21ST CENTURY SKILLS: STUDENT READINESS, OPPORTUNITIES, AND DEVELOPMENT

by

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The current study examines the broad spectrum of abilities comprising skills needed for success in the workplace by future employees. Considering the skills gap that is identified among literature on future employees abilities and readiness, study utilizes a collection of skills, termed 21st century skills, by Casner-Lotto and Barrington (2006) to specifically focus on student's perception of personal readiness, attainment of skills, and importance of skills in their future workplace. The sample yielded 131 participants employed or volunteers, crew members, of the Pirate Academic Success Center (PASC). Survey collection was compiled via Qualtrics then exported into SPSS for analysis. Overall results suggest a gap remains among student, crew members, rating of skills needed in the workplace and their own readiness of skills. Results also support experiences as a crew member within the PASC as a valuable and strong support of the development of specific 21st century skills. Strong correlations were not found in support of level or class rank in determining 21st century skill readiness; implications are discussed. Evaluation of PASC as a positive factor in development of essential skills and suggestions for future research are suggested.

Keywords: workforce, skills, readiness, 21st century skills, development, career readiness, skills gap, employers.

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CHAPTER 1: INTRODUCTION

With greater numbers of individuals able to attend college, more individuals are being educated and prepared to enter the workforce. Research has continued to demonstrate concerns over the lack of preparation among first-time employees (Duerden et al., 2014; Farrington et al., 2012, Hodge & Lear, 2011; Soule & Warrick, 2015) specifically the lack of preparedness among college student graduates on the ability to demonstrate skills needed to succeed in the workplace, termed, 21st century skills (Duerden et al., 2014; Farrington et al., 2012; Hodge & Lear, 2011). Twenty-first century skills, addressed in literature by various names, represent skills acquired beyond basic rudimentary schooling knowledge such as mathematics, geography, science, spelling, etc. Instead, 21st century skills enhance one's knowledge of these basic skills in order to succeed in the workplace (Casner-Lotto & Barrington, 2006). The majority of research has focused on authors' own definitions of skills needed at the application level (Boyles, 2012; Casner-Lotto & Barrington, 2006; Heckman & Kautz, 2012; Hodge & Lear, 2011; Lindstrom Johnson et al., 2014; Moore et al., 2015; Soule & Warrick, 2015; Sung et al., 2011; Wagner, 2008). However, due to lack of consistency with verbiage, as well as a lack of consensus of what constitutes these skills, research on such is scattered. Beyond defining skills, creating the 21st century skill set needed to succeed in the workplace, and how those skills can be attained, varies between organizational influence (Casner-Lotto & Barrington, 2006; Soule & Warrick, 2015), education (Barker & Mak , 2013; McGrory-Dixon, 2012; Mourshed et al., 2012; Vockley, 2008; Wurdinger and Qureshi, 2014) engagement such as volunteering (Phillips & Phillips, 2000), and employment (Bialeschki, Dahowski, and Henderson, 1998; Boyles, 2012; Chi, 1996; Cheng & Alcántara, 2007; Duerden et al., 2014; Lewis, 2008; Loke & Chow, 2007; Sinclair et al., 2015;

Staff & Schulenberg, 2010) as well as where responsibility lies for students as future employees to obtain and enhance skills.

The current study seeks to make a contribution to the existing literature by examining the broad spectrum of skills and creating a 'common list' of sorts. Furthermore, the current study's focus is on the explicit impact employment as a student mentor or tutor has on the student's perception of personal readiness, attainment of skills, and importance of skills in their future workplace. Another way in which the current study seeks to make a contribution to the literature is through studying students specifically; as current literature focuses mainly on employees' perception of skills needed by students (American Management Association, 2010; Boyles, 2012; Casner-Lotto and Barrington, 2006; Soule & Warrick, 2015; Wagner, 2008). Finally, the Life Course Perspective and Erik Erikson's psychoanalytic theory will provide the theoretical foundation for the current study.

CHAPTER 2: LITERATURE REVIEW

Education at a Glance publication by the Organization for Economic Co-operation and Development (OECD, 2016) reports 45% of adults in the United States, ages 25-64, have at least some post-secondary education. In 2015, nearly 29 million individuals over the age of 15 attended college; over 19 million of whom are cited as attending undergraduate or graduate school (U.S. Census Bureau, 2015). Students are enrolling in post-secondary education settings for preparation to embark on careers. A college degree in the United States today is viewed as a necessary step into the workforce and, for many, the primary way to some careers (Boyles, 2012; Hodge & Lear, 2011).

Change in 21st Century Employment

As the United States has taken great strides in boosting attainment of education for emerging adults, there has simultaneously been an external surge focusing on skills needed for one's future career (American Management Association, 2010; Boyles, 2012; Casner-Lotto, Barrington, & Wright, 2006; Hodge & Lear, 2011; Moore, Lippman, & Ryberg, 2015; Sung, Turner, & Kaewchinda, 2013; Vockley, 2008; Wagner, 2008). It is no longer sufficient to obtain academic knowledge for a job in the 21st century job market; one must acquire and cultivate skills vital to success as well.

21st Century Skills

The term, skills, is often used in workplace transition literature, however, the discrepancy among additional terms such as competencies, constructs, abilities, etc. is noteworthy in further understanding the application of this concept to many educational constructs such as teacher education, business, accounting, literature, etc. For consistency, it is recognized that other terms

may be readily used by higher education departments, however, the term 'skills' is common among the current study's sample of hard sciences and will be used to for future discussion.

Current literature outlines numerous 21st century skills needed for success in the workplace, defined using various labels. The skill sets making up the labels are comparable; however, verbiage used varies by author. Since multiple labels used for similar skill sets can prove difficult among continuity of research, there is a need for clarification of the terms.

Within the literature, labels used include: soft skill and personality traits; non-academic constructs; "4 C's"; knowledge, skills, abilities (KSA); Integrative Contextual Model of Career Development (ICM) components; career maturity, and basic and applied skills. These skills, highlighted in Table 1, will be discussed further.

Alternative Verbiage. The National Center for Education Statistics (NCES) highlights skills influential to one's success consisting of: self-regulation, agency/motivation, persistence/diligence, and executive functioning (Moore et al., 2015). Moore et al. (2015) emphasized these skills as crucial for education and success in the workplace. Moore et al. (2015) utilized the phrase nonacademic constructs to describe the "personal attributes not thought to be measured by IQ tests or achievement tests" (p. 1). It is to be noted that Moore et al. (2015) cited Heckman and Kautz (2013, p. 10) for this definition. The use of another author's definition for an original term emphasizes the discrepancy present among verbiage of the same or similar skill set. Heckman and Kautz (2013) utilize the term 'soft skills' in highlighting the emphasis on one's personality traits, defined as the personal attributes not captured by testing one's abstract reasoning skills.

Wagner (2008) noted vastly different skills also influential to one's success, termed, survival skills. These include: critical thinking and problem solving, collaboration across

networks and leading by influence, agility and adaptability, initiative and entrepreneurialism, effective oral and written communication, accessing and analyzing information, and curiosity and imagination. The author noted that these seven skills are what employers are looking for when hiring new employees which is peculiar based upon responses from over 2,000 business executives whom participated in a survey of future worker's skills (Hodge & Lear, 2011). The survey indicated that future workers need basic skills, such as reading, writing, and arithmetic, in addition to what the author's cite as the "4 C's": critical thinking/problem solving, communication, collaboration, and creativity/innovation, as entry-level skills expected by employers (American Management Association, 2010). The discrepancy among skills noted for success continues.

When discussing the usefulness of such skills, Boyles (2012) recognized the presence of the term "21st century skills" in recent literature on the skills newly hired graduates' lack, yet suggested the addition categories: Knowledge, Skills, and Abilities (KSAs). The author offered a breakdown of the four major categories of 21st century KSAs and their components: information, media, and technology literacy; inventive thinking; communication and collaboration; and productivity and results. These skills are in demand in a workforce since a shortage of skilled workers impedes the growth and development of the company. Boyles (2012) cited the importance of a college education in meeting the need for highly skilled workers. Such a statement insinuates that a college education is the means for obtaining and the skills necessary to succeed in the workplace and maintain competition within the global economy.

Casner-Lotto and Barrington (2006) expand on the importance of acquiring skills necessary to succeed in the workplace. Authors refer to basic knowledge, and applied skills. Basic knowledge refers to information of basic mathematics, geography, etc. whereas applied

skills as those skills which "enable new entrants to use the basic knowledge acquired in school to perform in the workplace" (p. 9). Applied skills include critical thinking, oral and written communication, teamwork, diversity, information technology application, leadership, creativity, self-encouragement, professionalism, and ethical responsibilities. These skills supplement basic knowledge which includes the English language, written comprehension, and writing in English, math, science, government knowledge, humanities, foreign language, and history. Casner-Lotto and Barrington (2006) used these terms in their study of employers throughout the United States in a study to determine the skills they expect in recently hired employees in the workplace. Authors claimed that the five skills most frequently reported by employers as 'very important' include professionalism/work ethic, oral and written communication, teamwork/collaboration, critical thinking/problem solving, and ethics/social responsibility (Casner-Lotto & Barrington, 2006).

As noted, throughout current literature, there is an abundance of variation between the label verbiage, in addition to academic knowledge, needed to succeed in the workplace. For consistency, the term '21st century skills' will continue to be used in this paper to represent the identified skill set.

