An Exploration of Emotional Intelligence and Technology Skills Among Students at a Midwestern University

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This thesis titled
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Abstract

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The author of this study sought to explore the relationship between emotional intelligence and technology proficiency among undergraduate pre-service teachers enrolled in a teacher preparation technology course. The study seeks to contribute to the understanding of the relationship between two important educational elements (emotional intelligence and technology skills) that need to be applied to a twenty-first century education. The study analyzed 113 surveys administered to undergraduate pre-service teachers enrolled in teacher preparation technology courses.

The results of this study indicated that participants own a high level of emotional intelligence and very low technology skills. The results also indicate that there is no significant relationship between emotional intelligence and technology skills among undergraduate pre-service teachers in a College of Education teacher preparation technology course at a Midwestern University.
Dedication

To my parents, Primo Incerti & Ilde Rosati
Acknowledgments

I would like to express my appreciation to the members of my committee: Dr. Teresa Franklin, chair; Dr. Guofang Wan; Dr. Mike Hess and Dr. Greg Kessler. I wish to specifically thank my advisor, Dr. Teresa Franklin, for her mentoring, her invaluable advice and encouragement throughout this process. Her guidance helped me shape an idea into a complete study. Dr. Franklin, thank you also for the many stimulating conversations throughout my Master’s program; our conversations truly enriched me. Special thanks also to Jamie Smith – soon to be Dr. Smith – for all her encouragement, support, and for being an example of what it means to have a passion for teaching.

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Chapter 1: Introduction

The introduction of technology that has been underway in classrooms for the last two decades has revamped schools and teaching philosophies (Dunn, 2011). In the beginning, technology was only in the hands of teachers who employed it to deliver their lessons. In recent years, though, the proliferation of portable technologies such as laptops, tablets, and smart-phones has put technology in the hands of students. Surely, the birth of the digital era has changed our classrooms and our students who, being people born after the advent of digital technology, have been coined the digital natives (Prensky, 2001), or the millennials (Oblinger, 2003).

Today, digital natives are entering college classes with their own personal electronic devices, and they are so attached to such high-tech electronics that they see them as accessories for their apparel. Students born after the advent of the digital era are used to living surrounded by electronics, which provide entertainment, connection with peers, and assistance with daily tasks (Prensky, 2001). In school, learners born after 1994 are challenging our teaching styles and our teaching philosophies, and are driving us into a new evolution in our pedagogical approach (Oakes, 2012).

This educational paradigm shift is transforming the delivery of education inside and outside the classroom; via Internet students can access material taught in the classroom ubiquitously, and can choose to expand on subjects with the aid of web resources (Edutopia, 2008; Brown, 2012). Implementing technology-rich classrooms and adding school resources on the web coupled with the revision of course curricula that incorporate courses targeted to prepare students for college-entrance exams (Zarling,
2012) is only a single step toward twenty-first century learning as this approach does not foster intellectual capabilities, social-emotional skills and teachers’ or students’ technology abilities (Berry, 2011; EDUCAUSE, 2011; Partnership for 21st Century Skills, 2010).

As schools incorporate new electronic tools for instruction that change the classroom environment and help to motivate students, and as instructors develop new curricula to increase learners’ skills and college preparation, it is important to take into consideration that one of the most influential factors in students’ learning is their social-emotional condition. Aside from poverty, social-emotional issues - not lack of intellectual capabilities or outdated classrooms - are the number one cause for the majority of high school student dropouts (American Psychological Association, 2012). “Emotional processes affect how and what we learn” (Durlak et al., 2011, p. 405). According to subject matter experts, “emotions can facilitate or impede children’s academic engagement, work ethic, commitment, and ultimate school success” (Durlak et al., 2011, p. 405).

Rethinking our education, today it would be impossible to conceive educating students without the involvement of technology. We live in a time regarded as the ‘digital era’ (Hawkins, 2001) where we can fetch information with the click of a mouse on the Web, which is an infinite resource of content. Portable smart devices make it possible for our society to be universally connected and thus capable of acquiring knowledge ubiquitously. There is an intrinsic opportunity in these technological advances that can help us to progress into a leading literate and educated society. This accessible bonanza
of knowledge is an opportunity to grow in literacy, and such opportunity should not be squandered by letting digital natives favor new technologies solely as tools to enhance their social life (Carson, 2012).

Technology can help educators, and it is through education that we can help redirect youths’ appreciation for technology as a tool from which they can learn valuable skills (EDUCAUSE, 2011). In addition, modernizing classrooms fulfills the wishes of millennials, who desire to have classrooms with a proliferation of avant-garde technology, along with professors who are technology-savvy (EDUCAUSE, 2011).

