Teacher Preparation: 21st Century Skills and Knowledge Required

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Abstract

Are graduates of teacher preparation programs adequately prepared with the skills and knowledge to teach in the 21st century classroom? This study consisted of a quantitative content analysis to investigate the presence of 21st century knowledge and skills within a stratified random sample of teacher preparation programs in the United States as measured by the 21st Century Learning Framework. Based on the current literature, the researcher identified 21st century competencies: global awareness; digital competencies; critical thinking; collaboration; cross-cultural; communication; and problem solving. For null hypothesis numbers two through eight, the researcher determined how closely the institution's mission statements, course descriptions, syllabi, and other documents corresponded to the quantified 21st century framework. She then calculated the variance and tested the hypotheses using a z-test for a difference in proportion. For null hypothesis number one a z-test for difference in means between the ratings of the public teacher preparation program's sample and the private teacher preparation program's sample was used to determine if there were significant differences. In addition, the data was analyzed to determine if a statistical difference existed between public and private institutions' evidence of 21st century knowledge and skills. The results of the analysis supported the alternate hypothesis, noting evidence of 21st century knowledge and skills within the sample of teacher preparation programs. The analysis also supported the alternate hypotheses; there was evidence of digital literacy and critical thinking competencies in teacher preparation programs. The research did not support the alternate hypotheses related to global awareness, collaborative, cross-cultural, communication, and problem-solving competencies, thus revealing 21st century knowledge and skills were not evident in teacher preparation programs. Public institutions statistically scored higher on digital literacy skills while private institutions scored higher on critical thinking skills. Teacher preparation programs must make programmatic changes to better prepare graduates with the knowledge and skills necessary to effective lead in the 21st century classroom.

Objectives/Purpose

The purpose of this study was to contribute to the existing, yet limited data, regarding United States' teacher preparation programs and the presence of 21st Century Skills and Knowledge within initial teacher preparation programs (Ruettgers, 2013). The researcher's goal was to quantitatively measure the degree to which 21st Century Skills and Knowledge were infused within United States' initial teacher preparation programs (Ruettgers, 2013).

Perspective(s) or theoretical framework

As an educational practitioner, the investigator realized that many novice teachers were joining the educational field, unequipped with the necessary 21st century skills and knowledge to be successful in the classroom (Ruettgers, 2013). During Rodney Paige's term as the United States' Secretary of Education, he shared with policymakers, that teacher preparation program coursework did not improve student achievement, which inferred that United States' teacher preparation programs were indeed, ineffective (as cited in U.S. Department of Education, 2002). Furthermore, Arthur Levine (2006) conducted research to determine education preparation program effectiveness and noted that over half of the teacher preparation program graduates perceived themselves unprepared to teach in the 21st century classroom. To reiterate, the U.S. Secretary of Education, Arne Duncan, acknowledged the situation: "New teachers want to do a great job for their kids, but often they struggle at the beginning of their careers and have to figure out too much for themselves. Teachers deserve better, and our students do too" (Duncan as cited in U.S. Department of Education, 2014).

According to Watlington, Shockley, Guglielmino, & Felsher (2010) and Fallon (2006), teacher preparation programs must improve to ensure teacher quality; furthermore, Fallon (2006) believed the path to educational reform and improvement is through the current teacher preparation programs. After all, the youth of America needs to retain effective teachers that have the skills and knowledge to increase student achievement. The National Council for Accreditation of Teacher Education (NCATE) (2014) also believed "every student deserves a caring, competent, and highly qualified teacher" (para. 2). Levine (2006), Darling-Hammond (2011), and Fallon (2006) all agreed that changes must be made to improve teacher preparation programs; however, Fallon (2006) admitted that other avenues of educational improvement should also be explored. According to the U.S. Department of Education (n.d.), "Recruiting, preparing, developing and supporting great teachers has a direct impact on the learning and success of America's students . . . the most important school factor in a student's success is a strong teacher, and excellent teachers are especially important for our neediest students" (p. 1).

Ruettgers (2013) noted a plethora of professionals and organizations calling for America's students to possess 21st Century skills and knowledge, but found little research on the necessity of teacher preparation programs to equip future teachers with the 21st century skills and knowledge they will be expected to teach in the classroom.

Moreover she found numerous studies that stated teachers were unprepared to teach in the 21st century classroom since they did not possess those 21st century competencies themselves (Ruettgers, 2013).

Wise (2008) agreed with the need to retain effective educators, but he also supported the recruitment of effective classroom leaders. Furthermore, Wise (2008) encouraged teacher preparation programs to offer teacher candidates opportunities to garner experience in schools that serve students of poverty. If society wants more effective teachers, higher education institutions must address yet another educational concern: teacher attrition. About half of beginning teachers leave the profession completely. This is problematic because the students deserve and need the most effective teachers to remain in the classrooms, yet many explore other options (Ingersoll & Smith, 2003).

Just as time brings change, the required skills and knowledge to be successful also changes. While some skills and knowledge become esteemed, others become outdated and menial (Zhao, 2009). Every teacher should have both subject and pedagogical knowledge (Council for the Accreditation of Educator Preparation, 2013a; Cibulka, 2008) and all children deserve a knowledgeable, effective teacher (Cibulka, 2008; Darling-Hammond, 2009; NCATE, 2014).

Educational practitioners concurred that they must equip their students with the necessary skill and knowledge base for students to compete globally; however, obscurities in defining 21st skills and knowledge has proven the task perplexing (November, 2010; Sawchuk, 2009a). Educators identify 21st century skills and knowledge with The Partnership for 21st Century Skills (P21) (Partnership for 21st Century Skills, 2004b; Davis-Powell, 2015; Sawchuk, 2009b) a key advocacy group that promotes educational change (Burden & Byrd, 2013; Davis-Powell, 2015). The Partnership for 21st Century Skills (2010) recommended that workers have a core subject knowledge base, as well as, the ability to communicate, collaborate, problem solve, and think critically. Likewise, Burden and Byrd (2013) referenced 21st century skills as fundamental proficiencies that include problem solving, communication, collaboration, and digital technology. Regan (2008) and Stevens (2011) both supported the necessity of 21st century students possessing the ability to utilize technology to effectively create, communicate, collaborate, and problem solve; after all, these are all necessary skills students need to demonstrate and compete in global markets.

The Council for the Accreditation of Educator Preparation (CAEP, 2013a) supports the integration of technology and the development of digital learning. Davis-Powell (2015) also noted the necessity for educators to demonstrate global awareness, in addition to cross-cultural awareness. CAEP (2013a) also acknowledged the ever-increasing diversity of the student population. Proponents of the teaching of 21st century skills strongly believe these are fundamental competencies students must demonstrate to be successful in the global marketplace; therefore, educational systems must provide meaningful learning opportunities and curriculum that require students to develop these skills and knowledge (Burden & Byrd, 2013). Davis-Powell (2015) noted the need for critical thinking and problem solving; however, "Teaching critical thinking and problem

solving is not an addition to the curriculum but rather a way of approaching the knowledge and skills we teach" (p.137). Furthermore, Senechal (2010) adamantly supported the need for change, as students must be prepared for the evolving workplace. In agreement with Senechal (2010), Long & Holeton, (2009) believed educational reform is imperative; if students are going to be able to compete in the global workforce, they must learn curricula that will provide meaningful opportunities to develop the essential knowledge and skills (Burden & Byrd, 2013; Long & Holeton, 2009; Senechal, 2010). According to the Council on Competitiveness (2009), the United States' educational systems must provide educational learning opportunities "to match the 21st century job opportunities, requirements, and needs" (p. 1).

