffer.edu> wrote:

Jason,

I am hoping to use the survey developed as part of your project "Using PBL to Teach 21st Century Skills..." as part of my doctoral dissertation. In the discussion section of the report, one of the recommendations is for other researchers to use the survey tool ...

I am working on a project related to perceptions of students and faculty on the ldegree of incorporation of 21st century skills in the academic progams of study at a small, private university. The survey fits my reserch questions well and would be a great help in the process.

It is my sincere hope that you would grant permission for me to use this tool in my work. I thank you, in advance,for your kind consideration of this important request.

All the best!

See more about: Jason Ravitz.

10:12 AM
11/9/2012

Appendix C

Collaborative Institutional Training Initiative (CITI) Certificate

CITI Collaborative Institutional Training Initiative

School of Education Research Investigators Curriculum Completion Report
Printed on 11/9/2012
Learner: Christopher Boe (username: [redacted])
Institution: Gardner-Webb University
Contact Information [redacted]

School of Education Research Investigators:

Stage 1. Basic Course Passed on 06/29/12 (Ref # 8168794)

Required Modules	Date Completed	Score
Belmont Report and CITI Course Introduction	06/23/12	3/3 (100%)
Students in Research	06/23/12	9/10 (90%)
History and Ethical Principles – SBR	06/23/12	4/4 (100%)
Defining Research with Human Subjects - SBR	06/29/12	5/5 (100%)
The Regulations and The Social and Behavioral Sciences - SBR	06/29/12	5/5 (100%)
Assessing Risk in Social and Behavioral Sciences - SBR	06/29/12	5/5 (100%)
Informed Consent – SBR	06/29/12	5/5 (100%)
Privacy and Confidentiality – SBR	06/29/12	5/5 (100%)
International Research – SBR	06/29/12	3/3 (100%)
Internet Research – SBR	06/29/12	4/4 (100%)
Research with Prisoners – SBR	06/29/12	4/4 (100%)
Research with Children – SBR	06/29/12	4/4 (100%)
Research in Public Elementary and Secondary Schools – SBR	06/29/12	4/4 (100%)
Research and HIPAA Privacy Protections	06/29/12	4/5 (80%)
Vulnerable Subjects - Research Involving Workers/Employees	06/29/12	4/4 (100%)
Conflicts of Interest in Research Involving Human Subjects	06/29/12	5/5 (100%)
Gardner-Webb University	06/29/12	no quiz

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI participating institution. Falsified information and unauthorized use of the CITI course site is unethical, and may be considered scientific misconduct by your institution.
Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Course Coordinator

Appendix D

Gardner-Webb Institutional Research Board Application

Gardner-Webb University
Institutional Review Board
Application to Conduct Research with Human Subjects

(Researcher must complete this form before request can be submitted to IRB)

Name of Researcher:	**Christopher Scott Boe**	*Date:*	**11-06-2012**

GWU ID#:	[redacted]	*Email Address:*	**cboe@gardner-webb.edu**

Mailing Address:	[redacted]

Phone:	[redacted]

Department:	**School of Education; Ed.D.; Curriculum and Instruction**

Faculty Sponsor (if student research):	**Dr. C. Steven Bingham**

Title of the Project:	**Have 21st Century Skills Made their Way to the University Classroom? A Study to Examine the Extent to which 21st Century Skills are being Incorporated into the Academic Programs at a Small, Private, Church-related University**

What is your hypothesis/research question(s)?	**The research questions that will be explored and examined through this research initiative are:** 1. **What are the perceptions of students and faculty in terms of the extent to which critical thinking skills have been incorporated into the overall academic program at the university being studied?** 2. **What are the perceptions of students and faculty in terms of the extent to which collaboration skills have been incorporated into the overall academic program at the university being studied?** 3. **What are the perceptions of students and faculty in terms of the extent to which communication skills have been incorporated into the overall academic program at the university being studied?** 4. **What are the perceptions of students and faculty in terms of the extent to which creativity and innovation skills have been incorporated into the overall academic program at the university being studied?** 5. **What are the perceptions of students and faculty in terms of the extent to which self-direction skills have been incorporated into the overall academic program at the university being studied?** 6. **What are the perceptions of students and faculty in terms of**

	the extent to which global connections have been incorporated into the overall academic program at the university being studied? 7. **What are the perceptions of students and faculty in terms of the extent to which local connections have been incorporated into the overall academic program at the university being studied?** 8. **What are the perceptions of students and faculty in terms of the extent to which using technology as a tool has been incorporated into the overall academic program at the university being studied?**

How many subjects do you expect to use, and how will you obtain this sample (describe population)?	**Two thousand fifty-two students will be invited to participate in the research study. Six hundred eighty traditional undergraduate students, 274 students enrolled in the adult degree completion program, and 1098 graduate students will be will be asked to complete the survey instrument measuring their perceptions on the extent to which eight distinct sets of 21st century skills have been incorporated into the overall academic program at the university in which they are enrolled as students.** **Additionally, full-time, part-time, and adjunct faculty members who have taught courses at the University during the 2010-2011, 2011-2012, or current (2012-2013) academic years will be contacted to participate in the study. One hundred four full-time faculty representing both undergraduate and graduate programs and 37 part-time and adjunct instructors will be asked to complete the survey instrument measuring their perceptions on the incorporation of these skills in the overall academic program at the university where they study is taking place.**