A technology-compliant classroom is certainly a step toward a twenty-first century education, and the pedagogy of today requires the breaking of old casts; “this generation requires a different brand of education that will enable them to attain their personal dreams and to serve the society they must lead. The education we offered to previous generations, whether successful or not, will not work for these students” (Levine & Dean, 2012, p. 164). The vision of an education in the twenty-first century consists of a threefold approach that fosters student’s intellectual capabilities, technical skills (teaching students how to employ digital tools that will allow them to learn skills as needed), and social-emotional skills (Berry, 2011).

While all three of these skills are important, social-emotional skills are the skills that students need the most (Goleman, 2000). Social-emotional skills are not only skills that will serve students for the future, but will also be needed while students are still in school because emotions impact students’ learning process. It is known that learning happens, at a neurological level, when emotions and intellect work synchronously
In order for students to use their full intellectual capacities, the emotional part of their brain needs to be engaged in learning.

Contrary to popular belief, the learning process is a process that involves the use of intellectual as well as cognitive capabilities (Goleman, 2000). Neuroscience has revealed that our emotions are the connecting components of learning and if the emotional state of learners is corrupted, their learning capabilities will be impaired (Amunts et al., 2005). Learners, who struggle with the adoption of positive coping mechanisms, will struggle with learning because, at a neurological level, learning starts in the emotional areas of the brain (Amunts et al., 2005).

Teaching pupils emotional skills such as recognizing their emotions, handling feelings, directing self towards a goal, empathy, and relationships management (Goleman, 2010) can help them with their learning process as well as developing positive coping mechanisms. It has been found that positive emotions support learning, but negative emotions have been associated with the reduction of motivation, lowering performance, and decreased learning (Daniels et al. 2009).

It is only in the last few decades that recognition of the need for the development of socio-emotional skills in schools has gained momentum. Studies show positive outcomes from the institutions that have included social emotional learning in their programs (Goleman, 2010). This newer practice has only resonated in parochial programs because in the current educational system, intellectual quotient (IQ) scores are regarded as one of the strongest predictors of a student’s academic success (Davidson, 2010).
In recent years, the predictive efficacy of IQ scores has been questioned. While IQ tests may show students’ levels of intellectual aptitude, they do not reveal information regarding the emotional development of students, nor their ability to connect their emotions to the material that they are learning (Davidson, 2010). Dr. Daniel Goleman, the pioneer designer of the *Emotional Intelligence Theory*, suggests that Emotional Intelligence (EI) quotient is the primary determinant of social-emotional skills (Goleman, 2010). EI, in essence, is the ability, the capacity and the skills to identify, to assess, and to control personal emotions, as well the emotions of others, and of groups” (Goleman, 1995). Dr. Robert Cooper defines emotional intelligence as “the ability to sense, understand and effectively apply the power of and acumen of emotions as a source of human energy, information, trust, creativity and influence” (Singh, 2006, p. 35).

The development of socio-emotional skills increases the likelihood for career success in every field. Dr. Goleman’s studies show that there is a strong correlation “between emotional intelligence and measurable business results” (Goleman, 2004, p.1). Although EI skills might not seem transferable to education curricula, Dr. Goleman believes that emotional intelligence can be taught (Goleman, 2010). Given the goal of education is to prepare pupils for success in life, it is important to analyze what educational elements students need to acquire for success (Berry, 2011). Then, to ensure that students will succeed in life, educational goals must be tailored to align not only with traditional subject material, but also with practical information, which will prepare students for their career (Berry, 2011).
Statement of Problem

Our educational system is going through many changes. As we endeavor to educate a cohort of digital natives into a society that progresses into the future, it is important to understand which factors will make students succeed in life, and which ones are obstacles that will prevent them from reaching individual success. We live in a time when technology can come to the aid of education by helping students increase their intellectual capabilities (Brown, 2012). The reform of education has added technology to classroom, but has not adequately prepared teachers to use technology to foster students’ learning (EDUCAUSE, 2011; Archambault et al., 2010).

Additionally, today’s students are surrounded by technology, but they are not as technology savvy as they are portrayed to be by media, or understood to be by common beliefs (Bauerlain, 2009; Combes, 2008). Today’s students are not only challenged intellectually in education, but they are especially challenged emotionally inside and outside the classroom (Peltokorpi et al., 2011). National statistics report an increasing number of millennials who struggle with emotional issues, which significantly interfere with daily life, and increases from previous years. It is disheartening to learn that nearly 11 million children in the U.S. have some type of serious mental illness, which prevents them from doing everyday tasks, and 44% of mentally ill children drop out of school (McFadden, 2012).