Methods, techniques, or modes of inquiry:

In search of clarification, Ruettgers read multiple sources to define 21st century skills and knowledge. With the information garnered, she created a rubric, which clearly identified "the necessary 21st century skills and knowledge a teacher preparation program should include: global awareness, digital competencies, critical thinking competencies, collaborative competencies, cross-cultural competencies, communication competencies, and problem solving competencies" (Ruettgers, 2013, p. 91). Ruettgers adapted Leavitt and Kania-Gosche's (2011) *Rubric for Ed.D. Program Integration of Global Competency* to create the 21st Century Learning Framework, used as a scoring guide for each competency (Ruettgers, 2013). During the creation of the 21st Century Learning Framework, Ruettgers consulted with Lindenwood University Education Professors, William Emrick, Jill Hutcheson, and Lynda Leavitt. They offered recommendations to increase reliability by revising the scoring guide (Ruettgers, 2013). After generating specific categories and descriptors for each 21st century competency, Ruettgers created a numerical point value, ranging from two to eight points, for each category and descriptor (Ruettgers, 2013). "Points were assigned accordingly: "little or no evidence of the competency" two points; "emerging evidence of the competency" four points; "implementation of competency" six points, and "full integration" eight points." (Ruettgers, 2013, p. 92). The range of 2-8 points was utilized to illustrate discrepancies among scores related to the competencies (Wisdom, 2011). To clarify, the teacher preparation program with the lowest total points reflected the programs that showed the least evidence of 21st century competencies; whereas, the program with the highest total points reflected programs that showed the most evidence of the 21st century competencies (Ruettgers, 2013).

A null hypothesis was created to test for evidence of 21st century knowledge and skills within elementary teacher education programs, as well as, one hypothesis for each 21st century competency. For example, "Null hypothesis ($H_0 2$): There is no evidence of global awareness knowledge and skills within elementary teacher education programs in the U.S. as measured by a numerically-scaled comparison to characteristics and standards represented in the 21st Century Learning Framework" (Ruettgers, 2013, p. 92).

Ruettgers (2013) "completed a quantitative content analysis to investigate the presence of 21st century knowledge and skills within a stratified random sample of NCATE accredited teacher preparation programs in the U.S. as measured by the 21st Century Learning Framework" (p. 8). Ruettgers used the National Council for Accreditation of Teacher Education's website to obtain a list of all NCATE accredited elementary education teacher education programs in the United States and in United States' territories, which was 664 institutions at the time the research was conducted (Ruettgers, 2013). Educational institutions located in the U.S. territories, such as Guam and Puerto Rico were eliminated (Ruettgers, 2013), thus creating a population of 654 institutions; however, institutions in all 50 states and the District of Columbia were included in the population (National Council for Accreditation of Teacher Education, 2010b). Since the investigator successfully completed an NCATE accredited elementary teacher preparation program, she minimized bias with the removal of her alma mater, which decreased the study population to 653 teacher preparation programs (Ruettgers, 2013). To eradicate potential bias, increase data generalizability, and guarantee the sample indeed represented the population, the researcher used the stratified random sampling method (Colorado State University, 2012; Fraenkel, Wallen, & Hyun, 2009).

The researcher used a 21st Century Learning Framework focused on one specific 21st century skill or knowledge base: global awareness, digital competencies, critical thinking competencies, collaborative competencies, cross-cultural competencies, communication competencies, and problem solving competencies. She included three categories to evaluate: mission statement; course title and descriptions; and course objectives and syllabi. The categories were aligned horizontally and the degree to which the skill was embedded in the program vertically. Once again the researcher assigned point values, which corresponded with the descriptors, logging the level to which the competency was present (Ruettgers, 2013).

Data Collection and Analysis Procedures

Ruettgers began the data collection process December 26, 2011, and concluded June 10, 2012. Once she determined the final research population (653 institutions), she used Kuder Navigator and institution's websites to classify each institution into strata: public and private institutions. When neither Kuder Navigator nor the institution website provided the necessary information to determine if the institution was public or private, the researcher contacted the institution via telephone to garner that information to ensure placement into the correct strata. Immediately after all 653 institutions were classified as public or private, the researcher created the research sample by using an electronic randomizer. Utilizing random selection, the researcher selected 80 private teacher preparation programs and 80 public programs, making the study sample 160 institutions (Ruettgers, 2013).

To aid in the organization of data collection, the researcher created sample forms: one private and one public. Both forms included the following information: a list of institution

names, web address, physical address, name of the College of Education and Human Services Dean, and his/her email address. All information was obtained using the institution's website, calling the institution, or emailing the institution. Once the researcher collected all the contact information, she coded each institution. For example, she used a letter/number system, such as PI1 (private university, 1); PB (public university 2). Ruettgers then added the codes to the sample forms. Upon completion a letter of request was sent to each teacher preparation program leader, such as the deans or department chairs (Ruettgers, 2013); "the letter of request . . . included identification information, the purpose for the research, an explanation of the research, a basic overview of the methodology, the information requested, and multiple means to contact the researcher" (Ruettgers, 2013, p. 96).

The researcher then composed a sample response form, which included the institution code, name, and whether the institution had accepted or declined the information request. According to Ruettgers (2013), she then collected information from each teacher preparation program by reviewing "materials through the following formats: program websites, public materials . . . and materials received through email and mail directly from the university and faculty who teach in the education pre-service programs" (p. 97). The researcher began collecting information by using the 21st Century Skills Framework to evaluate the College of Education and Human Services' mission statement and the College of Education and Human Services' goals. An evaluation of the program descriptions, required course titles and those specific course descriptions, as well as, program catalogs, course objectives, and syllabi over an extended period of time (Ruettgers, 2013).

During the sample evaluation process, Ruettgers observed that five institutions, four private and one public, did not provide adequate teacher preparation program information; therefore, those programs were not evaluated and were later excluded from the data collection process, thus reducing the research sample to 155 institutions: 76 private and 79 public. Once the researcher collected all the institutional data, she recorded each institution's scores in an Excel document and grouped each institution's competency scores with each area evaluated: global competencies, digital competencies, critical thinking competencies, collaborative competencies, cross-cultural competencies, communication competencies, and problem solving competencies (Ruettgers, 2013). She then randomly selected 90 institutions: 45 private and 45 public institutions "to test the hypotheses as a means to increase the generalizability of the conclusions to the whole population . . . and to reduce the inclusion of anomalies in the data" (Ruettgers, 2013, p. 99). Ruettgers then recorded and analyzed the quantitative data to ascertain the degree to which each program illustrated evidence of 21st century competencies (2013).

Since the two samples were indeed "independent of each other" (Bluman, 2010, p. 469), Ruettgers chose to use a z-test for difference in means between the ratings of the public teacher preparation program's sample and the private teacher preparation program's sample to test null hypothesis number one (Ruettgers, 2013). After examining the data, the researcher determined if a discrepancy existed between public

and private teacher preparation programs' evidence of 21st century knowledge and skills.

"For null hypothesis numbers two through eight, [those relating to each specific competency] the researcher determined how closely the institution's materials corresponded to the quantified 21st Century Framework" (Ruettgers, 2013, p. 99). Since there was no relationship between sample institutions (Bluman, 2010), the researcher "calculated the variance and tested the hypotheses using a z-test for a difference in proportion from the comparison point of 80% for both private and public institutions . . ." (Ruettgers, 2013, p. 99). After speaking with Dr. Yi Huang, NCATE accreditation Vice President, a decision was made to use 80 percent as the minimum percentage because Huang shared that many states required at least an 80 percent minimum licensure examination completion (Huang, 2011).