21st Century Skills: Defined. A core set of 21st century skills is lacking among current literature. Research has identified sets of 21st century skill components, however, incongruence exists. Table 1 outlines 21st century skill constructs by 11 researchers.

Table 1

21st Century Skills Constructs

Research Author(s)	Affiliated Skills
American Management Association. (2010).	Critical thinking; Problem solving; Communication; Collaboration; Creativity (innovation)
Boyles (2012)	Analytical problem solving; Innovation and creativity; Self-direction and initiative; Flexibility and adaptability; Critical thinking; Communication and collaboration skills
Boyles (2012)	Analytical problem solving; Innovation and creativity; Self-direction and initiative; Flexibility and adaptability; Critical thinking; Communication and collaboration skills
Businessschooledge.com, 2013	Communication: written, social networking, oral, sales; Planning: strategic, project, financial, risk, logistics; Productivity: time management, meeting management, leadership, systems, personal productivity; Creativity: imagination, inventiveness, problem solving, brainstorming, making connections; Ability to switch off
Casner-Lotto, Barrington, & Wright, 2006	Professionalism/ work ethic; Oral and written communications; Teamwork/ collaboration; Critical thinking/problem solving; Ethics/social responsibility; Leadership; Information technology application; Creativity/ innovation; Lifelong learning/ self-direction; Diversity
Holtzman, & Kraft, 2011	Interpersonal skills; Time management; Speaking/oral communication; Ethical understanding; Adapting to change/being flexible
Moore, Lippman, & Ryberg (2015)	Self-regulation; Agency/ motivation; Persistence/ diligence; Executive functioning
National Association of Colleges and Employers (NACE), 2009	Communications; Teamwork; Analytical; Technical; Strong Work Ethic
Schuele and Madison, 2010	Innovation; Cultural competency; Critical thinking; Problem solving; Communication; Teamwork; Ethical and social responsibility

Sung, Turner, & Kaewchinda (2011)	Career exploration; Person/ environment fit; Goal setting Social, prosocial, and work readiness skills; Self-regulated learning; Consistent utilization of emotional and instrumental support
Vockley, 2008	Thinking critically and making judgments; Solving complex, multidisciplinary, open-ended problems; Creativity and entrepreneurial thinking; Communicating and collaborating; Innovative use of knowledge, information, opportunities; Taking charge of financial, health, and civic responsibilities
Wagner (2008)	Critical thinking and problem solving; Collaboration across networks and leading by influence; Agility and adaptability Initiative and entrepreneurialism; Effective oral and written communication; Accessing and analyzing information; Curiosity and imagination

Note. Moore et al. (2015) identified nonacademic constructs from surveys conducted by the National Center for Educational Statistics (NCES); Sung et al. (2011) identified skills in the Integrative Contextual Model of Career Development (ICM).

21st Century Workforce Skills. There exists both similarity and vast variety among the skills listed above. However, such skills are not original to 21st century employment. Regardless, businesses are looking to hire individuals with these skills to increase profitability, keep up with the rapid technological advances, new employee hiring and training costs, and a greater global economy focus (Hodge, & Lear, 2011; Soule, & Warrick, 2015). Workplace skills are increasingly relevant to current positions and employers are expecting their employees to excel at applying such skills to their work for the success of the company (Soule, & Warrick, 2015). Regardless of the specific career, in keeping workforce advancement in mind, employees may one day hold a management position which will require competence in communication. In order for the new generation of individuals to be prepared for facing the demands of a 21st century workplace, students seeking jobs need to acquire applicable skills prior to their job search. Such requirements urge student education and career exploration skills to look differently than in the past (Hodge, & Lear, 2011; Soule, & Warrick, 2015).

Career exploration skills are important for determining one's path through and after college and many students turn to counselors for assistance during this process. Counselors often suggest resources or classes focused on assessments to guide one's exploration, however, research has recently suggested a focus on additional constructs, such as one's personal and environmental components, in exploration of career choice shifting the focus to the need to enhance transferable 21st century skills useful to obtain, retain, and excel in future positions (Sung et al., 2013). Unfortunately, there remains debate among the top rated 21st century skills between businesses, college faculty, and students. Discrepancy among highly rated 21st century skills may root from students' lack of awareness of the need for post-secondary skills or a lack of understanding of the transferability of such skills (Hodge & Lear, 2011). Regardless, faculty and

staff members who are much more aware of the needed skills have the opportunity to guide students through instruction, advising, and offering opportunities for student growth.

21st Century Workforce Skills Gap. Recent literature (Casner-Lotto, & Barrington, 2006; Duerden et al., 2014; Farrington et al., 2012; Hodge & Lear, 2011) recognized the lack of preparedness among college graduates with regard to lacking 21st century skills. A gap, identified among current members of the workforce, exists between what students learn in school and what is expected of them in the workplace (Duerden et al., 2014). Soule and Warrick (2015) cited a survey piloted in conjunction with the American Management Association in 2010 in which business executives identified skills such as critical thinking, problem solving, innovative thinking, collaboration with others, and professional and effective communication as lacking among new workplace employees. Authors noted these skills as 'skill gaps,' claiming they were exercised by current/seasoned employees, but lacking among new employees. Specifically, Casner-Lotto, and Barrington (2006) cite two- and four-year college graduates as deficient in writing in English, written communications, and leadership skills. Data from the American Society for Training and Development (ASTD) reveals skills such as leadership, critical thinking, and creativity are ranked by companies as highly desirable among new employees. In addition, between 10% and 20% of companies surveyed, those hiring for new employees, rated college graduates deficient or lacking such skills (ASTD, 2009). Businesses currently spend billions of dollars between the hiring and training process for employees (Hodge & Lear, 2011). Monetary resources could be saved by hiring workers who would increase the profitability of the company by reducing unnecessary training costs.

Despite a college degree, a general consensus of the workforce indicates that newly graduated job-seekers and employees are not up to the 21st century skill sets expected by their

employers (Boyles, 2012). College students are aware of the importance of a college degree for one's future, the deficiencies lie among the student's lack of skills at the expected level (Boyles, 2012). According to a survey by Duerden et al. (2014), 46% of high school graduates currently in the workforce and 39% of individuals currently in college reported identifying a gap between information and preparation learned in school and that which is expected on the job—21st century skills (Duerden et al, 2014).

With emphasis of new employees falling short of employer's expectations, and to ensure the growth and development of U.S. companies among the global economy, it is necessary for educators to recognize the need to ensure opportunities for students to develop the 21st century skills needed for their future careers. Acknowledgement of a gap between what employers perceive as important post-education 21st century skills and the skills students are exposed and engaged in during their time of higher education may point toward a lack of available resources for student engagement and experiences at the college level and the need for additional resources for 21st century skill set learning opportunities.

21st Century Skills Attainment. American Management Association's collaboration with the Partnership for 21st Century Skills' 2010 survey reported that an overwhelming amount of employers did not believe higher education institutions are providing adequate resources for students to develop skills needed in their future careers (Hodge & Lear, 2011). As students are often enrolled in full time courses, have affiliated study time, engage in extracurricular activities, jobs, and have additional life commitments, they must cultivate needed skills during these engagements. According to Archer and Davison (2008), our country has and will continue to experience changing economic conditions as well as challenges in the global economy. Challenges associated with these conditions will emerge and employees, potentially new

graduate employees, will need to be educated with "knowledge, skills, imagination, fortitude, and educational excellence" in order to succeed in future career demands (Soule & Warrick, 2015, p178). Students will need to be equipped with new skills not just for college success but success in their careers and civic responsibilities (Wagner, 2008). As our society, and subsequently the skills needed to succeed, change, it is no longer acceptable to expect old ways of education, preparation, and influence to meet the needs of a different era (Wagner, 2008). Students need to be prepared to bridge their college education with their future career. Such can be fostered through specific instruction paired with hands-on learning opportunities (Mourshed, Farrell, & Barton, 2012). If students are failed by a lack of exposure and opportunities to develop 21st century skills, they are left at a disadvantage for the competitive economy of one's career.

***Organizational Influence*.** In collaboration with educational institutions, business executives, and policy-makers have worked to support students to enhance their college and career 21st century skills. For example, the Partnership for 21st Century Learning (P21), a non-profit organization, works to provide students with an opportunity to learn 21st century skills (Soule & Warrick, 2015). P21 has created a framework to describe the "skills, knowledge and expertise students must master to succeed in work and life; it is a blend of content knowledge, specific skills, expertise and literacies" (Soule & Warrick, 2015). This framework can be implemented into schools as a foundation to combine support systems: 21st Century Standards, Assessments of 21st Century Skills, 21st Century Curriculum and Instruction, 21st Century Professional Development, and 21st Century Learning Environments, in order to best engage students and prepare them for the 21st century workforce (Soule & Warrick, 2015).