Our schools are a mélange of students who range from the challenged to the brightest, and who sometimes are the same person due to emotional issues (Peltokorpi et al., 2011). In many instances the students with the highest IQs are the ones who have
more debilitating emotional problems (Harrison & Van Haneghan, 2011). Statistics are
appalling “One in five children has a diagnosable mental disorder, and one in 10 youths
has serious mental health problems that are severe enough to impair how they function at
home, school, or in the community” (Masi & Cooper, 2006, p. 3). Reports from studies
on youth and emotional problems are startling, “Over 50 percent of students with a
mental disorder age 14 and older drop out of high school—the highest dropout rate of any
disability group” (U.S. Dept. of Education, 2006, p. 3). These factors create a challenge
for educators as well who feel unprepared to teach students who struggle with emotional
problems (Christensen et al., 2005, p. 2).

Today’s youth are plagued with many emotional problems which need to be taken
into consideration because emotions drive learning (Amunts et al., 2005). The changes
made to our pedagogical approach should be thought out with the mindset that, without
the development of social-emotional skills, students’ ability to connect their emotions to
the subject matter is impaired (Davidson, 2010). The byproduct of tailoring social-
emotional skills will be evident in students’ future success: business statistics reveal that
among the skills that lead to success, social-emotional skills, not intellectual skills,
determine work actualization (Bradberry & Greaves, 2009).

Emotional Intelligence skills can help young adults with building positive coping
mechanisms (Goleman, 2010; Immordino-Yang, 2011), and technology in the classroom
can also help in the development of social-emotional skills; when placed in environments
which offer more choices in how they can engage with course work, students have the
ability to implement an array of coping strategies that help them diffusing negative
emotions (Marchand & Gutierrez, 2012). It is important to consider the benefits of teaching social-emotional skills, which have been proven to be helpful in decreasing the incidents of cyber-bullying (Goleman, 2011). Given the use of technology both inside and outside the classroom for social networking, teachers must have the technology skills necessary to persist in the use of technology in their classroom (Goleman, 2010) and the understanding of technology to identify issues of cyber-bullying (Aoyama, Saxon, & Fearon, 2011).

**Purpose of This Study**

The purpose of this study is to explore a possible relationship between technology proficiency and emotional intelligence among students in a college of Education as these pre-service teachers will be in direct contact with future students. Since the arrival of digital natives in our classrooms, our pedagogical methods have evolved in the attempt to prepare the new generation for the future. Schools have concentrated their efforts in making classrooms technology compliant and in revising curricula, but little attention has been given to preparing teachers to use technology in the classroom (EDUCAUSE, 2011) and to acquire social-emotional skills, which are some of the most important skills for the development of today’s youth (Davidson, 2010; Goleman, 2010). This study will provide insight regarding the emotional skills of university pre-service teachers, providing us with feedback regarding our current educational aims of integrating technology into teaching and learning.

**Research Question**

This research will be guided by the following question:
1. To what extent does a relationship exist between emotional intelligence and technology skills among undergraduate pre-service teachers in a College of Education teacher preparation technology course at a Midwestern University?

**Significance of this Study**

The results of this study will give us the opportunity to further advance the techniques that we need in education in order to prepare students for the future. Today, technology is ubiquitous: learners are able to enhance their skills virtually everywhere. Knowing the level of emotional intelligence of students may provide us with a better understanding of their use of technology and help in directing students’ focus to using technology for educational purposes (Carson, 2012). The results of this study will provide increasing academic success for students, as well as a better understanding of the role of technology in young adults’ lives.

**Limitations and Delimitations of This Study**

Conducting a study on the relationship between emotional intelligence and technology skills at a Midwestern University presents some potential limitations:

1. This study only included a population of college students in a defined social/economical area that includes a range of social/economical statuses.
2. The pool of participants was limited to the number of students enrolled in classes at a large Midwestern university that participated to this study.
3. The data was collected during Spring Semester 2013.
4. This research was conducted between January 2013 and May 2013.
5. The accuracy of the research outcomes was based on the items identified by those who participated in the sample survey.

6. The research was conducted around the answers received from participants via an online survey, which might be limited by the responses that participants answered only out of a sense of duty, or limited, by participants who hurried to complete the survey because they were apathetic toward this research.