Results and/or substantiated conclusions or warrants for arguments/point of view

Ruettgers determined the variance for each specific competency on top of determining composite scores for each institution's teacher preparation program and to test all eight hypotheses, Ruettgers utilized a two-tailed z-test for the difference of means. The researcher used a 95% confidence level; therefore, the critical values were + 1.96 and - 1.96, and the identified the level of significance was .05 (Ruettgers, 2013).

Ruettgers tested each null hypothesis to determine the presence of evidence of 21st century knowledge and skills within elementary teacher education programs in the United States. To specify, "Null hypothesis ($H_0$1): There is no evidence of 21st century knowledge and skills within elementary teacher education programs in the U.S. as measured by a numerically-scaled comparison to characteristics and standards represented in the 21st Century Learning Framework" (Ruettgers, 2013, p. 101). After utilizing the z-test for difference, Ruettgers determined that the z-test value 1.572 was not included in the critical region (+1.96); she then calculated the p-value (0.1159), using alpha=.05. Based on the s-test results, Ruettgers did not reject the null hypothesis since data did not support the alternate hypothesis (Ruettgers, 2013).

Using the z-test for differences in proportion, each of the null hypotheses, ($H_0$2- $H_0$8), related to the 21st skills and knowledge previously mentioned, global awareness competencies; digital competencies; critical thinking competencies; collaborative competencies; cross-cultural competencies; communication competencies; and problem solving competencies, were tested (Ruettgers, 2013). According to Ruettgers (2013)

the data supported the null hypotheses, noting no difference in 21st century knowledge and skills in all competencies, except digital competency and critical thinking competency. Public institutions statistically scored higher on digital literacy skills while

private institutions scored higher on critical thinking skills . . . The researcher did not reject the null hypotheses concerning evidence of 21st century knowledge and skills ($H_0$1); global awareness ($H_0$2); collaborative competencies ($H_0$5); cross-cultural competencies ($H_0$6); communication competencies ($H_0$7); and problem-solving ($H_0$8). However, the researcher rejected the null hypotheses concerning digital competencies ($H_0$3) and critical thinking ($H_0$4). (p. 109)

Scientific or scholarly significance of the study or work

As a researcher, Ruettgers acknowledged the limitations of her study. She noted that the research population and sample only included National Council for Accreditation of Teacher Education accredited teacher preparation programs located in the United States; therefore, the generalizability of the research results were pertained only to NCATE accredited initial teacher preparation programs in the United States. Furthermore educational programs that were unaccredited or accredited through other organizations were excluded from the population (Ruettgers, 2013). Ruettgers (2013) also acknowledged that she "conducted the entire study using secondary supporting documents that are [were] accessible to the public and thus limited" (p. 10). However, the researcher was aware of the previously stated limitation; therefore, she decided to use a sizable population and random selection to determine the samples. By doing so, the researcher felt the data would indeed increase generalizability. According to Ruettgers (2013) "the samples included teacher preparation programs from different sectors with differences within each sector in regards to geographic regions, student enrollment and demographics in teacher preparation programs, as well as initial elementary teacher preparation program curricula" (p. 10).

While conducting the study, Ruettgers (2013) noted many differences in teacher preparation program requirements, as well as, overall program quality. She also recognized that there was little consistency among state licensure requirements since every state had its own unique set of licensure requirements. State departments of education must hold teacher preparation programs to high standards; it is those higher education institutions that will be preparing the next generation of teachers. These teacher candidates that must be prepared to effectively teach their students the 21st century skills and knowledge necessary to allow them to be competitive in the global workforce (Ruettgers, 2013).

The United States Department of Education did not serve as an accrediting agency since accrediting organizations were private educational organizations that created standards and utilized peer evaluation of programs using a criteria correlated to those standards. However, the U.S. Department of Education published a list of approved accrediting organizations that the Secretary of Education determined as reliable; it also provided the public with access to a public database with information regarding postsecondary accredited institutions (U.S. Department of Education, n.d.). According to Lynch (2015) each state department of education can select an accreditation agency or create their own standards of measurement for evaluating teacher preparation programs for approval. However, The United States Department of Education

distinguished NCATE as an accrediting agency for teacher preparation programs (National Council for Accreditation of Teacher Education n.d.). NCATE consistently strived for ways to improve teacher preparation, so teacher quality also improves (NCATE, n.d.). According to NCATE (n.d.), the agency "works to make a difference in the quality of teaching and teacher preparation today, tomorrow, and for the next century. NCATE's performance-based system of accreditation fosters competent classroom teachers and other educators who work to improve the education of all P-12 students" (par 2). Like NCATE, Teacher Education Accreditation Council (TEAC) served as an accrediting organization, but TEAC only accredited the teacher preparation program, whereas, NCATE accredited the program, school, and university (Lynch, 2015). TEAC granted programs accreditation only after programs were accepted as members of the organization and the organization provided substantial data to prove the teacher preparation program was of the "highest quality" (Lynch, 2015, p. 326). To clarify, teacher preparation programs must meet the standards to earn the title of an accredited program. Teacher preparation programs do not have to be accredited; however, accreditation equates to program credibility (Lynch, 2015). According to the U.S. Department of Education (n.d.), "The goal of accreditation is to ensure that education provided by institutions of higher education meets acceptable levels of quality" (para. 4).

To reiterate the significance of accreditation, one must note that some states will only provide teaching certification to individuals who have successfully completed an accredited teacher preparation program. It is a means to set baseline standards and guarantee the public that those teacher preparation programs have met the standards necessary to produce effective, high-quality teachers for the 21st century classrooms (Lynch, 2015).

On July 1, 2013, the National Council for Accreditation of Teacher Education and the Teacher Education Accreditation Council (TEAC) joined forces to create a new accreditation organization: Council for the Accreditation of Education Preparation (CAEP) (NCATE, 2014), which will focus on "raise [ing] the performance of candidates as practitioners in the nation's P-12 schools and to raise standards for the evidence the field relies on to support its claims of quality. By meeting these goals . . . leaders believe they will raise the stature of the profession" (Teacher Education Accreditation Council (TEAC), 2014, para. 2). CAEP's mission and vision both clearly focuses on improving teacher preparation programs (Council for the Accreditation of Educator Preparation, n.d.) as the organization claims the "hallmarks" of the organization include the following components: "continuous improvement, transformations, and evidence and inquiry" (CAEP, 2013b, para. 1).