An additional organizational influence includes work-based learning experiences such as Junior Achievement and Jobs for America's Graduates (JAG). Junior Achievement is a non-

profit youth organization with a purpose to "inspire and prepare young people to succeed in a global economy" (Junior Achievement (n.d.). Junior Achievement programs reach children throughout the country to educate on economics and partner with businesses and educators to inform students of their potential (Casner-Lotto & Barrington, 2006). JAG is another non-profit focused on the success of students through their transitions through education and into careers. JAG's main objective is to prevent youth education dropout among at-risk youth through program applications for students conducted by the JAG National Network (Jobs for America's graduates, 2011). These programs include: Middle school (6^{th} to 8^{th} graders), Multi-year (9^{th} to 12^{th} graders), Alternative Education (6^{th} to 12^{th} graders), Senior (12^{th} graders only), Out-of-School (dropout recovery), and Early College Success (college students). Such programs impact students with developmentally appropriate elements of guidance, leadership development, adult mentoring, follow-up services, and more (Jobs for America's graduates, 2011). Both Junior Achievement and JAG inadvertently encourage the attainment and enhancement of 21^{st} century skills through work-based learning experiences. Organizational influence on the attainment of 21^{st} century skills provide a unique opportunity for students to identify and understand opportunities to enhance their skills through practice, shadowing, internships, knowledge-building, etc. prior to job-seeking and investment into a career.

Education's Role. When asked where primary responsibility lies to make new employers ready for the workplace with 21^{st} century skills, the majority (68%) claim colleges and universities (Casner-Lotto & Barrington, 2006;). However, according to Mourshed et al. (2012), only 42% of employers believe the individuals recently hired acquired an education which adequately prepared them for their current position. Such lack of preparedness may be contributed by a lack of classroom preparation or a lack of ability to transfer skills from their

coursework and college experiences into their professional life. Students need to be guided through this transition, as many may not recognize the importance of transferable skills to their future. Students' focus may lie on their current academic success while assuming success within their concentrated major is enough to secure a job. This viewpoint lacks forward, post-graduation attention (Hodge & Lear, 2011), and may contribute to a lack of motivation. According to a recent survey by the National Association of Colleges and Employers (NACE) on behalf of the Career Advisory Board, 47% of respondents claimed students lack motivation to secure a job post-graduation (McGrory-Dixon, 2012). However, the difficulty stems much deeper; 56% of university and college career center directors report student lacking formal career preparation and professional development techniques which is the main barrier ultimately preventing attainment of employment post-graduation (McGrory-Dixon, 2012). Therefore, since the traditional form of preparation have proved inept, there is a need for individuals engaging with emerging adults, often students on a college campus, to identify alternative methods to prepare and enhance 21st contrary skills.

Classroom Influence. Many universities are creating programs and strategies to address and embrace 21st century skills at the college level. For example, Wurdinger and Qureshi (2014) examined the development of life skills in a Project Based Learning course as teachers guide students through a process of problem solving, including "identifying a problem, developing a plan, testing the plan against reality, and reflecting on the plan while in the process of designing and completing a project" (p. 279). Life skills assessed included time management, responsibility, problem solving, self-direction, collaboration, communication, creativity, and work ethic. Barker and Mak (2013) studied the use of curriculum and classroom diversity in developing opportunities for students to further explore their intercultural viewpoints,

sociocultural understanding, and the presence of culture in a professional practice all while improving their intercultural communication skills. With a focus on the global workplace, classroom professors can embed intercultural skills and knowledge into their classroom curriculum using an established intercultural resource EXCELL, "a behavioral competence development approach grounded in a participatory strategy that builds intercultural inclusion and awareness of self and others (Barker & Mak, 2013, p. 587). Authors implemented the resource across business, nursing, and pharmacy classrooms finding success among intercultural awareness, knowledge and communication over disciplines (Barker & Mak, 2013). These two examples represent a multitude of possibilities 21st century skills can be enhanced in the classroom setting.

It is important to note, however, that skills required in today's global economy need not be the sole responsibility of classroom teachers (Sole & Warrick, 2015). Individuals and stakeholders from prek-12, postsecondary and adult education, along with stakeholders involved in after-school, youth and workforce development and training must work in tandem to properly prepare students to become 21st century skilled citizens who can compete in the global economy (Vockley, 2008). In fact, research argues that one's job experience is more beneficial at increasing one's skills than ones education (Livingston, 1971).

Student Engagement. Student engagement on various facets can provide exposure and educational opportunities for 21st century skill set enhancement. A few student examples to be explored include volunteerism and student employment: camp employment and campus employment.

Phillips and Phillips (2000) focused on college students or recent graduates' volunteer experience, specifically targeting "employer-identified desirable job skills" (p. 573).

Volunteering has often been the focus of students for purposes of career exploration, however, the usefulness of volunteer experiences extends beyond to include career development skills for one's future. The authors extended the common view of volunteer roles claiming that "it is not uncommon to find volunteers supervising others, participating in organization leadership and decision making, budgeting, raising funds, preparing reports, and making presentations internally or to external constituents" (Phillips & Phillips, 2000, p. 575). Students engaged in volunteer opportunities can gain essential 21st century skills, valued by future employers, in addition to work experience in a field of choice.

An additional method for emerging adult students to acquire, enhance, and gain experience of 21st century skill sets is through student employment on and off campus. According to the National Center for Education Statistics, nearly 50% of undergraduates work in part-time jobs while enrolled as full-time students (Lewis, 2008). Cheng and Alcántara (2007) reported student's self-declared benefits from working experiences while simultaneously attending school which included possession of money, on-the-job learning, access to life beyond campus (if held off-campus), interaction, communication, and networking opportunities, potential summer positions or employment upon graduation. Consequently, campus employment, specifically, fosters financial independence, job-searching skills, fine-tuned social skills, time management skills, better understanding of academic and career interests/opportunities, and enhanced self-confidence in working with others (Lewis, 2008). Staff and Schulenberg (2010) suggested the pairing of age-appropriate jobs with an adult mentor can foster appropriate learning opportunities for specific skills needed for success both in academics and work achievement. It is important to note that not all campus employment will expose and prepare students with identical skills;

therefore, identification of which employment opportunities will most likely foster these skills needs to be identified

One example of off campus student employment is in a camp setting. Camp employment is noted as a 'typical' college student summer job, making up for a large proportion of the 20.5 million employed 16- to 24-year-olds in July 2016 (U.S. Census Bureau, 2016). Duerden et al. (2014) surveyed individuals whom had attended camp to understand the impact camp work experiences had on development of workforce-specific skills. Their research echoed the larger body of literature (Bialeschki, Henderson, & James, 2007; Garst & Bruce, 2003; Thurber, Scanlin, Scheuler, & Henderson, 2007) in support of camp experiences offering camp staff, specifically emerging adults, and environment promoting skills bearing similarities with 21st century skills. The authors equated 21st century skills to camp employment development outcomes identified by Casner-Lotto and Barrington (2006), and Lippman, Atlenza, Rivers, and Keith (2008) noting that the development of skills bear similarities. Twenty-first century skills such as oral communication, teamwork/collaboration, social competence, ethics/social responsibility, critical thinking/problem solving, leadership, self-direction, self-management, and creativity pair well with camp outcomes of communication, teamwork, interpersonal skills, decision-making, leadership, identity development, independence, initiative, and confidence; respectively. Duerden et al. (2014) found similar camp outcomes among their surveyed population.

For many staff, the exploratory nature of camp for many emerging adult employees can serve as a context for experience and exploration of work-related identities (Duerden et al., 2014). Additional benefits of camp employment identified by Duerden et al. (2014) included: communication skills (listening, sharing, and public speaking), problem solving, leadership

(mentoring, responsibility), and interpersonal skills (empathy, conflict management). Additional positive outcomes associated with camp employment include positive relationships, exposure to diversity, teamwork, personal growth such as leadership and responsibility, and interpersonal skills (Bialeschki, Dahowski, and Henderson, 1998). In a survey of 800 adolescent camp staff, reports of camp employment fostering skills included teamwork, initiative, identity, interpersonal skills, confidence, sense of belonging, and problem-solving skills (Duerden et al, 2014). As demonstrated by the authors, such skill attainment of emerging adults in a camp employment setting bear similarities to 21st century skills desired by current employers. Employment as a camp staff member is an environment that offers opportunity to experience, practice and enhance a variety of 21st century skills.

On campus, many job opportunities are available for student employment. The current study will focus on the specific position of an academic mentor or tutor. Universities and colleges offer the possibility for college students to develop job-related skills, potentially transferable skills, through interactions with peers in an academic tutoring center (Boyles, 2012). Loke and Chow (2007) conducted interviews with academic tutors concluding that one's experience during the tutoring process enhanced both their problem-solving and critical thinking skills all while enhancing one's personal growth. Such skills were noted as a characteristic that would be useful in graduate school and work positions. Two particular students noted their experiences with enhanced communication skills including how to approach another individual in a tutoring environment as well as awareness of their personal attitude during communication. Additionally, one tutor noted increased ability of articulating herself due to a need to provide clear explanations to her tutee.

Sinclair et al. (2015) noted common characteristics shared by quality mentors/tutors identified within the literature. These characteristics include: consistency, accessibility and continued support; emotional intelligence and sensitivity towards their tutee; increased interpersonal communication skills; ability to engage in collaboration without personal bias and judgement; timely and constructive feedback; positive attitude, passion, friendliness, enthusiasm and professional motivation; team member; and the ability to set realistic goals. Each of the preceding mentioned mentor characteristics can easily be transferred as vital skills in a variety of future study and career positions. Chi's (1996) research suggested that the process of tutoring provides opportunities for students to actively construct knowledge during the learning process. During tutoring sessions, students are given the chance to deepen their understanding practice processes of reasoning which is a building block on constructing skills needed to think critically in their future endeavors.