**Definition of Terms**

The terms listed below will aid in the understanding of terminology used throughout this research.

**Blended Learning:** “a combination of face-to-face and online learning that represents a promising application of technology for deep learning and engagement” (Nolan et al., 2012, p. 43).

**Cyber-bullying:** “An aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself” (Smith et al., 2008, p. 376)

**Cyberspace:** “The realm of electronic communication” (dictionary.reference.com, 2012, para. 1).

**Digital Native, Millennials:** people being born after the advent of digital technology, or during and after 1983 (Prensky, 2001, p. 67; Oblinger, 2003).

**Emotional Intelligence (IE):** Emotional intelligence is the aptitude to accurately recognize and understand emotional reactions in self and others in abilities such as self-
esteem, self-management, acquiring and managing responsibility, being accountable, being social and practicing integrity and honesty (Bradberry & Greaves, 2009).

**Hyperconnected**: Being connected to the Internet all the time (Anderson & Rainie, 2012, p. 8).

**Intelligence Quotient (IQ)**: “an intelligence test score that is obtained by dividing mental age, which reflects the age-graded level of performance as derived from population norms, by chronological age and multiplying by 100: a score of 100 thus indicates a performance at exactly the normal level for that age group” (dictionary.reference.com, 2013, para. 1).

**Qualtrics**: “Qualtrics is an online survey platform” (Qualtrics, 2012, para. 1) that is used for research, data collection and analysis of data (Qualtrics, 2012).

**Tech-savvy**: “knowing a lot about modern technology, especially computers: The state needs more tech-savvy workers for its hi-tech industries” (dictionary.cambridge.org, 2013, para. 1).

**Summary**

The purpose of this research is to gain a deeper understanding of the relationship between social-emotional skills – emotional intelligence – and technical skills in college students who are preparing to become classroom teachers. This research will provide a framework which will further advance the adaptations that are needed in education in order to prepare young adults for a future of success. During this time of transition in education, in order to satisfy the educational needs of students, it is important to research
how emotional skills and technology skills can help the millennials in their academic pursuits.
Chapter 2: Literature Review

“The main hope of a nation lies in the proper education of its youth – Desiderius Erasmus Roterodamus” (Goodreads, 2013, para.1).

Our evolution into a society that is technology-driven is forcing us to reconsider our approach to education (Anderson & Rainie, 2012). Educating students in the digital era requires incorporating a new type of instruction and new instructional tools that will allow us to reduce the disparity between what students need to succeed and what education is currently able to offer in order to adequately prepare them to thrive in the global knowledge society (Clarke & Clarke, 2009). Authors Levine and Dean (2012) state that “this generation requires a different brand of education” (Levine & Dean, 2012, p. 164) because “the education we offered to previous generations, whether successful or not, will not work for these students” (Levine & Dean, 2012, p. 164).

Students born after the advent of the digital era (after 1994) have a different mindset than previous generations, as the 2016 List - The Mindset List for the Class of 2016 by Beloit College indicates. These students were born in “cyberspace and they have measured their output in the fundamental particles of life: bits, bytes, and bauds” (Beloit College, 2012, para. 1). The Beloit College list presents 75 examples of cultural influences that shape the lives of students who entered college during fall 2012. At number two in this list is the exposé of these students; “they have always lived in cyberspace, addicted to a new generation of “electronic narcotics”” (Beloit College, 2012, para. 5). The changes that the digital era has brought to the lives of students is obvious in the trend that “If they miss The Daily Show, they can always get their news on
YouTube” (Beloit College, 2012, para. 5), as well as the view that, “Point-and-shoot cameras are sooooo last millennium” (Beloit College, 2012, para. 5).

The list includes entries about mindsets that are indirectly related to technology, such as the observation that digital natives have never seen a paper airplane ticket, because, by the time they were born, airlines had switched to electronic tickets (Beloit College, 2012). Overall, the entries in the Beloit list illustrate how tremendously the digital era has changed the experiences of our young adults; today’s students require an education that is as contemporary as other facets of their lives (Levine & Dean, 2012). Preparing millennials for their future will require providing an education that will prepare them intellectually and emotionally for a technology-driven society (Goleman, 2010; Berry, 2011).