On August 29, 2013, shortly after the formation of CAEP, the Board of Directors created new standards for Education Preparation Providers (EPP) (CAEP, 2013b; Heafner, McIntyre, and Spooner, 2014). CAEP requires EPPs to conduct self-analysis, as well as, host a site visit, in which a CAEP accreditation team collects and evaluates the EPP's evidence to determine if the EPP met the CAEP Standards based on three distinct categories: "candidate performance, use of data in program self-improvement,

and EPP capacity and commitment to quality" (CAEP, 2013b, par. 1). CAEP clearly defined five accreditation standards that teacher preparation programs must exhibit: "Content and Pedagogical Knowledge; Clinical Partnerships and Practice; Candidate Quality, Recruitment, and Selectivity; Program Impact; and Provider Quality Assurance and Continuous Improvement" (CAEP, 2013a, p. 2). The goal of these standards is to improve educator preparation programs by creating a demanding accreditation process, which focuses on outcomes, based on raising student admission requirements, as well as, determining the graduate's effect on measurable student achievement (Heafner, McIntyre, & Spooner, 2014). Due to the rigorous standards of CAEP, some educational professionals predict that fewer educator preparation programs will earn accreditation, and some programs may disband. However, because the accreditation process will be more rigorous, those educator preparation programs that are CAEP accredited will improve and learn (Heafner, McIntyre, & Spooner, 2014). Like Heafner, McIntyre, and Spooner (2014) stated, many educational professionals are excited to experience the transformation; the author, too, is excited to see what the new changes bring; change is necessary if teacher preparation programs want to improve student achievement. After all, research shows that "teachers in the top 20% of performance generate 5-6 more months of student learning each year than low-performance teachers" (U.S. Department of Education, n.d., p. 1), so students today need more top-performance teachers in the classrooms.

In April 2014, CAEP President, James Chibulka, announced that CAEP will be working collaboratively with State Alliance to create "research-based strategies" and indicators of effective clinical experience (CAEP, 2014, para. 1). Chibulka acknowledged the need for educational improvements:

As CAEP implements its comprehensive and challenging standards, we are acutely aware of the needs facing families, children, communities, and the schools that serve them . . . Today's public education system is in crisis-with ethnic disparities in student achievement, too few children meeting proficiency in reading and mathematics, inconsistent and low academic standards through application of rigorous standards that insist that all educators be prepared to meet the needs of increasingly diverse P-12 learners. (Chibulka, as cited in CAEP, 2014, para. 2)

CAEP is aware of the need to improve teacher preparation programs to better meet the needs of today's students (CAEP, 2013a). On November 25, 2014, the U.S. Department of Education announced proposals, which are closely related to CAEP standards, to reform teacher preparation programs. The new proposals build on the current alterations being made by accreditation organizations such as, Council for the Accreditation of Educator Preparation and the Council of Chief State Schools. Under provisions of the proposal, states will require institutions to focus on collecting data related to employment outcomes, such as retention and job placement, customer satisfaction, program review and accreditation, multiple performance levels, flexibility, and student outcomes (U.S. Department of Ed., n.d.). However each state can create the evaluation system and determine how it will utilize the data from the evaluation instrument (U.S. Department of Education, 2014; U.S. Department of Education, n.d.).

The proposal will require teacher candidates, local administrators, local school districts, states, and teacher preparation program officials to provide meaningful data that will be shared with the public. This data will lend itself to inform potential students considering teacher preparation programs about the effectiveness of a prospective program, school districts looking to recruit new candidates, and identify teacher preparation areas that need revision for improvement. The proposal will also require states to development a means to assess programs, so distinction can be made between the most and least effective programs based on outcomes (U.S. Department of Education, 2014). All types of teacher preparation programs will be assessed, not just those that are associated with higher education institutions (U.S. Department of Education, n.d.) As a means to reward and promote effective teacher preparation programs, programs determined 'effective' will be eligible for TEAC grants, which are available for teacher candidates who agree to teach in high-need content areas or high-poverty schools (U.S. Department of Education, n.d.).

As previously mentioned, each state determines the teacher certification requirements; however, many states require teacher candidates to earn a bachelor's degree, earn a teaching certification, pass formal assessments, such as the Praxis, which measures reading, writing, math and pedagogical knowledge, and complete a formal field experience, such as student teaching (Lynch, 2015). Just as CAEP is holding teacher preparation programs to higher standards (CAEP, 2013a; Heafner, McIntyre, & Spooner, 2014), state departments of education, such as Missouri, are also raising the bar (Missouri Department of Elementary and Secondary Education (DESE), n.d.). For example, under CAEP requirements, teacher preparation program candidates must earn a 3.0 minimum grade point average and score in the top fifty percent on nationally normed tests, such as the ACT, SAT, or GRE, and that percentage gradually increases to the top thirty-three percent by the year 2020 (CAEP, 2013a).

The Missouri Department of Elementary and Secondary Education (DESE) created the initiative *Top 10 by 20*, to improve student achievement. By 2020, Missouri aims to have its students achievement rank in the top 10 in the entire country by 2020. DESE outlined four goals for the initiative, and one must note Goal #3, which focuses on the preparation, development, and support of effective teachers. The two objectives associated with Goal #3 includes, "all preparation programs will be highly effective at preparing teacher candidates as defined by a uniform set of performance data points . . . [and] all educators will be effective as defined by a local evaluation process fully aligned to Missouri's Essential Principles of Effective Evaluation" (DESE, n.d. para. 4). The Missouri Department of Elementary and Secondary Education Office of Educator Quality created the Missouri Standards for the Preparation of Educators (MoSPE), (Missouri Department of Elementary and Secondary Education (DESE), n.d.), which consists of nine standards, and 33 indicators associated with those nine standards (DESE, 2013). These standards address a variety of components, such as content knowledge, student development, student diversity, educational theory, differentiation, curriculum implementation, instructional strategies, communication, and data analysis to only mention a few. Teacher candidates must show proficiency in each standard and indicator (DESE, 2013). Starting in the spring of 2015, teacher candidates will be

evaluated by their educational instructors, their host teachers, and their host principals/administrators. The host administrators will use the official teacher candidate evaluation form, derived from the MoSPE Standards, to determine the teacher candidate's level of proficiency in the following areas: Standard #1: Content knowledge aligned with appropriate instruction; Standard #2: Student Learning, Growth, and Development; Standard #5: Positive Classroom Environment; and Standard Assessment Data to Improve Learning (DESE, n.d.; Hairston, 2014).

According to the Missouri Department of Elementary and Secondary Education Director or Educator Preparation, Gale "Hap" Hairston, the Missouri Department of Elementary and Secondary Education Office of Educator Quality revised previous certification requirements to better prepare Missouri's teachers. Starting in the 2014-2015 academic year, teacher candidates must participate in the Missouri Educator Gateway Assessments. The computer-based assessments serve as a means to assess education students at different points in their educational programs (Hairston, 2014). For example, education students must take the Missouri Educator Profile (MEP) prior to entry or at the beginning of the education program. The MEP compares the student's work habits with the habits of effective teachers at specific grade levels. Once the student completes the online assessment, the report is shared with the student's academic advisor, so the two can create an improvement plan. Once the education student has completed the MEP, the student must successfully pass the Missouri General Education Assessment (MoGEA) (Hairston, 2014). The student must pass all five subtests in mathematics, science, social studies, writing, and English for admission to the teacher preparation program; however, the students may retake subtests if necessary (Hairston, 2014; Pearson Education, Inc., 2014). Prior to or during the student teaching clinical experience, the teacher candidate must prove content knowledge by passing the Missouri Content Area Assessments (Hairston, 2014). Furthermore starting in the Fall 2015 semester, the teacher candidate must successfully pass the Missouri Pre-Service Teacher Assessment (MoPTA) during the student teaching clinical experience. Prior to Fall 2015, each preparation program could decide whether or not to require teacher candidates to complete the MoPTA (Hairston, 2014). The MoPTA, which is aligned to the Missouri's Teacher Standards and Quality Indicators, consists of four tasks that require the teacher candidate to provide artifacts and explanations to prove competency in the following areas: Knowledge of Students and the Learning Environment; Assessment and Data Collection to Measure and Inform Student Learning; Designing Instruction for Student Learning; and Implementing and Analyzing Instruction to Promote Student Learning (Educational Testing Service, 2015). Like Missouri, teacher preparation programs throughout the country have been using computer-based assessments to measure the students' competency of given standards, and the results of these assessments are often used as evidence during the accreditation process previously discussed (Everhart & Hogarty, 2009).