What is your research methodology? *Attach any surveys, instruments, or tests to this form with the appropriate references.*	**This research study has been designed to explore eight questions. It is a quantitative study that employs a non-experimental research design in that it seeks to describe "participants, traits, scores, and other characteristics without direct or active intervention" (McMillan, 2012, p. 175). This design was chosen in an effort to "investigate the current…status of something" (p. 176). Within this design, the researcher will primarily employ descriptive design components. Some comparative components will be introduced.** **McMillan (2012) delineates the several sub-types of non-experimental research. For this study, the researcher will employ survey research that incorporates both descriptive as well as comparative design components. These will be used to provide a "description of a phenomenon" and to "compare values of two or more levels of an independent variable" (p. 176).**

Describe the research	**Once all of the approvals and permissions have been received for**

procedure. Attach a copy of the consent form and a copy of the debriefing statement. Describe how and when these will be used.	**this project, the researcher will request the names and electronic mail (e-mail) contact information for the students and faculty who have been identified to participate in the research study. Distribution lists will be developed for ease in communication with the participants throughout the study and for the communication of results at the conclusion of the process.** **The researcher will prepare the surveys for electronic distribution. Once the surveys have been prepared and tested to ensure that responses will be captured accurately, the researcher will distribute the survey to student participant distribution list. "One of the most serious limitations of survey research is a low response rate (McMillan, 2012, p. 198)." To increase response rates, McMillan (2012) suggests using several contacts with the participants including reminders and reissuing the survey. Likewise, he suggests that the researcher clearly articulate the benefits of participation in the survey. Taking these ideas into account, the researcher will follow up with participants after six days thanking those who have responded for completing the survey and reminding those who have not of the value of participation and encouraging them to complete the survey. A similar notice will be sent after another six days.** **Once the student process is complete, the researcher will begin the distribution process for the faculty. With this process, an additional step of making an announcement at a university-wide faculty meeting will be included. Immediately following the announcement, the survey will be distributed electronically to all of the identified faculty members. Again, just like in the student process, to increase participation, a thank you and reminder will be issued after six days. A final thank you and reminder notice will be issued to the faculty participants after another six days.** **At the conclusion of the data gathering portion of the study, all of the data will be loaded into the Statistical Package for the Social Sciences (SPSS) for analysis. Descriptive statistics will be run to describe the phenomenon being studied (McMillan, 2012). Since the data being collected falls under the category of Likert-type data, Chi-square statistics will be run to compare or determine differences between the practices and perceptions reported by the two groups of participants (Boone & Boone, 2012). Findings related to the eight established research questions will be reported in the results section of this paper. After the final defense of the dissertation, the researcher will make the results of the study available to all of the participants**.

Does this research pose risk to the subject? If so, what	**The proposed research does not pose risk to the subjects taking part. The survey collection is strictly confidential and data will only be reported in general categories where individual responses cannot be**

protocol will be enacted to protect the subject?	**determined. This process ensures anonymity of respondents.**

Does this research involve deception of any kind?	**No deception will be employed as part of this research study.**

Will any incentives be used?	**No incentives will be utilized as part of this research study.**

How will you protect the subject's right NOT to participate in your research?	**Because the subjects will voluntarily complete surveys and will receive them electronically, they will have the right to opt out of participating. Other than the two reminders that all participants will receive, no subjects will receive additional reminders or requests to participate.**

How will you protect the subject's confidentiality of results?	**All data collected in the study will be maintained securely by the researcher and only be made available, upon request, to members of his dissertation committee. Likewise, results will be reported in aggregated formats, not linked in any way to individual respondents, to ensure anonymity.**

How, when, and where will the research results be reported?	**The results of the research will be reported in the dissertation defense in February 2013 at Gardner-Webb University and in the published dissertation in the library and in the ProQuest version. The researcher will also make the results available at the university where the research was conducted in April 2013.**

If this changes, be sure to contact the IRB with an update. If, for example, a faculty member publishes research results, he/she should forward this information to the IRB.

When do you anticipate completing this research?	**The research will be completed and defended prior to February 22, 2013, per the deadline for May 2013 graduation.**

Signatures: (Hand-written signatures are required for IRB submission.)

Researcher:		*Date:*	28 November 2012
Print Above Name:	**Christopher S. Boe**		

Faculty Research Advisor, please note: In signing this document, you verify that you have reviewed the protocol and approve of the procedures described therein. You also have verified that the Student Researcher is currently IRB certified. Also, in order to act as the Faculty Research Advisor for this student, you must complete the IRB Certification Training. Training is valid for three years.