**Education and Technology**

The digital era that has transformed our students, our environment, and the delivery of education (inside and outside the classroom) has also transformed job descriptions for technology staffs in schools. The high demand for technology in schools is restructuring information technology (IT). In higher education, for instance, the *Top-Ten IT Issues for 2012* reported by EDUCAUSE classify “Updating professionals' skills and roles to accommodate emerging technologies and changing IT management and service delivery models as the number one issue” (EDUCAUSE, 2012, p. 39). The number two IT issue on campus is “supporting the trends toward IT consumerization and bring-your-own device” (EDUCAUSE, 2012, p. 39). Before smart devices became common, a school’s Information Technology department was focused on computer
hardware and the students’ data processing. Today, though, successful institutions have to budget for designated IT personnel who support the plethora of emerging technologies that students bring to class (EDUCAUSE, 2012).

Maintaining technology in classrooms today forces schools to allocate much of their budget for equipment and support, but that expense is inescapable because lessons geared toward digital natives – students for whom digital technology is native to life - would be ineffective without the aid of technology (Beloit College, 2012). These students are so fixated on digital gadgets that they come to class with electronic devices in their pockets (EDUCAUSE, 2012).

It would be impossible for education to create successful individuals without changing with the times, as authors Levine and Dean stress, “colleges and universities will have to change substantially if they are to provide students with their education” (Levine & Dean, 2012, p. 35). Educators around the country feel the need to modernize instruction, “educators have to break through the old paradigm and implement new tools” (Anderson & Rainie, 2012, p. 21). Author Barnett Berry argues that “educators must prepare themselves to meet every learner in an expanding educational “free market”, leveraging their teaching skills and knowledge as wise and caring guides who help students through a potentially bewildering world of technology-driven learning opportunities” (Berry, 2011, p. 4).

In the future, technology will be increasingly important to the education of our students. And, it will be crucial for education to redirect students’ understanding of technology so that they will recognize technology as a tool that will enable them to
acquire skills for success, and not just a tool which allows them to keep in touch with peers (Carson, 2012).

Today’s young adults were raised with technology, yet they need to be educated about the benefits that digital technology can add to their skill sets. “If we simply continue to use technologies to enhance the current structure and functioning of education, our young people will use the technologies to entertain themselves and engage in online socializing and shopping. We will have missed enormous opportunities to produce independent life-long learners” (Anderson & Rainie, 2012, p. 20).

**Digital Natives and Technology**

Statistics reveal that digital natives are accustomed to holding the latest digital devices in their hands “The volume of texting among teens has risen from 50 texts a day in 2009 to 60 texts for the median teen text user in 2012. In addition, smartphones are gaining teenage users. Some 23% of all those ages 12-17, say they have a smartphone and ownership is highest among older teens: 31% of those ages 14-17 have a smartphone, compared with just 8% of youth ages 12-13” (Lenhart, 2012, p. 2).

Based on recent surveys by the Pew Internet Project, we know that “95% of teens ages 12 – 17 are online, 76% use social networking sites, and 77% have cell phones. Moreover, 96% of those ages 18-29 are internet users, 84% use social networking sites, and 97% have cell phones. Well over half of those in that age cohort have smartphones, and 23% own tablet computers like iPads” (Anderson & Rainie, 2012, pp. 8-9).

Clearly, technology keeps youths connected. But, it does not fulfill the emotional needs that young adults feel. Levine and Dean (2012) have written, “contemporary
undergraduates are at once more connected and more isolated than their predecessors” (p. xiii). And they add that, “Today’s college students have extraordinarily close ties with their parents and are in 24/7 contact with a tribe of friends, family, and acquaintances via social media, yet they are more alone in many of the activities they pursue” (Levine & Dean, 2012, p. 12).

Technology can be helpful, but it can also be used for harm; teens who do not know how to deal with their emotional issues are more prone to participate in cyber-bullying. It has been reported that incidents of cyber-bullying among teens are increasing, “In recent years bullying through electronic means, specifically mobile phones or the internet, has emerged, often collectively labeled ‘cyber-bullying’. And, the potential for cyber-bullying has grown with the increasing penetration of networked computers and mobile phones among young people” (Aoyama et al., 2011, p. 95).

In order to prepare students for the future, it is vital to educate them with a threefold approach that includes fostering of intellectual capabilities, nurturing of social-emotional skills, and learning how to employ technology for education. Although adolescents are already experienced with using digital devices, in school, they need to learn how to apply digital tools in a manner that will be helpful to their careers and learn how technology can help them acquire skills that are on-demand (Berry, 2011).

**Teachers of the Twenty-First Century**

The rapid technological changes that we have undergone in the last couple of decades have created a different caliber of students who no longer associate learning with attending a lecture or taking notes on paper (Van der Meer, 2012). It has been reported
that the “traditional teaching methodologies (e.g., lectures and tests) are becoming obsolete in a world that encourages people to think critically and creatively” (Hainline et al., 2010, p. 7).