Since the completion of this study, the author is pleased to report that accrediting bodies, such as CAEP, the United States Department of Education, and state departments of education are holding teacher preparation programs and graduates of those programs to higher standards (Council for the Accreditation of Educator

Preparation, 2013a; U.S. Department of Education, 2014; U.S. Department of Education, n.d.). Based on the results of this research and the current body of literature, Ruettgers, an Assistant Professor of Teacher Education, has examined program plans, course objectives, and required course work to create meaningful learning opportunities for students to develop the necessary competencies related to the 21st skills and knowledge previously discussed, as well as, the CAEP and DESE Standards and Indicators.

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Objectives/Purpose

   The purpose of this study was to contribute to the existing, yet limited data, regarding United States' teacher preparation programs and the presence of 21st Century Skills and Knowledge within initial teacher preparation programs (Ruettgers, 2013). The researcher's goal was to quantitatively measure the degree to which 21st Century Skills and Knowledge were infused within United States' initial teacher preparation programs (Ruettgers, 2013).

Perspective(s) or theoretical framework

   As an educational practitioner, the investigator realized that many novice teachers were joining the educational field, unequipped with the necessary 21st century skills and knowledge to be successful in the classroom (Ruettgers, 2013). During Rodney Paige's term as the United States' Secretary of Education, he shared with policymakers, that teacher preparation program coursework did not improve student achievement, which inferred that United States' teacher preparation programs were indeed, ineffective (as cited in U.S. Department of Education, 2002). Furthermore, Arthur Levine (2006) conducted research to determine education preparation program effectiveness and noted that over half of the teacher preparation program graduates perceived themselves unprepared to teach in the 21st century classroom. To reiterate, the U.S. Secretary of Education, Arne Duncan, acknowledged the situation: "New teachers want to do a great job for their kids, but often they struggle at the beginning of their careers and have to figure out too much for themselves. Teachers deserve better, and our students do too" (Duncan as cited in U.S. Department of Education, 2014).
   According to Watlington, Shockley, Guglielmino, & Felsher (2010) and Fallon (2006), teacher preparation programs must improve to ensure teacher quality; furthermore, Fallon (2006) believed the path to educational reform and improvement is through the current teacher preparation programs. After all, the youth of America needs to retain effective teachers that have the skills and knowledge to increase student achievement. The National Council for Accreditation of Teacher Education (NCATE) (2014) also believed "every student deserves a caring, competent, and highly qualified teacher" (para. 2). Levine (2006), Darling-Hammond (2011), and Fallon (2006) all agreed that changes must be made to improve teacher preparation programs; however, Fallon (2006) admitted that other avenues of educational improvement should also be explored. According to the U.S. Department of Education (n.d.), "Recruiting, preparing, developing and supporting great teachers has a direct impact on the learning and success of America's students . . . the most important school factor in a student's success is a strong teacher, and excellent teachers are especially important for our neediest students" (p. 1).
   Ruettgers (2013) noted a plethora of professionals and organizations calling for America's students to possess 21st Century skills and knowledge, but found little research on the necessity of teacher preparation programs to equip future teachers with the 21st century skills and knowledge they will be expected to teach in the classroom. Moreover she found numerous studies that stated teachers were unprepared to teach in the 21st century classroom since they did not possess those 21st century competencies themselves (Ruettgers, 2013).
   Wise (2008) agreed with the need to retain effective educators, but he also supported the recruitment of effective classroom leaders. Furthermore, Wise (2008) encouraged teacher preparation programs to offer teacher candidates opportunities to garner experience in schools that serve students of poverty. If society wants more effective teachers, higher education

institutions must address yet another educational concern: teacher attrition. About half of beginning teachers leave the profession completely. This is problematic because the students deserve and need the most effective teachers to remain in the classrooms, yet many explore other options (Ingersoll & Smith, 2003).

Just as time brings change, the required skills and knowledge to be successful also changes. While some skills and knowledge become esteemed, others become outdated and menial (Zhao, 2009). Every teacher should have both subject and pedagogical knowledge (Council for the Accreditation of Educator Preparation, 2013a; Cibulka, 2008) and all children deserve a knowledgeable, effective teacher (Cibulka, 2008; Darling-Hammond, 2009; NCATE, 2014).

Educational practitioners concurred that they must equip their students with the necessary skill and knowledge base for students to compete globally; however, obscurities in defining 21st skills and knowledge has proven the task perplexing (November, 2010; Sawchuk, 2009a). Educators identify 21st century skills and knowledge with The Partnership for 21st Century Skills (P21) (Partnership for 21st Century Skills, 2004b; Davis-Powell, 2015; Sawchuk, 2009b) a key advocacy group that promotes educational change (Burden & Byrd, 2013; Davis-Powell, 2015). The Partnership for 21st Century Skills (2010) recommended that workers have a core subject knowledge base, as well as, the ability to communicate, collaborate, problem solve, and think critically. Likewise, Burden and Byrd (2013) referenced 21st century skills as fundamental proficiencies that include problem solving, communication, collaboration, and digital technology. Regan (2008) and Stevens (2011) both supported the necessity of 21st century students possessing the ability to utilize technology to effectively create, communicate, collaborate, and problem solve; after all, these are all necessary skills students need to demonstrate and compete in global markets.

The Council for the Accreditation of Educator Preparation (CAEP, 2013a) supports the integration of technology and the development of digital learning. Davis-Powell (2015) also noted the necessity for educators to demonstrate global awareness, in addition to cross-cultural awareness. CAEP (2013a) also acknowledged the ever-increasing diversity of the student population. Proponents of the teaching of 21st century skills strongly believe these are fundamental competencies students must demonstrate to be successful in the global marketplace; therefore, educational systems must provide meaningful learning opportunities and curriculum that require students to develop these skills and knowledge (Burden & Byrd, 2013). Davis-Powell (2015) noted the need for critical thinking and problem solving; however, "Teaching critical thinking and problem solving is not an addition to the curriculum but rather a way of approaching the knowledge and skills we teach" (p.137). Furthermore, Senechal (2010) adamantly supported the need for change, as students must be prepared for the evolving workplace. In agreement with Senechal (2010), Long & Holeton, (2009) believed educational reform is imperative; if students are going to be able to compete in the global workforce, they must learn curricula that will provide meaningful opportunities to develop the essential knowledge and skills (Burden & Byrd, 2013; Long & Holeton, 2009; Senechal, 2010). According to the Council on Competitiveness (2009), the United States' educational systems must provide educational learning opportunities "to match the 21st century job opportunities, requirements, and needs" (p. 1).