Pirate Academic Success Center. As a result of research discussed above, the associated university institution's tutoring center, Pirate Academic Success Center (PASC), will be the focus of this study. The PASC provides a unique campus employment opportunity in which students can gain leadership experiences while fostering additional 21st century skills. PASC began in 2008 and has since grown to offer students free access to tutoring and study skills services, workshops, and mentoring. The center's mission is " to provide support for students through peer academic tutoring, academic success strategies, individual assessment and consultations, and outreach initiatives, programs and services that promote retention, meeting academic requirements, and timely graduation" (PASC, 2016).

In the 2015/2016 year alone, the PASC served nearly 5,000 students with over 30,000 face to face sessions. The center employees nearly 300 students, crew members, who serve individuals,

at the freshman, sophomore, and, sparingly, junior and senior levels, academic tutoring sessions over a variety of course subjects totaling 138 courses over 24 different departments. The PASC offers both daytime and evening tutoring sessions, with an average of 100 tutees each night, in addition to digital tutoring services for 13 science courses which allows tutoring through PASC to be available to both on- and off-campus students.

Success centers such as the PASC seek to provide opportunities for student growth during tutor and tutee engagement. In order to create a successful and thriving environment, the center requires crew members to participate in tutor training programs, termed levels, which grants a baseline of academic knowledge and techniques, as well as preparation for tutee engagement, when and where to seek additional help, and a greater community among other students, striving to give back to their fellow student body all while gaining leadership skills. In order to be considered for a tutoring position, the student must have a GPA at or above a 3.0, have earned an 'A' in the tutoring subject/class, be enrolled in 12 credit hours for the current semester, be comfortable and proficient in communicating with peers, receive a recommendation from a faculty member of the tutoring course, and partake in a group interview with staff of the PASC. Meeting the criteria, crew members receive 10 hours of training covering subjects such as handling difficult situations, academic integrity/ ethics, and techniques during tutor sessions, basic do's/don'ts of tutoring, active listening, learning styles, communication and critical thinking skills, and suggestive study skills. Crew members can contribute as tutors or mentors in several domains: lead tutor, daytime tutor, volunteer peer tutor, lead mentor, or volunteer peer mentor. Table 2 outlines the requirements of and expectations from crew members at the various domains.

Table 2

Requirements and Expectations of Crew Members

Role	Requirements and expectations	Role	Requirements and expectations
Lead Tutor	Work day and night paid shifts Serve as supervisor for walk-in tutor sessions/ liaison to group of daytime and peer tutors Facilitate test preparation sessions; present to a large group of students and cover information provided by the course professor for test preparation sessions Assist in training of daytime and peer tutors	Lead Mentor	Supports ECU freshman through bi-weekly mentor session to ease the transition into college Served as mentor for more than one year Certified to train peer mentors Paid position
Daytime tutor	Appointment based daytime tutor Up to 10 paid hours a week with no more than three students per tutoring session appointment.	Volunteer Peer Mentor	Supports ECU freshman through bi-weekly mentor session to ease the transition into college Starting point position for mentors
Volunteer Peer Tutor	Trained and tutors on volunteer basis		

Note. Hiring criteria varies among position, however each crew member but be a fulltime ECU student, with at least a 3.0 GPA, have taken and earned an 'A' in the course they are tutoring, and come recommended by a professor and possess

The PASC offers tutors/mentors opportunities for growth and leadership through their 3 levels, Table 3. In addition to the skills tutors gain during the tutor and mentor sessions, they are also given opportunities to further their skill sets through training activities. Goals of the training activities include preparation for diverse situations during a tutoring session, ability to recognize a need for additional help and know whom to turn to, and familiarity with tutoring topics. Training sessions at the PASC are facilitated face-to-face as to orchestrate a community environment with fellow peers and facilitate collaborative learning.

Table 3

Training Session Levels

Level	Tutor requirements and expectations	Mentor requirements and expectations
1	10 hours of tutoring plus 25 hours of tutoring	15 hours of training plus 50 hours of mentoring
2	Completion of level one requirements, 25 hours of tutoring, and 10 hours of additional tutor training	Completion of level one requirements, 15 hours of training plus 75 hours of mentoring
3	Much responsibility and viewed as role models and a go-to resource throughout the center. Facilitation of level one training day in addition to a minimum of 10 hours of tutor training and 75 hours of tutoring	Completion of level one and two requirements, 15 hours of training plus 100 hours of mentoring

Training sessions for the system levels allows for enhancement of 21st century skills such as collaborative learning, communication, team building, critical thinking, and workforce readiness skills, especially for third levels tutors. These skills equip students for the interviewing process through exposure to a multitude of situations in which to pull from during interviews to demonstrate skill proficiency as well as experiences transferable to their future.

Theoretical Framework

Two theories, the Life Course Perspective (LCP) and psychoanalytic theory of Erik Erikson's theory, with the addition of Jeffery Arnett's concept of Emerging Adulthood, will guide the theoretical framework for the current study. Keeping in mind the population of this study, emerging adults in college, the central task of Erikson's adolescence stage is to identify an avenue in creating a personal identity commitment. As an individual moves into the emerging adult years, they are met with the conflict, identified by Erikson, of intimacy versus isolation which requires the individual to possess a sense of identity already established. This sense of identity roots from experiences of one's past. LCP suggests that each individual experiences transitions, defined as "change in roles and statuses that represents a distinct departure from prior roles and statuses" on a course of life's trajectory, defined as "long-term pattern of stability and change, which usually involves multiple transitions" (Hutchison, 2010, p. 12). Therefore, as an emerging adult is continuing their development of identity, they are considering both their past experience transitions as well future transitions.

Two of the most dominant themes most appropriate to this study among LCP, identified by Glen Elder include timing of lives and linked or interdependent lives (Hutchison, 2010). Timing of lives offers the perspective that society uses age as a variable for social interaction and experiences. Life course scholars are interested with age in terms of when specific life events or

transitions occur based upon social expectations (Hutchison, 2010). For example, in the emerging and young adult years, society expects an individual to have been schooled and enter the workforce in order to contribute to society. Additionally, linked or interdependent lives calls attention to how relationships influences one's behavior (Hutchison, 2010) and the significance of merging life trajectories through social relationships. Taking Erikson's 5th stage of development into consideration, identity versus role confusion, in the emerging adult years, LCP offers a framework to navigate the individual's environment and implications on development. Within a stage theory, social relationships are embedded into the individual's crises of development, role demands, and ego formation (Elder, 2006). Erikson's theory aligns with the LCP highlighting the influence of relationships on ones behavior through "expectations, rewards, and punishments" (Hutchison, 2010). Erikson did not contend that identity ends with its formation during the adolescent years, but continues to adapt as an ongoing process throughout one's adulthood (Hoare & Ebrary, 2002). Therefore, one's identity formation extends beyond the period of adolescence and continues to be an evolving characteristic throughout all of adulthood—it is the "capstone to youth, and, as such, is both the spring board and the ongoing nutrient" for continued development (Hoare & Ebrary, 2002).

The Life Course Perspective

The Life Course Perspective offers a theoretical model merging several disciplines: sociology, anthropology, social history, demography, and psychology. The perspective began in the 1960's when Glen Elder Jr. analyzed data from longitudinal studies from the Institute of Child Welfare at the University of California from the early 1920's (Elder & Shanahan, 2006; Hutchison, 2010). From the longitudinal child study, Elder identified the influence of family, education, and work on one's development. The model suggests that the outcome of any

developmental state is a representation of the previous stage(s) as well as an input into the individual's next stage of development (Elder & Shanahan, 2006). This model's perspective identifies the multifaceted and interconnected nature of life's experiences over time from birth until death (Elder & Shanahan, 2006). LCP organizes one's life based upon social relationships and interactions "structured by multiple role sequences and their transitions" (Elder, 2006, p. 944). Despite drawing on developmental psychology theories, the LCP differs by focusing on the effect of historical time, social location, and culture on the individual's experience of each life stage (Hutchison, 2010).

Erikson's Psychoanalytic Theory

Erik Erikson, a psychoanalyst known for his advancement on Freud's psychoanalytic theory stages, expanded the greater concepts of the child's social interactions with others through his corresponding stage theory. Erikson's stages represent a major conflict an individual must confront through each age stage. The breakdown of Erikson's stages are as follows: basic trust versus mistrust (birth-1 year); autonomy versus shame, doubt (1-3 years); initiative versus guilt (3-6 years); industry versus inferiority (6-11 years); identity versus role confusion (adolescence); intimacy versus isolation (young adult); generativity versus self-absorption, stagnation (adulthood); ego integrity versus despair (old age) (Crain, 2011).

According to Elder (2006), each of Erikson's stages outlines a critical period of conflict and potential crisis for development during that time in conjunction with the formation of one's ego over time. Ego development is largely influenced through the interaction between social situations in which the individual's ego further developed (one's personality) and the role demands within each stage (Elder, 2006). For example, in Erikson's 5th and 6th stages, identity

versus role confusion and intimacy versus isolation, respectively, individuals are typically involved in social interactions with others whether in a college classroom setting, a job, or with peers. During this time individuals are continuing to develop their ego—based much upon the success of the stage(s) and the individual's experiences throughout. In addition, according to Erikson, the primary developmental task of an individual during the transition from adolescence through emerging adulthood is the formation of an identity in various domains: relationships, social, career, etc. Jeffrey Jensen Arnett also adds to the literature of this stage in which he terms, emerging adulthood, citing that identity formation involves exploring various life possibilities and subsequently gradually making decisions (Arnett, 2000). Emerging adulthood is distinguished by potential separation from social roles and expectations; allowing emerging adults to explore possible life directions in among the realms of love, work, and worldviews (Arnett, 2000). College students are typically within the emerging adulthood age range of 18-25 and are concurrently within a developmental period where their interests, both personal and occupational, are explored and maturing through participating in course work, extra-curricular engagement, and employment (Sung, Turner, & Kaewchinda, 2011). Emerging adults are naturally developing job-related skills and their career identity through their continual interactions with peers both in the classroom and at work (Sung, Turner, & Kaewchinda, 2011). Stringer, Kerpelman, and Skorikov (2011) defined career identity as "the sense of self derived from one's development of an occupational career and is an important component of one's overall identity" (p. 158). One's experiences as an emerging adult will impact their career identity and career formation (Hodge & Lear, 2011) as individuals in this age group use their education as a means for personal exploration and a means to discover various possibilities to prepare for future work (Arnett, 2000).