Instructors are tailoring their pedagogy to this new way of thinking although it is difficult for them to adapt to new pedagogies when they are constrained by old paradigms of teaching and there is a scarcity of literature, which is required to support this evolution of a pedagogy of the twenty-first century (Hemmi et al., 2009). “In the twenty-first century, instructors have multiple roles that include teacher, mentor and adviser” (Hainline et al., 2010, p. 7). Instructors are changing their pedagogical approach to emphasize active learning, which encourages students “to be discoverers rather than receptacles of knowledge” (Hainline et al., 2010, p. 8).

This new pedagogy includes the learning of new technologies, which, according to many of today’s teachers, they are unprepared to use in the classroom and in their role of teacher, mentor and adviser (Archambault et al., 2010). Studies show that “public in-service teachers reported a low level of self-efficacy in using Web 2.0 tools, as well as a low frequency of Web 2.0 tools integration in their classrooms” (Chien & Franklin, 2011, p. 28).

**Digital Natives and Technological Criticism**

In recent years, digital natives have been at the center of attention of some contemporary authors. Author Mark Bauerlain (2009), in his book *The Dumbest Generation: How the Digital Age Stupefies Young Americans and Jeopardizes our Future (Or, Don't Trust Anyone Under 30)* denounces youths’ ignorance as he adds to the
negative criticism that has stigmatized the younger generation. Bauerlein talks about this
generation of learners as being one which believes itself to possess knowledge and high
intellectual capacities because its members are able to swiftly fetch knowledge over the
Internet.

Bauerlein states that although millennials are well able to use pioneering
technology to consume content, they do not retain the knowledge they learn from the
sites that they have visited. Rather, away from digital devices, this younger generation
has been proven to be uneducated and immature (Bauerlein, 2010, p. 86; pp. 94-95).
Authors Levine and Dean defend Bauerlein’s view of this generation with their view that,
“in contrast to their predecessors, today’s college students are more immature, dependent,
coddled, and entitled” (Levine & Dean, 2012, p. 13).

While a dose of criticism can be useful (Goleman, 2010), vituperating our young
adults or modern technology will not help to make our students more mature or more
literate, especially if we look at the trajectory our society is taking toward
Redirecting young adults’ use of digital technologies for learning is the answer proposed
by Columbia’s Professor Hugh F. Cline who believes that in the future, school curricula
at all levels of education must include new techniques of learning and teaching in order to
affect cognition and behavior changes (Anderson & Rainie, 2012).

A survey conducted by Janna Anderson and Lee Rainie (2012) for the Pew
Internet Project on Teens, Technology, and Human Potential in 2020, shows that
respondents with a high amount of expertise in the subject matter share a positive outlook
for teens who master technology skills; “changes in learning behavior and cognition will
generally produce positive outcomes” (Anderson & Rainie, 2012, p. 2). In addition, they
point out that technology in the hands of teens will enrich our future, “this is the next
positive step in human evolution: We become “persistent paleontologists of our external
memories” (Anderson & Rainie, 2012, p. 9).

**Twenty-First Century Education and Technology Skills**

Today’s students, who will be tomorrow’s citizen, will require a hybrid education
that will prepare them in the core subjects, social-emotional development, technology
skills, “the skills, attitudes, values and competencies that will be needed have not always
been addressed in traditional education programs. Student’s resilience and ability to
accept and adapt to change will determine success” (Snape & Fox-Turnbull, 2011, p.
149).

In the twenty-first century, knowledge is more about application of knowledge,
and what students can do with the understanding of such knowledge rather than owning
ideas stored for recall (Gilbert, 2007). This type of modern education for students is a
type of blended learning, which is “a combination of face-to-face and online learning that
represents a promising application of technology for deep learning and engagement”
(Nolan et al., 2012, p. 43). And, “a pedagogy driven strategy to change the nature of
students’ educational experience and to build academic and personal habits and skills
students need to be lifelong active learners and digital citizens” (Nolan et al., 2012, p. 43-
44). This new type of pedagogy allows students to gain skills that will be key components
in their preparation for college and for their careers.

**Core subjects.** “Core subjects include English, reading or language arts, world languages, arts, mathematics, economics, science, geography, history, government and civics. Core subject must promote subjects such as global awareness; financial; economic; business and entrepreneurial literacy; civic literacy; health literacy; and environmental literacy” (Partnership for 21st Century Skills, 2009, p. 2).