Methods, techniques, or modes of inquiry:

In search of clarification, Ruettgers read multiple sources to define 21st century skills and knowledge. With the information garnered, she created a rubric, which clearly identified "the necessary 21st century skills and knowledge a teacher preparation program should include: global awareness, digital competencies, critical thinking competencies, collaborative competencies, cross-cultural competencies, communication competencies, and problem solving competencies" (Ruettgers, 2013, p. 91). Ruettgers adapted Leavitt and Kania-Gosche's (2011) *Rubric for Ed.D. Program Integration of Global Competency* to create the 21st Century Learning Framework, used as a scoring guide for each competency (Ruettgers, 2013). During the creation of the 21st Century Learning Framework, Ruettgers consulted with Lindenwood University Education Professors, William Emrick, Jill Hutcheson, and Lynda Leavitt. They offered recommendations to increase reliability by revising the scoring guide (Ruettgers, 2013). After generating specific categories and descriptors for each 21st century competency, Ruettgers created a numerical point value, ranging from two to eight points, for each category and descriptor (Ruettgers, 2013). "Points were assigned accordingly: "little or no evidence of the competency" two points; "emerging evidence of the competency" four points; "implementation of competency" six points, and "full integration" eight points." (Ruettgers, 2013, p. 92). The range of 2-8 points was utilized to illustrate discrepancies among scores related to the competencies (Wisdom, 2011). To clarify, the teacher preparation program with the lowest total points reflected the programs that showed the least evidence of 21st century competencies; whereas, the program with the highest total points reflected programs that showed the most evidence of the 21st century competencies (Ruettgers, 2013).

A null hypothesis was created to test for evidence of 21st century knowledge and skills within elementary teacher education programs, as well as, one hypothesis for each 21st century competency. For example, "Null hypothesis ($H_0$2): There is no evidence of global awareness knowledge and skills within elementary teacher education programs in the U.S. as measured by a numerically-scaled comparison to characteristics and standards represented in the 21st Century Learning Framework" (Ruettgers, 2013, p. 92).

Ruettgers (2013) "completed a quantitative content analysis to investigate the presence of 21st century knowledge and skills within a stratified random sample of NCATE accredited teacher preparation programs in the U.S. as measured by the 21st Century Learning Framework" (p. 8). Ruettgers used the National Council for Accreditation of Teacher Education's website to obtain a list of all NCATE accredited elementary education teacher education programs in the United States and in United States' territories, which was 664 institutions at the time the research was conducted (Ruettgers, 2013). Educational institutions located in the U.S. territories, such as Guam and Puerto Rico were eliminated (Ruettgers, 2013), thus creating a population of 654 institutions; however, institutions in all 50 states and the District of Columbia were included in the population (National Council for Accreditation of Teacher Education, 2010b). Since the investigator successfully completed an NCATE accredited elementary teacher preparation program, she minimized bias with the removal of her alma mater, which decreased the study population to 653 teacher preparation programs (Ruettgers, 2013). To eradicate potential bias, increase data generalizability, and guarantee the sample indeed represented the population, the researcher used the stratified random sampling method (Colorado State University, 2012; Fraenkel, Wallen, & Hyun, 2009).

The researcher used a 21st Century Learning Framework focused on one specific 21st century skill or knowledge base: global awareness, digital competencies, critical thinking competencies, collaborative competencies, cross-cultural competencies, communication competencies, and problem solving competencies. She included three categories to evaluate: mission statement; course title and descriptions; and course objectives and syllabi. The categories were aligned horizontally and the degree to which the skill was embedded in the program vertically. Once again the researcher assigned point values, which corresponded with the descriptors, logging the level to which the competency was present (Ruettgers, 2013).

Data Collection and Analysis Procedures

Ruettgers began the data collection process December 26, 2011, and concluded June 10, 2012. Once she determined the final research population (653 institutions), she used Kuder Navigator and institution's websites to classify each institution into strata: public and private institutions. When neither Kuder Navigator nor the institution website provided the necessary information to determine if the institution was public or private, the researcher contacted the institution via telephone to garner that information to ensure placement into the correct strata. Immediately after all 653 institutions were classified as public or private, the researcher created the research sample by using an electronic randomizer. Utilizing random selection, the researcher selected 80 private teacher preparation programs and 80 public programs, making the study sample 160 institutions (Ruettgers, 2013).

To aid in the organization of data collection, the researcher created sample forms: one private and one public. Both forms included the following information: a list of institution names, web address, physical address, name of the School of Education Dean, and his/her email address. All information was obtained using the institution's website, calling the institution, or emailing the institution. Once the researcher collected all the contact information, she coded each institution. For example, she used a letter/number system, such as PI1 (private university, 1); PB (public university 2). Ruettgers then added the codes to the sample forms. Upon completion a letter of request was sent to each teacher preparation program leader, such as the deans or department chairs (Ruettgers, 2013); "the letter of request . . . included identification information, the purpose for the research, an explanation of the research, a basic overview of the methodology, the information requested, and multiple means to contact the researcher" (Ruettgers, 2013, p. 96).

The researcher then composed a sample response form, which included the institution code, name, and whether the institution had accepted or declined the information request. According to Ruettgers (2013), she then collected information from each teacher preparation program by reviewing "materials through the following formats: program websites, public materials . . . and materials received through email and mail directly from the university and faculty who teach in the education pre-service programs" (p. 97). The researcher began collecting information by using the 21st Century Skills Framework to evaluate the School of Education's mission statement and the School of Education's goals. An evaluation of the program descriptions, required course titles and those specific course descriptions, as well as, program catalogs, course objectives, and syllabi over an extended period of time (Ruettgers, 2013).

During the sample evaluation process, Ruettgers observed that five institutions, four private and one public, did not provide adequate teacher preparation program information; therefore, those programs were not evaluated and were later excluded from the data collection process, thus reducing the research sample to 155 institutions: 76 private and 79 public. Once the researcher collected all the institutional data, she recorded each institution's scores in an Excel document and grouped each institution's competency scores with each area evaluated: global competencies, digital competencies, critical thinking competencies, collaborative competencies, cross-cultural competencies, communication competencies, and problem solving competencies (Ruettgers, 2013). She then randomly selected 90 institutions: 45 private and 45 public institutions "to test the hypotheses as a means to increase the generalizability of the conclusions to the whole population . . . and to reduce the inclusion of anomalies in the data" (Ruettgers, 2013, p. 99). Ruettgers then recorded and analyzed the quantitative data to ascertain the degree to which each program illustrated evidence of 21st century competencies (2013).

Since the two samples were indeed "independent of each other" (Bluman, 2010, p. 469), Ruettgers chose to use a z-test for difference in means between the ratings of the public teacher preparation program's sample and the private teacher preparation program's sample to test null hypothesis number one (Ruettgers, 2013). After examining the data, the researcher determined if a discrepancy existed between public and private teacher preparation programs' evidence of 21st century knowledge and skills.

"For null hypothesis numbers two through eight, [those relating to each specific competency] the researcher determined how closely the institution's materials corresponded to the quantified 21st Century Framework" (Ruettgers, 2013, p. 99). Since there was no relationship between sample institutions (Bluman, 2010), the researcher "calculated the variance and tested the hypotheses using a z-test for a difference in proportion from the comparison point of 80% for both private and public institutions . . ." (Ruettgers, 2013, p. 99). After speaking with Dr. Yi Huang, NCATE accreditation Vice President, a decision was made to use 80 percent as the minimum percentage because Huang shared that many states required at least an 80 percent minimum licensure examination completion (Huang, 2011).

Results and/or substantiated conclusions or warrants for arguments/point of view

Ruettgers determined the variance for each specific competency on top of determining composite scores for each institution's teacher preparation program and to test all eight hypotheses, Ruettgers utilized a two-tailed z-test for the difference of means. The researcher used a 95% confidence level; therefore, the critical values were + 1.96 and -1.96, and the identified the level of significance was .05 (Ruettgers, 2013).