Alignment of LCP with Erikson's Theory

Both Erikson's theory of development and the LCP seem to suggest that an individual should be viewed in regards to their totality as opposed to separate domains. One's developmental course is embedded into a system of social transitions, interactions, and interdependencies across ages, relations, and life experiences (Elder, 2006; Hutchison, 2010). Both theories will guide this research by structuring the review of social transitions, interactions, and experiences by individuals in a college university setting through their specific engagement as senior status student tutors in the Pirate Academic Success Center.

CHAPTER 3: METHODS

Purpose

When students possess and demonstrate 21st century skills, they become much more desirable candidates in the workplace because they can offer abilities necessary for success. The purpose of this study was to determine if student employment in a tutor/mentoring environment allows for appropriate experiences to enhance 21st century skills essential for success in careers and/or professional schools.

Research Questions

1. What 21st century skills do crew members identify as the top 5 skills needed for the workplace?
2. Does level predict readiness of 21st century skill level? (based upon indicated readiness by crew member)
3. Does class rank or length of time in school predict readiness of 21st century skill level?
4. Is center experience more strongly correlated to developing 21st century skills than other experiences (classroom, extracurricular activity, other job, etc.)?
5. Does 21st century skill development significantly differ between the student role groups in the PASC?

Hypotheses

1. Crew members will note both forms of communication, teamwork, critical thinking/problem solving, creativity/initiative as the top 5 skills needed for the workplace.
2. The higher the level of training, the greater the number of skills crew members will list as a '5' or 'excellent' when referencing their personal workforce readiness.

3. Class rank will positively predict readiness of 21st century skill levels.
4. Crew members will attribute tutor or mentor work experience as the greatest contributing environment of the 21st century skills.
5. Skill development will significantly differ between the student role groups in the PASC.

Sampling

The criteria to participate in the study required individuals' to be a tutor or mentor at the PASC. This sample was chosen specifically for several reasons; first, students employed or volunteering by/at the PASC have ready experience in working with other students in a teaching/mentorship role; second, the PASC serves as a resource for application of learned and further advancement of skills; third, students are a captive audience for data collection purpose; and lastly, the select subgroup of student allows for initial data collection and analysis in effort to later generalize to a larger population. After IRB approval, a convenience sampling technique was applied to recruit a study sample. The lead author of this study partnered with the PASC to obtain study participants. The target sample size for the current study was 240 participants; final sample was 131 students.

Measures

Basic and Applied skills. Measures of both basic and applied skills were adapted from Casner-Lotto and Barrington's (2006) study incorporating responses from human resource professionals from four participating organizations: The Conference Board, Corporate Voices for Working Families, Partnership for 21st Century Skills, and the Society for Human Resource Management regarding the skills necessary for success in the workplace of the 21st century. Authors defined basic knowledge which includes English language, written comprehension, writing in English, math, science, government knowledge, humanities, foreign language(s), and

history as the skills which are supplemented by applied skills, critical thinking, oral and written communication, teamwork, diversity, information technology application, leadership, creativity, self-encouragement, professionalism, and ethical responsibilities (Casner-Lotto & Barrington, 2006). Although both basic knowledge and applied skills are crucial for individuals entering the workforce, as determined in their study, when employers ranked the most important skills for new workforce employees, applied skills rose above the perception of basic skills (Casner-Lotto & Barrington, 2006). Therefore, applied skills were the focus throughout this study.

Due to difficulty in identifying a scale which adequately measured a specific set of 21st century skills, the current study used a determined list of applied skills from Casner-Lotto and Barrington (2006) to measure the value in the workplace, rate of personal readiness, and attributing setting for each 21st century skill. Psychometrics of the Casner-Lotto and Barrington (2006) study were not provided as part of the report.

This study contributed to future research in three ways. First, by applying the measurement outlined by Casner-Lotto and Barrington (2006) of skill attainment, readiness, and importance from an employee perspective to a new population of college students. Secondly, to explore the identified gap from a student, as future employee, perspective. Lastly, to identify the usefulness of a mentoring/tutoring center as an avenue of skill development.

Demographics. Additional variables include age, gender, race/ethnicity, education, academic major, level, and length as a student tutor. These variables are of interest because each of these variables may influence the opportunities and experiences of students. In turn, each of these variables may help to further explain the relationship between 21st century skills and student employment:

Age. Participants will be asked to provide their age at their last birthday.

Gender. Participants will be asked to provide their gender.

Race/Ethnicity. Participants will identify their race and/or ethnicity by selecting options from the following list: Black/African-American, White, Hispanic/Latino, Asian/Pacific Islander, Native American, Biracial, Other.

Education. Participants will be asked to select their current academic rank (e.g. freshman, sophomore, junior, senior).

Academic Major. Participants will be asked to write in their major.

Role in PASC. Participants will be asked to indicate their role in the PASC given choices of lead tutor, daytime tutor, volunteer peer tutor, lead mentor, and volunteer peer mentor.

Level. Participants will be asked to choose the level (1, 2, or 3) affiliated with the PASC.

Length at PASC. Participants will be asked to write in the number of months as a tutor/mentor in PASC.

Data Collection Procedure

The Applied Skills measurement scale and the demographic variables was combined into one questionnaire, Appendix B, using Qualtrics (Qualtrics Labs Inc., Provo, UT), an online survey tool. The survey URL was distributed to students via a tiny-url link projected at training sessions for PASC roles. The study author attended all 11 training sessions. Eleven data collection times allowed for accommodation of various role training sessions as well as convenience of additional survey collection if needed. Upon introducing herself, the researcher presented a brief overview of the research objectives and invited participation from students. The data collection period occurred 9 separate days in the month of January 2017.

Upon opening the link, students were prompted to an introductory message serving as the informed consent document. The introduction message stated that by clicking on the link to the survey, the student provided consent. After giving consent, participants were able to complete the survey or stop during any portion.

Data Analysis

After data collection days were complete, results were exported into SPSS for data analysis. Specifically, a frequency distribution was run for research question 1, MANCOVAs were run for research questions 2 and 5, several regression analyses were run for research question 3, and a Pearson correlation was run for research question 4. Each statistical test will be further explained in the results.

CHAPTER 4: RESULTS

Sample Characteristics

The final sample used for analysis yielded 80 females and 50 males (with one student requesting not to respond). The majority of the sample was White/Caucasian (85.2%) with the remaining participants reporting their race and/or ethnicity as Black/African-American (8.7%), Hispanic/Latino (1.7%), Biracial (1.7%), Asian/Pacific Islander (.9%), Native American (.9%), and other (.9%). The participant's reported academic rank included freshmen (9.2%), sophomores (27.48%), juniors (27.48%), seniors (32.82%), and graduate students (12.3%). Role in the PASC was represented by lead tutor, lead mentor, peer tutor, peer mentor and daytime tutor. Participants represented these roles with over one-third as peer tutors (37.40%), almost one-third (29.01%) as daytime tutors, lead tutors at 22.14%, peer mentors at 6.11%, and lead mentors at 5.34%.

Surprisingly, a large proportion (40.46%) of the participants noted their level affiliation at PASC as new or not yet achieved a level. Level 1, 2, and 3 were decreasingly represented in their participants with 29.01% in level 1, 19.85% in level 2, and 10.69% in level 3.

When asked which setting(s) promoted each participants' workforce readiness, results display the tutor/mentor position setting was chosen by 79.39 % of the participants, followed closely by classroom (77.86%), job(s) (75.57%), and volunteering (75.57%) (See Table 4).

Table 4

Individual Characteristics as a Percentage of the Sample

Characteristic		Participant percentage (n-131)
Race/Ethnicity		
	White/Caucasian	71.8
	Asian/Pacific Islander	10.7
	Black/African American	9.2
	Hispanic/Latino	3.8
	Other	2.3
	Biracial	1.5
	Native American	0.8
Gender		
	Female	61.1
	Male	38.2
Academic Rank		
	Freshmen	9.9
	Sophomore	27.6
	Junior	27.5
	Senior	32.8
	Other	2.3
Role		
	Lead Tutor	22.1
	Lead Mentor	5.3
	Peer Tutor	37.4
	Peer Mentor	6.1
	Daytime Tutor	29.0
Level		
	Not Yet Achieved	40.5
	Level 1	29.0
	Level 2	19.9
	Level 3	10.7

Student surveys were collected using Qualtrics (Qualtrics, Provo, UT), then exported and analyzed using SPSS (IBM SPSS Version 22.0). The independent variables for the current study included: student PASC level, class rank in school, experiences (community organization, jobs, classroom, tutoring/mentoring, volunteering, internship, and camp/camp counselor), and student PASC roles. The dependent variables for the current study were the 21st century skills: Critical thinking, oral communication, written communication, teamwork/collaboration, diversity, information technology application, leadership, creativity/innovation, lifelong learning/self-direction, and ethics/social responsibility. Individual research question tests were run, based upon the previously discussed appropriate test. Each research question (1-5) was analyzed using various analyses. Each separate analysis will be further described in relation to the specific research question.