**Learning and Innovation Skills.** “Learning and innovation skills are what separate students who are prepared for increasingly complex life and work environments in today’s world and those who are not. They include: creativity and innovation; critical thinking and problem solving, communication and collaboration” (Partnership for 21st Century Skills, 2009, p. 2).

**Information, Media and Technology Skills.** Today, we live in a technology and media-driven environment, marked by access to an abundance of information, rapid changes in technology tools and the ability to collaborate and make individual contributions on an unprecedented scale. “Effective citizens and workers must be able to exhibit a range of functional and critical thinking skills, such as: information literacy; media literacy; ICT (Information, Communications and Technology) literacy” (Partnership for 21st Century Skills, 2009, p. 2).
**Life and Career Skills.** Today’s life and work environments require far more than thinking skills and content knowledge. The ability to navigate the complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills, such as: “flexibility and adaptability; initiative and self-direction; social and cross-cultural skills; productivity and accountability; and leadership and responsibility” (Partnership for 21st Century Skills, 2009, p. 2).

Twenty-first century skills encompass the tri-fold approach which includes core subjects, social-emotional skills, and technology skills “to be productive contributors to society in our 21st century, students need to be able to quickly learn the core content of a field of knowledge while also mastering a broad portfolio of essentials in learning, innovation, technology, and careers skills needed for work and life” (Trilling & Fadel, 2009, p. 16).

**Digital Natives and Emotional Issues**

Statistics reported by the National Center of Children Poverty (NCCP) on the health of our youth are alarming. “Children and youth with mental health problems have lower educational achievement, greater involvement with the criminal justice system” (Stagman et al., 2010, p. 4):

2. One in ten youth has severe mental illness problems. Such problems impair how they function at home, school, and in the community (Stagman et al., 2010).

3. Children with mental issues may miss as many as eighteen to twenty-two days of school in a year (Blackorby & Cameto, 2004).

4. In high school, students who suffer from mental health problems are more prone to fail or to dropout (Stagman et al., 2010).

5. In school, up to fourteen percent of youth who suffer from mental issues receive mostly Ds and Fs, while only seven percent of children with disabilities receive mostly Ds and Fs (Blackorby et al., 2003). And, up to 44% of students with mental disorders drop out of high school (Wagner, 2005).

6. Over 10% of high school dropouts are students who suffer from mental issues (Breslau et al., 2008).

The benefits of teaching social-emotional skills in the classroom are received by students and teachers (Christensen et al., 2005) because students will be better able to handle their emotions, and teachers will not have to handle students with debilitating emotional issues who create challenging class dynamics. “Teachers complain about not having the knowledge base, skills, or confidence to teach these students” (Christensen et al., 2005, p. 2).
Learning Science and Educational Neuroscience

“Education is the ability to listen to almost anything without losing your temper or your self-confidence – Robert Frost” (Goodreads, 2013, para. 1).

In order to understand why emotional development in students is essential, it is important to approach the subject of learning from its physical origination. In recent years, the emerging scientific field of educational neuroscience has brought about important discoveries in the way the learning process is understood. Educational neuroscience is a cross-disciplinary field of study, which combines a variety of resources, methodologies, and results. Experts in the field of educational neuroscience believe that our understanding of learning is grounded in science. Learning theories should include “method research-based theories involving a range of disciplines, along with the neurosciences” (Patten, & Campbell, 2011, p. 20). Research conducted in educational neuroscience has brought us to the discovery that the processes of learning and memory “are driven by the neurological systems for emotion, social processing and self” (Immordino-Yang, 2011, p. 101). Or, in other words, learning starts in the emotional areas of the brain (Amunts et al., 2005).

Today, students have access to the world’s knowledge and information through any of countless global connections available ubiquitously. Through the web, anyone can access more information than ever before, such as world libraries, scholarly papers, newspaper articles and much more, in English as well as other languages; the web is a gold mine for anyone seeking knowledge. Acquiring knowledge is not a simple matter of intellectual capabilities (Goleman, 2008). The emotional parts of our brains make
information meaningful at a personal level, allowing us to internalize the information as it is acquired. Academic learning cannot be processed solely by the rational part of the brain. Otherwise, knowledge acquired during learning would remain a collection of disparate facts, rather than facts woven into a fabric of life experiences (Immordino-Yang, 2011).

During the process of learning, the “mind is influenced by the interdependency of the body and brain; both the body and brain are involved” (Immordino-Yang & Damasio, 2007, p. 3). Learning theories must take into account how the brain processes information at both the emotional and intellectual level. Neuroscientific evidence “suggests that we can no longer justify learning theories that dissociate the mind from the body, the self from social context” (Immordino-Yang, 2011, p. 101).