Ruettgers tested each null hypothesis to determine the presence of evidence of 21st century knowledge and skills within elementary teacher education programs in the United States. To specify, "Null hypothesis (H_01): There is no evidence of 21st century knowledge and skills within elementary teacher education programs in the U.S. as measured by a numerically-scaled comparison to characteristics and standards represented in the 21st Century Learning Framework" (Ruettgers, 2013, p. 101). After utilizing the z-test for difference, Ruettgers determined that the z-test value 1.572 was not included in the critical region (+1.96); she then

calculated the p-value (0.1159), using alpha=.05. Based on the s-test results, Ruettgers did not reject the null hypothesis since data did not support the alternate hypothesis (Ruettgers, 2013).

Using the z-test for differences in proportion, each of the null hypotheses, ($H_0$2- $H_0$8), related to the 21st skills and knowledge previously mentioned, global awareness competencies; digital competencies; critical thinking competencies; collaborative competencies; cross-cultural competencies; communication competencies; and problem solving competencies, were tested (Ruettgers, 2013). According to Ruettgers (2013)

> the data supported the null hypotheses, noting no difference in 21st century knowledge and skills in all competencies, except digital competency and critical thinking competency. Public institutions statistically scored higher on digital literacy skills while private institutions scored higher on critical thinking skills . . . The researcher did not reject the null hypotheses concerning evidence of 21st century knowledge and skills ($H_0$1); global awareness ($H_0$2); collaborative competencies ($H_0$5); cross-cultural competencies ($H_0$6); communication competencies ($H_0$7); and problem-solving ($H_0$8). However, the researcher rejected the null hypotheses concerning digital competencies ($H_0$3) and critical thinking ($H_0$4). (p. 109)

Scientific or scholarly significance of the study or work

As a researcher, Ruettgers acknowledged the limitations of her study. She noted that the research population and sample only included National Council for Accreditation of Teacher Education accredited teacher preparation programs located in the United States; therefore, the generalizability of the research results were pertained only to NCATE accredited initial teacher preparation programs in the United States. Furthermore educational programs that were unaccredited or accredited through other organizations were excluded from the population (Ruettgers, 2013). Ruettgers (2013) also acknowledged that she "conducted the entire study using secondary supporting documents that are [were] accessible to the public and thus limited" (p. 10). However, the researcher was aware of the previously stated limitation; therefore, she decided to use a sizable population and random selection to determine the samples. By doing so, the researcher felt the data would indeed increase generalizability. According to Ruettgers (2013) "the samples included teacher preparation programs from different sectors with differences within each sector in regards to geographic regions, student enrollment and demographics in teacher preparation programs, as well as initial elementary teacher preparation program curricula" (p. 10).

While conducting the study, Ruettgers (2013) noted many differences in teacher preparation program requirements, as well as, overall program quality. She also recognized that there was little consistency among state licensure requirements since every state had its own unique set of licensure requirements. State departments of education must hold teacher preparation programs to high standards; it is those higher education institutions that will be preparing the next generation of teachers. These teacher candidates that must be prepared to effectively teach their students the 21st century skills and knowledge necessary to allow them to be competitive in the global workforce (Ruettgers, 2013).

The United States Department of Education did not serve as an accrediting agency since accrediting organizations were private educational organizations that created standards and utilized peer evaluation of programs using a criteria correlated to those standards. However, the U.S. Department of Education published a list of approved accrediting organizations that the Secretary of Education determined as reliable; it also provided the public with access to a public database with information regarding postsecondary accredited institutions (U.S. Department of Education, n.d.). According to Lynch (2015) each state department of education can select an accreditation agency or create their own standards of measurement for evaluating teacher preparation programs for approval. However, The United States Department of Education distinguished NCATE as an accrediting agency for teacher preparation programs (National Council for Accreditation of Teacher Education n.d.). NCATE consistently strived for ways to improve teacher preparation, so teacher quality also improves (NCATE, n.d.). According to NCATE (n.d.), the agency "works to make a difference in the quality of teaching and teacher preparation today, tomorrow, and for the next century. NCATE's performance-based system of accreditation fosters competent classroom teachers and other educators who work to improve the education of all P-12 students" (par 2). Like NCATE, Teacher Education Accreditation Council (TEAC) served as an accrediting organization, but TEAC only accredited the teacher preparation program, whereas, NCATE accredited the program, school, and university (Lynch, 2015). TEAC granted programs accreditation only after programs were accepted as members of the organization and the organization provided substantial data to prove the teacher preparation program was of the "highest quality" (Lynch, 2015, p. 326). To clarify, teacher preparation programs must meet the standards to earn the title of an accredited program. Teacher preparation programs do not have to be accredited; however, accreditation equates to program credibility (Lynch, 2015). According to the U.S. Department of Education (n.d.), "The goal of accreditation is to ensure that education provided by institutions of higher education meets acceptable levels of quality" (para. 4).

To reiterate the significance of accreditation, one must note that some states will only provide teaching certification to individuals who have successfully completed an accredited teacher preparation program. It is a means to set baseline standards and guarantee the public that those teacher preparation programs have met the standards necessary to produce effective, high-quality teachers for the 21st century classrooms (Lynch, 2015).

On July 1, 2013, the National Council for Accreditation of Teacher Education and the Teacher Education Accreditation Council (TEAC) joined forces to create a new accreditation organization: Council for the Accreditation of Education Preparation (CAEP) (NCATE, 2014), which will focus on "raise [ing] the performance of candidates as practitioners in the nation's P-12 schools and to raise standards for the evidence the field relies on to support its claims of quality. By meeting these goals . . . leaders believe they will raise the stature of the profession" (Teacher Education Accreditation Council (TEAC), 2014, para. 2). CAEP's mission and vision both clearly focuses on improving teacher preparation programs (Council for the Accreditation of Educator Preparation, n.d.) as the organization claims the "hallmarks" of the organization include the following components: "continuous improvement, transformations, and evidence and inquiry" (CAEP, 2013b, para. 1).

On August 29, 2013, shortly after the formation of CAEP, the Board of Directors created new standards for Education Preparation Providers (EPP) (CAEP, 2013b; Heafner, McIntyre, and Spooner, 2014). CAEP requires EPPs to conduct self-analysis, as well as, host a site visit, in which a CAEP accreditation team collects and evaluates the EPP's evidence to determine if the EPP met the CAEP Standards based on three distinct categories: "candidate performance, use of data in program self-improvement, and EPP capacity and commitment to quality" (CAEP, 2013b, par. 1). CAEP clearly defined five accreditation standards that teacher preparation programs must exhibit: "Content and Pedagogical Knowledge; Clinical Partnerships and Practice; Candidate Quality, Recruitment, and Selectivity; Program Impact; and Provider Quality Assurance and Continuous Improvement" (CAEP, 2013a, p. 2). The goal of these standards is to improve educator preparation programs by creating a demanding accreditation process, which focuses on outcomes, based on raising student admission requirements, as well as, determining the graduate's effect on measurable student achievement (Heafner, McIntyre, & Spooner, 2014). Due to the rigorous standards of CAEP, some educational professionals predict that fewer educator preparation programs will earn accreditation, and some programs may disband. However, because the accreditation process will be more rigorous, those educator preparation programs that are CAEP accredited will improve and learn (Heafner, McIntyre, & Spooner, 2014). Like Heafner, McIntyre, and Spooner (2014) stated, many educational professionals are excited to experience the transformation; the author, too, is excited to see what the new changes bring; change is necessary if teacher preparation programs want to improve student achievement. After all, research shows that "teachers in the top 20% of performance generate 5-6 more months of student learning each year than low-performance teachers" (U.S. Department of Education, n.d., p. 1), so students today need more top-performance teachers in the classrooms.