Faculty Sponsor:		*Date:*	28 November 2012

Print Above Name:	**C. Steven Bingham, Ed.D.**

Required attachments:

- Copy of Informed Consent Form
- Copy of Instruments, Surveys, Tests, and Interview Questions
- Permission to use published instruments (if applicable)
- Signed external IRB Approval Form (if required)
- Evidence of CITI Certification

Please submit only signed documents to the IRB.

THE INSTITUTIONAL REVIEW BOARD
of
GARDNER-WEBB UNIVERSITY

This is to certify that the research project titled
Have 21st Century Skills made their Way to the University Classroom? A Study to Examine the Extent to which 21st Century Skills are being Incorporated into the Academic Programs at a small, Private, Church-related University
being conducted by Christopher Boe
has received approval by the Gardner-Webb University IRB. Date 11/29/12

Exempt Research

Signed _____
Department/School/Program IRB Representative

_____
Department/School/Program IRB Member

Expedited Research

Signed _____
Department/School/Program IRB Representative

_____
Department/School/Program IRB Member

_____
IRB Administrator or Chair or Institutional Office

Non-Exempt (Full Review)

Signed _____
IRB Administrator

_____
IRB Chair

_____
IRB Institutional Officer

Expiration Date _____

IRB Approval:

✓ Exempt ___ Expedited ___ Non-Exempt (Full Review)

Revised 3/10

Appendix E

Consent Statement for Electronic Survey

Consent Statement for Electronic Survey

My name is Christopher Boe. I am presently conducting research in fulfillment of the requirements for a doctor of education degree in the field of curriculum and instruction through Gardner-Webb University. The project in which you are being asked to participate has been approved by my dissertation committee and the Institutional Review Board at the university.

It is my hope that you will participate in this project by sharing your perceptions of 21st century skills integration in the academic program of study in which you are enrolled or are teaching. Your opinions are important to the success of the study.

On the survey, you will be asked some general questions about yourself. Upon completion of this component, you will be asked to rate the number of times students in your program have been asked to engage in a variety of learning tasks. The survey is designed to take less than 15 minutes to complete.

Please answer each question as honestly and accurately as possible. The answers you submit are completely confidential. Data will be reported in aggregate form only with no identification of individuals.

If you choose not to participate, please disregard this e-mail and delete it from your mailbox.

If you have any questions, please contact me at cboe@carolina.rr.com or the chair of my dissertation committee at cbingham@gardner-webb.edu

Please accept my most sincere appreciation, in advance, for your cooperation and timely participation in this research study.

Click on the link below to begin your survey:

INSERT WEB ADDRESS HERE…

Sincerely,

Christopher S. Boe

Appendix F

Debriefing Statement for Electronic Survey

Debriefing Statement for Electronic Survey

Thank you for participating in this research study to evaluate the extent to which 21st century skills are being integrated into the academic programs at the university level. The responses you provided are completely confidential. Data from this study will be reported in aggregate form only with no identification of individuals.

Upon completion of the study, the results will be made available to all participants. I anticipate that the results will be available in late spring 2013. An email message will be sent to you informing you of the formats in which you can review the study's findings.

If you have any questions, please contact me at cboe@carolina.rr.com or the chair of my dissertation committee at cbingham@gardner-webb.edu

Again, thank you for taking time to participate in this important work. I am very appreciative of your efforts!

Sincerely,

Christopher S. Boe

Appendix G

Six Day Reminder E-mail

Six Day Reminder E-mail

Last week, you received a request to complete a survey as part of a research study investigating student and faculty perceptions on 21st century skills integration in academic programs of study at the university level. If you completed the survey, thank you very much! If you did not, I hope you will take a few minutes today to do so. Your input is of great value to this research effort.

Please be assured that your responses are completely confidential and that the data will be reported in aggregate form with no identification of individuals. To access the survey, click on the link below or cut and paste it into your web browser.

INSERT WEB ADDRESS FOR SURVEY HERE…

I am most appreciative of your participation in this research effort. If you have any questions, please feel free to contact me at cboe@carolina.rr.com

Thank you for your participation in this important data collection endeavor. Your input will make a difference.

Sincerely,

Christopher S. Boe

Appendix H

Twelve Day Reminder E-mail

Twelve Day Reminder E-mail

Approximately two weeks ago I sent you an email requesting your participation in a research study related to 21st century skills integration in the academic programs at the university level. In that email was a link to the survey designed to gather data on your perceptions on this topic.

If you participated in the survey, please accept my sincere thanks. If you did not, please take time to do so now as your opinions are valuable to this research study.

In completing the survey, please know that your responses are confidential and that the data will used in aggregate so individuals will not be identifiable.

To participate in the survey, please click on the link below or cut and paste it into your web browser:

INSERT WEB ADDRESS HERE…

If you have any questions, please feel free to e-mail me at cboe@carolina.rr.com

Thank you for your active participation in this important research effort. Your input will make a difference!

Sincerely,

Christopher S. Boe