Frequency Distribution

The first research question: What 21st century skills do crew members identify as top 5 skills needed for the workplace, was assessed using a frequency distribution. When ranking the 5 most important skills for future career success, the majority of respondents noted critical thinking/problem solving as their top choice (n=34). For second most important skill, the majority of respondents noted critical thinking as their top choices at n=28. For the third most important skill, the highest noted skill was, teamwork at n=21. For fourth most important skill, highest noted skill was oral communications at n=20. Finally, the fifth most important skill noted by respondents was professionalism at n=23. Figure 1 outlines the distribution of each skill as well as reports student responses. An alternative interpretation of the data in response to the research question can be obtained via participants responses of the value each skill has for success in the workplace. Taken from this perspective, skills holding the highest values include,

in descending order, oral communication, critical thinking, teamwork, leadership, and ethics (Figure 2).

Figure 1 Individual Student Responses of Top 5 Skills Needed for the Workplace

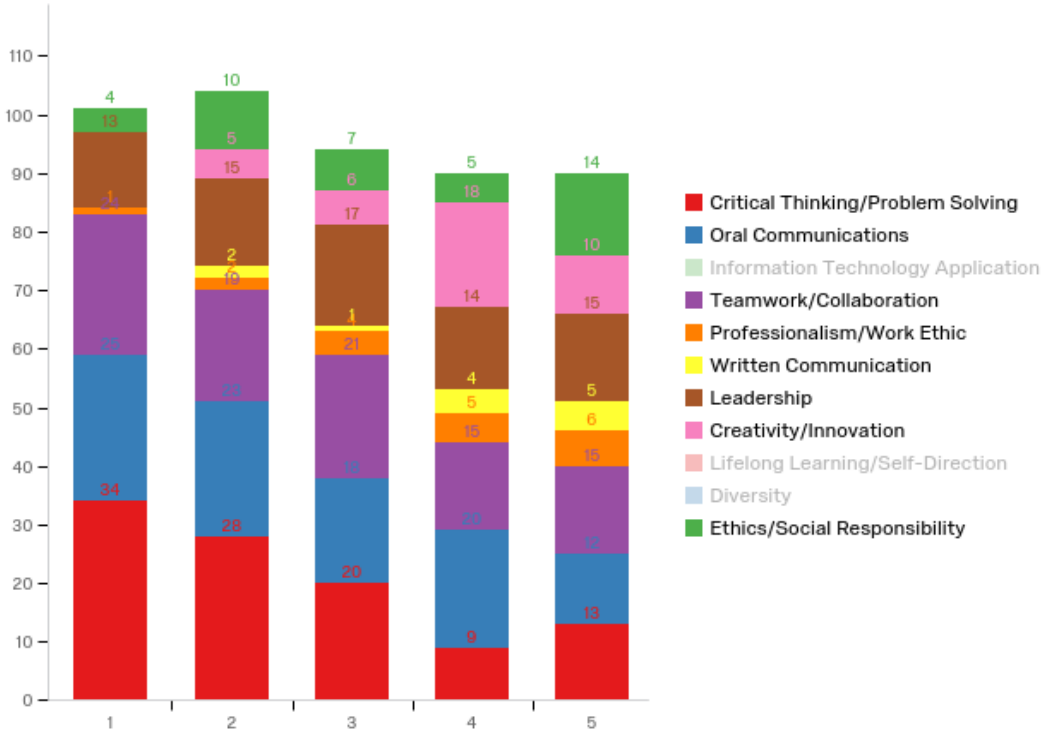
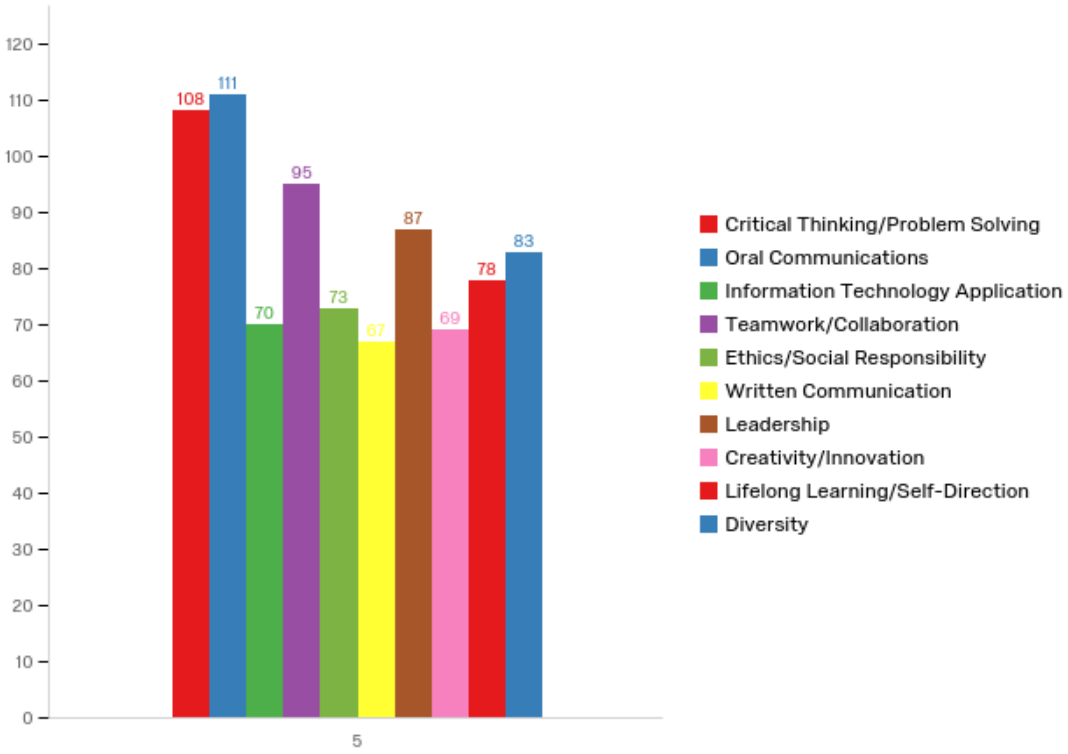


Figure 2. Student Responses of the Value Each Skill Has for Success in the Workplace



Student Responses

With regard to each student's response of skill readiness, Table 5 provides the mean scores and rank-order of all ten 21st century skills. Mean scores remained on the upper end of the scale.

Table 5

Mean Scores, Rank-order for Student Responses on 21st Century Skill Readiness

Skill	Mean Score	Rank-order
Critical thinking/problem solving	4.33	5
Oral communication	4.26	7
Written communication	3.95	9
Teamwork/collaboration	4.37	3
Diversity	4.29	6
Information technology/application	3.91	10
Leadership	4.36	4
Creativity/innovation	3.98	8
Lifelong learning/self-direction	4.40	1
Ethics/social responsibility	4.39	2

Note: Critical thinking/problem solving, oral communication, teamwork/collaboration, leadership, creativity/innovation, ethics/social responsibility were based upon n=129; written communication, information technology application, lifelong learning/self-direction were based upon n=128; diversity was based upon n=127.

MANCOVA

The second and fifth research questions were analyzed using separate MANCOVAs. Separate MANCOVAs were used for analysis of covariance with multiple dependent variables, controlling for covariates, in this case, oral communication and information technology application, in order to achieve an understanding of and test for significant differences between group means. The multivariate result was not significant for level, Wilks' Lambda= .794, F (28,314.7), p = .69, indicating no difference, when holding oral communication constant, in skill readiness between student's level at PASC. The multivariate result was also not significant for role, Wilks' Lambda= .621, F (38,384.8), p = .1, indicating no difference, when holding information technology application constant, in skill readiness between student's role at PASC. Information technology application was held constant in order to not consider its effects among other variables.

Regression Analysis

Regression analyses were used to analyze the third research question, the prediction of readiness of 21st century skills from participant's class rank. Overall, class rank did not significantly correlate with 21st century skills readiness scores. The following out line each separate linear regression in prediction of 21st century skills from class rank. Results include, critical thinking/problem: a non-significant regression equation was found (F(1,127)=1.828, p=0.179), with R^2 of .014; oral communication: a non-significant regression equation was found (F(1,127)=2.668, p=.105), with R^2 of .021; written communication: a non-significant regression equation was found (F(1,126)=.921, p=0.339), with R^2 of .007; teamwork/collaboration: a non-significant regression equation was found (F(1,127)=.052, p=.820), with R^2 of .000; diversity: a non-significant regression equation was found (F(1,125)=2.935, p=0.089), with R^2 of .023;

information technology: a non-significant regression equation was found ($F(1,126)=.071$, $p=.791$), with R^2 of .001; leadership: a non-significant regression equation was found ($F(1,127)=.131$, $p=0.718$), with R^2 of .001; creativity: a non-significant regression equation was found ($F(1,127)=.541$, $p=0.463$), with R^2 of .004; lifelong learning: a non-significant regression equation was found ($F(1,127)=0.0638$, $p=0.802$), with R^2 of .001; and ethics/social responsibility: a non-significant regression equation was found ($F(1,127)=0.479$, $p=0.490$), with R^2 of .004.