In April 2014, CAEP President, James Chibulka, announced that CAEP will be working collaboratively with State Alliance to create "research-based strategies" and indicators of effective clinical experience (CAEP, 2014, para. 1). Chibulka acknowledged the need for educational improvements:

> As CAEP implements its comprehensive and challenging standards, we are acutely aware of the needs facing families, children, communities, and the schools that serve them . . . Today's public education system is in crisis-with ethnic disparities in student achievement, too few children meeting proficiency in reading and mathematics, inconsistent and low academic standards through application of rigorous standards that insist that all educators be prepared to meet the needs of increasingly diverse P-12 learners. (Chibulka, as cited in CAEP, 2014, para. 2)

CAEP is aware of the need to improve teacher preparation programs to better meet the needs of today's students (CAEP, 2013a). On November 25, 2014, the U.S. Department of Education announced proposals, which are closely related to CAEP standards, to reform teacher preparation programs. The new proposals build on the current alterations being made by accreditation organizations such as, Council for the Accreditation of Educator Preparation and the Council of Chief State Schools. Under provisions of the proposal, states will require institutions to focus on collecting data related to employment outcomes, such as retention and job placement, customer satisfaction, program review and accreditation, multiple performance levels, flexibility, and student outcomes (U.S. Department of Ed., n.d.). However each state can create the evaluation

system and determine how it will utilize the data from the evaluation instrument (U.S. Department of Education, 2014; U.S. Department of Education, n.d.). The proposal will require teacher candidates, local administrators, local school districts, states, and teacher preparation program officials to provide meaningful data that will be shared with the public. This data will lend itself to inform potential students considering teacher preparation programs about the effectiveness of a prospective program, school districts looking to recruit new candidates, and identify teacher preparation areas that need revision for improvement. The proposal will also require states to development a means to assess programs, so distinction can be made between the most and least effective programs based on outcomes (U.S. Department of Education, 2014). All types of teacher preparation programs will be assessed, not just those that are associated with higher education institutions (U.S. Department of Education, n.d.) As a means to reward and promote effective teacher preparation programs, programs determined 'effective' will be eligible for TEAC grants, which are available for teacher candidates who agree to teach in high-need content areas or high-poverty schools (U.S. Department of Education, n.d.).

As previously mentioned, each state determines the teacher certification requirements; however, many states require teacher candidates to earn a bachelor's degree, earn a teaching certification, pass formal assessments, such as the Praxis, which measures reading, writing, math and pedagogical knowledge, and complete a formal field experience, such as student teaching (Lynch, 2015). Just as CAEP is holding teacher preparation programs to higher standards (CAEP, 2013a; Heafner, McIntyre, & Spooner, 2014), state departments of education, such as Missouri, are also raising the bar (Missouri Department of Elementary and Seconday Education (DESE), n.d.). For example, under CAEP requirements, teacher preparation program candidates must earn a 3.0 minimum grade point average and score in the top fifty percent on nationally normed tests, such as the ACT, SAT, or GRE, and that percentage gradually increases to the top thirty-three percent by the year 2020 (CAEP, 2013a).

The Missouri Department of Elementary and Secondary Education (DESE) created the initiative *Top 10 by 20*, to improve student achievement. By 2020, Missouri aims to have its students achievement rank in the top 10 in the entire country by 2020. DESE outlined four goals for the initiative, and one must note Goal #3, which focuses on the preparation, development, and support of effective teachers. The two objectives associated with Goal #3 includes, "all preparation programs will be highly effective at preparing teacher candidates as defined by a uniform set of performance data points . . . [and] all educators will be effective as defined by a local evaluation process fully aligned to Missouri's Essential Principles of Effective Evaluation" (DESE, n.d. para. 4). The Missouri Department of Elementary and Secondary Education Office of Educator Quality created the Missouri Standards for the Preparation of Educators (MoSPE), (Missouri Department of Elementary and Secondary Education (DESE), n.d.), which consists of nine standards, and 33 indicators associated with those nine standards (DESE, 2013). These standards address a variety of components, such as content knowledge, student development, student diversity, educational theory, differentiation, curriculum implementation, instructional strategies, communication, and data analysis to only mention a few. Teacher candidates must show proficiency in each standard and indicator (DESE, 2013). Starting in the spring of 2015, teacher candidates will be evaluated by their educational instructors, their host teachers, and their host principals/administrators. The host administrators will use the official teacher candidate evaluation form, derived from the MoSPE Standards, to determine the teacher candidate's level

of proficiency in the following areas: Standard #1: Content knowledge aligned with appropriate instruction; Standard #2: Student Learning, Growth, and Development; Standard #5: Positive Classroom Environment; and Standard Assessment Data to Improve Learning (DESE, n.d.; Hairston, 2014).

According to the Missouri Department of Elementary and Secondary Education Director or Educator Preparation, Gale "Hap" Hairston, the Missouri Department of Elementary and Secondary Education Office of Educator Quality revised previous certification requirements to better prepare Missouri's teachers. Starting in the 2014-2015 academic year, teacher candidates must participate in the Missouri Educator Gateway Assessments. The computer-based assessments serve as a means to assess education students at different points in their educational programs (Hairston, 2014). For example, education students must take the Missouri Educator Profile (MEP) prior to entry or at the beginning of the education program. The MEP compares the student's work habits with the habits of effective teachers at specific grade levels. Once the student completes the online assessment, the report is shared with the student's academic advisor, so the two can create an improvement plan. Once the education student has completed the MEP, the student must successfully pass the Missouri General Education Assessment (MoGEA) (Hairston, 2014). The student must pass all five subtests in mathematics, science, social studies, writing, and English for admission to the teacher preparation program; however, the students may retake subtests if necessary (Hairston, 2014; Pearson Education, Inc., 2014). Prior to or during the student teaching clinical experience, the teacher candidate must prove content knowledge by passing the Missouri Content Area Assessments (Hairston, 2014). Furthermore starting in the Fall 2015 semester, the teacher candidate must successfully pass the Missouri Pre-Service Teacher Assessment (MoPTA) during the student teaching clinical experience. Prior to Fall 2015, each preparation program could decide whether or not to require teacher candidates to complete the MoPTA (Hairston, 2014). The MoPTA, which is aligned to the Missouri's Teacher Standards and Quality Indicators, consists of four tasks that require the teacher candidate to provide artifacts and explanations to prove competency in the following areas: Knowledge of Students and the Learning Environment; Assessment and Data Collection to Measure and Inform Student Learning; Designing Instruction for Student Learning; and Implementing and Analyzing Instruction to Promote Student Learning (Educational Testing Service, 2015). Like Missouri, teacher preparation programs throughout the country have been using computer-based assessments to measure the students' competency of given standards, and the results of these assessments are often used as evidence during the accreditation process previously discussed (Everhart & Hogarty, 2009).

Since the completion of this study, the author is pleased to report that accrediting bodies, such as CAEP, the United States Department of Education, and state departments of education are holding teacher preparation programs and graduates of those programs to higher standards (Council for the Accreditation of Educator Preparation, 2013a; U.S. Department of Education, 2014; U.S. Department of Education, n.d.). Based on the results of this research and the current body of literature, Ruettgers, an Assistant Professor of Teacher Education, has examined program plans, course objectives, and required course work to create meaningful learning opportunities for students to develop the necessary competencies related to the 21st skills and knowledge previously discussed, as well as, the CAEP and DESE Standards and Indicators.