Pearson Correlation

The fourth research question addressed if center experience was more strongly correlated to developing 21st century skills than other experiences (classroom, extracurricular activity, other job, etc.). A Pearson Correlation was run to identify relationships between development of 21st century skills and experience settings. Results can be seen in Table 6. The largest and most significant findings were found between the tutoring/mentoring setting and thinking/problem solving, oral communication, diversity, and leadership. There existed a moderate, positive correlation between tutoring/mentoring and thinking/problem solving, $r = 0.28$, $n = 129$, $p = 0.0$. There was also a moderate, positive correlation between tutoring/mentoring and oral communication, $r = 0.2$, $n = 129$, $p = 0.0$. A moderate, positive correlation was found between tutoring/mentoring and diversity, $r = 0.3$, $n = 127$, $p = 0.0$. Finally, there was a moderate, positive correlation between tutoring/mentoring and leadership, $r = 0.3$, $n = 129$, $p = 0.0$.

The remaining significant correlations between settings and skill development were all negative. Correlations include a moderate, negative correlation between community organization and diversity, $r =- 0.2$, $n = 127$, $p = 0.0$; community organization and ethics/social responsibility, $r = -0.2$, $n = 129$, $p = 0.0$; jobs and teamwork, $r = -0.2$, $n = 129$, $p = 0.0$; jobs and creativity, $r = -$

0.2, n = 129, p = 0.0; jobs and ethics, r = -0.2, n = 129, p = 0.0; internship and ethics/social responsibility, r = -0.2, n = 129, p = 0.0.

Table 6

Correlation

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
2. Role	**-.10**																		
3. Level	**.54****	**-.33****																	
4. Think	**.12**	**.01**	**.10**																
5. Oral	**.14**	**.04**	**.20***	**.42****															
6. Written	**-.10**	**.10**	**-.12**	**.20***	**.10**														
7. Team	**.02**	**-.15**	**.06**	**.17***	**.17**	**.22***													
8. Diversity	**.15**	**.03**	**.14**	**.39****	**.32****	**.08**	**.31****												
9. Tech	**.02**	**-.20***	**.10**	**.30****	**.22***	**.11**	**.16***	**.31****											
10. Lead	**-.03**	**.08**	**.10**	**.30****	**.16**	**.01**	**.34****	**.27****	**.30****										
11. Creative	**.07**	**-.04**	**.09**	**.27****	**.20***	**.11**	**.29****	**.36****	**.20***	**.33****									
12. Learn	**-.02**	**.07**	**.04**	**.34****	**.24****	**.21***	**.31****	**.25****	**.15**	**.30****	**.28****								
13. Ethics	**.06**	**.11**	**-.03**	**.44****	**.34****	**.31****	**.40****	**.48****	**.22***	**.32****	**.19***	**.30****							
14. Comm Org	**-.01**	**-.00**	**-.04**	**-.02**	**.06**	**-.05**	**.02**	**-.21***	**.02**	**-.02**	**-.06**	**.02**	**-.19***						

Table 6 Continued

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
15. Job	.12	-.17*	.07	-.10	-.03	-.05	-.19*	-.16	-.16	-.09	-.20	-.10	-.18*	.29**					
16. Class	-.03	.04	-.07	-.02	.07	.15	.07	-.10	.01	-.04	.01	.09	.01	.37**	.38				
17. PASC	.15	.03	.34**	.28**	.18*	.04	.17	.27**	.11	.25**	.16	.17	.13	.23**	.21*	.24**			
18. Volunt	-.11	-.00	-.01	-.02	.06	-.01	.09	.05	.06	.01	.07	-.01	-.06	.47**	.12	.41**	.37**		
19. Intern	.11	-.10	.21*	-.06	.00	-.15	-.16	-.01	.08	.03	.11	-.09	-.20*	.06	.14	-.02	.23**	.07	
20. Camp	-.04	.06	-.09	-.03	-.02	.02	.11	-.17	-.00	.10	-.13	.10	.08	.07	.07	.06	.17*	.07	-.04

Note. 1= Academic rank. 21st century skills: Role= Role in the PASC, Level= Level affiliated with PASC, Think=Critical thinking/problem solving, Oral=Oral communication, Written=Written communication, Team=Teamwork, Diversity=Diversity, Tech=Information Technology Application, Lead= Leadership, Creative=Creativity, Learn=Lifelong-learning/self-direction, Ethics=Ethics/social responsibility. Experiences: Comm Org= Community organization, Job=Job(s), Class=Classroom, PASC= Tutoring/Mentoring position, Volunt=Volunteering, Intern=Internship, Camp=Camp/camp counselor. *p<.05 level (2-tailed), **p<.01 level (2-tailed)

CHAPTER 5: DISCUSSION

Discussion

The current study presents findings related to PASC crew member's perceptions on personal skill readiness, value of skills, and skill attainment and avenues for continued skills growth. Results suggest a gap remains among student, crew members, rating of skills needed in the workplace and their own readiness of skills. Responses also support experiences as a crew member within the PASC as a valuable and strong support of the development of specific 21st century skills. Overall, experience and opportunity of work within the PASC was noted as a positive factor in development of essential skills. These findings help advance understanding of this specific sector of skill attainment and continued skill building as well as suggest implications for professional development at a student level. Separate research questions and the implications of each will be discussed further.

RQ 1: What 21st century skills do crew members identify as the top 5 skills needed for the workplace?

Hypothesis 1: Crew members will note both forms of communication, teamwork, critical thinking/problem solving, creativity/initiative as the top 5 skills needed for the workplace.

The survey indicated the majority of respondents chose critical thinking/problem solving as their top choice, followed by oral communication, teamwork, professionalism, and leadership as their perception of the top 5 most important skills for future career success. As noted above, an alternative interpretation can be obtained via participants responses of the value each skill has for success in the workplace, ranked in descending order: oral communication, critical thinking/problem solving, teamwork/collaboration, leadership, and ethics. In partial support of

the author's hypothesis, only one form of communication, oral communication, was chosen as a top skill. Ninety-nine participants ranked oral communication within the 5 top skills, however, only 12 placed written anywhere among the top 5 skills. Such discrepancy may be explained as mentors utilize oral communication, more than written communication, during sessions which would contribute to inclusion of the skill in the top 5 importance. Participants may also value oral communication since they are working with peers face-to-face. Given a different form of working circumstances, communication avenues, written and oral, may be rated and/or valued differently.

Results were a bit surprising when considering participants rank of their own readiness of the skills in comparison to the value ranked. Students rated themselves best at lifelong learning/self-direction, however, such skill did not rank high enough by participants to be included in Figure 1, page 32 displaying the distribution of student responses for each skill. Additionally, creativity/initiative was hypothesized to rank among the top 5 skills needed for the workplace, however, only 39 participants ranked the skill anywhere among the 5 top skills and it was not included in the top 5 skills of highest value for success in the workplace. Just as surprising, participants rated themselves in the lower half of oral communication readiness in comparison to other skills, ranked 7th, which was reported by participants as one of the top most important and valuable skills for the workplace. Students may value skills they deem important currently, in their education, however, be speculating about value of skills in the workplace. Soule and Warrick (2015) offer business executive's perspective of valued and exercised skills (critical thinking, problem solving, innovative thinking, collaboration with others, and professional and effective communication) by current/seasoned employees, claiming such skills lack among new employees. Main considerations and student self-ratings support the

discrepancy noted in previous literature and among employees on student readiness of necessary skills for the workplace (Casner-Lotto, & Barrington, 2006; Duerden et al., 2014; Farrington et al., 2012; Hodge & Lear, 2011). Based upon students surveyed, this study supports previous research and highlights the gap between student perspectives and employer expectations

RQ 2: Does level predict readiness of 21st century skill level? (Based upon indicated readiness by crew member)

Hypothesis 2: The higher the level of training, the greater the number of skills crew members will list as a '5' or 'excellent' when referencing their personal workforce readiness.

Prediction of the relationship between level and readiness of 21st century skills did not support the author's hypothesis. Level did not predict readiness of student on any skills. It should be reiterated, demographically, a large proportion (40.46%) of the participants noted their level affiliation at PASC as new or not yet achieved a level. With such a large percentage of participants not having achieved a level, results may be representative of a lack of diversity among level status instead of a true representation of a lack of prediction on skill readiness by level. As previously noted, level training through the PASC allows for additional avenues of skill attainment and continued use of skill application for increasing one's skill readiness. Therefore, although it cannot be seen through this study, previous research supports that continued training would only reinforce personal workforce readiness skills as students are given opportunities to actively utilize skills during the tutoring/mentoring sessions (Chi, 1995; and Sinclair et al., 2015)

RQ 3: Does class rank or length of time in school predict readiness of 21st century skill level?

Hypothesis 3: Class rank will positively predict readiness of 21st century skill levels.

Contrary to the authors' hypothesis, class rank did not predict readiness of 21st century skills, as for none of the skills were significantly predicted by student's response of class rank. Sample demographics were not evenly distributed among class rank, however, over 58% of participants represent upperclassmen—juniors and seniors. It was anticipated that the longer a student is enrolled in classes, the more situations and opportunities they would be exposed to in order to enhance their readiness. However, considerations reflect the lack of influence on a student's year in school and more on their experiences and opportunities to gain and enhance such skills. Foubert and Grainger (2006) report on the strong association between involvement in student organizations and psychosocial development, clarifying purpose, educational involvement, career planning, life management, and cultural participation. Although not noting specific 21st century skills, authors reinforce the implications of student involvement and making opportunities available for students to promote skill development gains (Foubert and Grainger, 2006).

RQ 4: Is center experience more strongly correlated to developing 21st century skills than other experiences (classroom, extracurricular activity, other job, etc.)?

Hypothesis 4: Crew members will attribute tutor or mentor work experiences as the greatest contributing environment of the 21st century skills.

When comparing student experiences as avenues for skill development, results supported the hypothesis that students would attribute tutor or mentor work experience as the greatest contributing environment of the attainment of 21st century skills. Students are responsible for

leadership and held accountable in supervising their peers. Through a mentoring/tutoring positions, students are able to practice skills and gain experience that can be easily transfer to future career positions.

Significant negative correlations were found between the following experiences and skills: community organization and diversity, community organization and ethics/social responsibility, jobs and teamwork, creativity, and ethics, and internship and ethics/social responsibility. Jobs was negatively correlated with three skill sets which suggests that students are not pursuing jobs, or jobs are not available to students, which promote use of skill growth for their future. The survey inquired about student jobs, and did not specific current or previous jobs. Specifics on current student employment was not asked during this study, however, it is possible that students do not have a job outside of their position at the PASC and/or were not thinking to their prior job experiences. In contrast, participants may have interpreted the question as future jobs which may have influenced results. Participants were asked to provide their major. In effort to further understand the relationship between major and job outlook. Reports on academic major resulted in much variability spanning from health sciences to education to exercise science. Based upon majors reported, the two most reported majors were nursing and biology. As two health sciences majors, participant's anticipation of skill value may differ from majority marketing or education majors. It is important to consider the implications of major on student outlook of necessary skills for the workplace.

RQ 5: Does 21st century skill development significantly differ between the three student role groups in the PASC?

Hypothesis 5: Skill development will significantly differ between the three student role groups in the PASC.

Contrary to the hypothesis, differences were not found between readiness of 21st century skills among student PASC roles. This result speaks for the general, overall, influence of the PASC as a whole over individual roles. Additionally, it is important to note, according to demographics of participants, the majority of the sample reported their role as one of the three tutors (Lead, Peer, or Daytime). This finding, then, is not surprising since experiences among tutors, in comparison to mentors, would likely be similar. As noted in analysis of research question 4, experience at the PASC was statistically significant in relation to several skill developments, however, due to lack of variability within the sample, the influence of role on skill development cannot be determined. Therefore, such relationship cannot be attributed to specific roles, but instead, to the work and influence of the PASC on student experience as a whole.

It should be noted, that value of skills did not differ based upon student roles. This is a significant finding because despite varying responsibilities among student roles in the PASC, the perspective of skill values were similar which speaks to the lack of segregation between roles and recognized responsibilities and highlights student engagement and commitment to both their personal role, their overall involvement in the PASC, and making the most of their position.

Implications

As noted by Casner-Lotto and Barrington (2006), employers cite colleges and universities are responsible for student readiness to enter the workforce. Such responsibility takes intentional guidance for students during their time in higher education. Centers such as the PASC are

capitalizing on offering students opportunities to gain and enhance their skill readiness. Study results emphasize the need to assist students in skill building in order to close the gap between student readiness and employer expectations. Implications of student responses indicate a continued need for individuals and centers working with students in higher education to help promote skill readiness, specifically, in roles such as peer student tutoring and mentoring. Additionally, as noted, most students surveyed were entering fields falling under the umbrella of hard sciences. Much focus on education for entering these fields of study are focused on specific career skills, however, the is a great need for increased use and application of communication skills among this field and such skills will only advance student achievement. Further research is needed to continue to best understand how students can be supported in their increase in personal skill readiness.

Conclusions

Overall, students with positions through the PASC ranked themselves on the positive end of the scale for readiness of each 21st century skill. It is important to note that almost half participants (40%) reported not having achieved a level at the PASC. As discussed previously, the training sessions for the system levels allows for enhancement of 21st century skills. Therefore, results may differ later into the spring semester or future years as students are allowed time and opportunity to reach level 1, 2, or 3 status and enhance their skills.

According to participant responses, students are able to recognize the value of each skill both in their present academic work as well as in a future career. Responses align with the study's theoretical perspective as students are able to consider influences from their past and present and apply to their identity as a student, an employee/volunteer at the PASC, and a future

employee status as a general influential developmental period of their live to future social transitions, interactions, and experiences.

Limitations

The specific population surveyed for this study was limited to students employed or volunteering their time at the PASC. Since student participants possess 3.0 and above grade point averages as a requirement to hold a position of responsibility within the center, it is important to consider the rigor of students survey and note results may not be able to be representational to the study body as a whole in representing student readiness of 21st century skills. However, this study's aim was simply to further understand if a position with the PASC was advantageous in student's readiness and future application of 21st century skills. This study should be replicated at other post-secondary institutions with a more general participant representation.

Another great limitation to this study was the timing the survey was distributed. The author presented the study and asked for student participation at a training meeting for student PASC roles. Although the author emphasized the study was not in relation to the student's participation or relation to the PASC, data collection time may have influenced participants' responses.

A final limitation to this study was an oversight by the author in which the skill of professionalism/work ethic was omitted from the choices when asking participants to rank their readiness and the value of the skills to the workplace. Such omission may have altered correlations and frequency distribution if given the skill option.

Future Research

Additional research needs to be completed in this area of 21st century skill development to close the gap between student readiness perception and employer perception. As noted by

participant responses of valued skills verses mean readiness scores, there remains a gap in student readiness for application of skills in future employment. As suggested above, future research with PASC students, or other student mentors, should follow them throughout their training and experience giving more varying responses on skill readiness. An alternative method for future research should consider utilizing student months or years of experience as a tutor/mentor as an alternative to their level for better representation of experience.

Specific research with students who have graduated after serving as a lead tutor/mentor, peer tutor/mentor or daytime tutor can further examine the transition from student to professional and the application of skills in a career. Further analysis could provide individuals working with college-age students, especially in the influential position of the PASC, with specific focuses which serve to be beneficial for students as employees.

Taking on a varied perspective, future research should consider perspectives of tutees on what skills are being used during their sessions by both themselves and their tutor.

Branching out to a larger population and greater understanding of student readiness, the participant group should also be expanded to include students outside of PASC positions. By broadening the scope of students surveyed, a greater understanding of general student readiness and perception can be considered. Specifically, definitive testing of potential differences between undergraduate and graduate skill levels is of interest.

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APPENDIX A: IRB APPROVAL

EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board Office
4N-70 Brody Medical Sciences Building· Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284** · **www.ecu.edu/irb**

Notification of Exempt Certification

From:	Social/Behavioral IRB
To:	Kerry Robbins
CC:	Eboni Baugh
Date:	12/5/2016
Re:	UMCIRB 16-002195 21st Century Skill Attainment

I am pleased to inform you that your research submission has been certified as exempt on 12/3/2016. This study is eligible for Exempt Certification under category #2.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The UMCIRB office will hold your exemption application for a period of five years from the date of this letter. If you wish to continue this protocol beyond this period, you will need to submit an Exemption Certification request at least 30 days before the end of the five year period.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

APPENDIX B: IMPLEMENTATION SURVEY

21st century skills attainment survey

Survey Question	Question response choices (if applicable)
1. Please enter your numerical age	
2. Please provide the gender you most identify with.	Male Female Non-binary/third gender Prefer not to say
3. Please provide the race and/or ethnicity you most identify with:	Black/African-American White Hispanic/Latino Asian/Pacific Islander Native American Biracial Other
4. Please select your current academic rank	Freshman Sophomore Junior Senior Other
5. Please indicate your primary major	
6. Please choose your role at the Pirate Academic Success Center	Lead Tutor Lead Mentor Peer Tutor Peer Mentor Daytime Tutor
7. Please choose the level you affiliate with at the Pirate Academic Success Center	Non/Not yet achieved level Level 1 Level 2 Level 3
8. Please list, in number of months, how long you have been a tutor or mentor at Pirate Academic Success Center	

How valuable do you see the following skills for success in the workforce? 9. Critical Thinking/Problem Solving 10. Oral Communication 11. Written Communication 12. Teamwork/Collaboration 13. Diversity 14. Information Technology Application 15. Leadership 16. Creativity/Innovation 17. Lifelong Learning/ Self Direction 18. Professionalism/Work Ethic 19. Ethics/Social Responsibility	For questions 9-19, please respond using the following Likert scale: 1=N.A 2= Lacking 3=Adequate 4=Good 5=Excellent
20. Which setting(s) promote workforce readiness, choose all that apply	Community organization Job(s) Classroom Tutoring/Mentoring position Volunteering Internship None of the above
21. Rank the 5 most important skills for future career success. 1=1st most important of the 5 skills; 2= 2nd most important of the 5 skills; 3= 3rd most important of the 5 skills; 4= 4th most important of the 5 skills; 5=5th most important of the 5 skills.	*Not all skills will be ranked, only 5 Skill Ranking Critical Thinking/Problem Solving Oral Communications Written Communications Teamwork/Collaboration Diversity Information Technology Application Leadership Creativity/Innovation Lifelong Learning/ Self Direction Professionalism/Work Ethic Ethics/Social Responsibility