**Learning in the Brain**

Studies in neuroscience have reported that learning is constructed by intellectual and non-intellectual factors. While it was previously believed that only the intellectual area of the brain was involved during learning, it is now known that many areas of our brains are involved during learning. In fact, at a neurological level, learning starts in the emotional areas of the brain. Although our banks of knowledge are ultimately stored in the pre-frontal cortex area of our brains, the process of learning starts in the amygdala area of our brains. The amygdala is the area that processes both memory and emotional reactions as well as decision-making (Amunts et al., 2005).

“Emotion and cognition are intertwined, and involve interplay between the body and mind” (Immordino-Yang, 2011, p. 98). It has been found that, “social processing and
learning happen by internalizing our subjective interpretations of other people’s beliefs, goals, feelings and actions, and vicariously experiencing aspects of these as if they were our own” (Immordino-Yang, 2011, p. 98).

Thinking and learning are simultaneously processes that involve cognition and emotions within social and cultural contexts (Fischer & Bidell, 2006). The learning process starts with a thought about the experience that we are learning. This thought is not simply a detached agent, which, when applied, will start the learning process. Thoughts affect our emotions, “…thoughts are not scientifically measurable, but we can verify how they affect our bodies. We can actually feel our thoughts through our emotions” (Leaf, 2010, p. 21). Our thoughts and emotions work in tandem during the learning process so that subject matter can be internalized. Social processing and learning involve the internalization of individual interpretations of feelings and actions as we process through thought (Uddin et al., 2007).

Our emotions play a number of roles during the learning process; emotions add the subjective interpretation component to the learning that has been catalyzed by a thought, and emotions guide our judgment of the knowledge that we are learning. Doctor Antonio Damasio, and Doctor Mary Helen Immordino-Yang (2007) believe “that emotion-related processes are required for skills and knowledge to be transferred from the structured school environment to real-world decision making because they provide an emotional rudder to guide judgment and action” (Immordino-Yang & Damasio, 2007, p. 3). And, neurobiological evidence suggests that the “aspects of cognition that we recruit most heavily in schools, namely learning, attention, memory, decision making, and social
functioning, are both profoundly affected by and subsumed within the processes of emotion; we call these aspects emotional thought” (Immordino-Yang & Damasio, 2007, p. 3). Forming an opinion about the experience that we are living is part of the learning process, and it involves our emotions; decision-making is guided by emotions (Di Fabio et al., 2012).

It would be impossible to think of the learning process without the element of emotions because learning starts with a thought that influences emotions. “Thoughts are measurable and occupy mental “real estate.” Thoughts are active; they grow and change. Thoughts influence every decision, word, action and physical reaction we make” (Leaf, 2010, p. 13). Science has discovered that every experience that we live travels all the way from the area of the brain responsible for emotions; to the area where our rational thought process takes place (Bradberry & Greaves, 2009). What we think and imagine can change the structure of our brain down to the very connections between brain cells and into the genes. This neurological process is so powerful that learning can increase the number of connections between the brain cells just by virtue of increased brain activity (Doidge, 2007).

**Digital Natives and Emotional Issues**

Ultimately, students’ emotional states enable or impair their learning, regardless of the subject matter, and regardless of tools that teachers employ for learning. As previously stated, today’s students are not only challenged intellectually in education, but they are especially challenged emotionally inside and outside the classroom (Goleman, 2010; Immordino-Yang, 2011). National statistics report that digital natives lack the
skills which are necessary to deal with emotional issues (McFadden, 2012). “One in five children has a diagnosable mental disorder, and one in 10 youths has serious mental health problems that are severe enough to impair how they function at home, school, or in the community” (Masi & Cooper, 2006, p. 1). And, the highest rate of high school dropouts belongs to students with disabilities; over fifty percent of students with a mental illnesses drop out (U.S. Dept. of Education, 2006, p. 1). Today’s youth are plagued with many emotional problems, yet emotions are the drivers of learning (Amunts et al., 2005).

Learning happens best when students have a secure emotional state and a positive frame of mind. “We now understand that higher-level thinking is more likely to occur in the brain of a student who is emotionally secure than in the brain of a student who is scared, upset, anxious, or stressed” (Ryan & Cooper, 2009, p. 13). This is because the learning process is not a simple matter of knowing how to fetch information via electronic devices, but rather, learning is a process that entails the use of intellectual as well as cognitive competencies (Goleman, 2000).

“Neuroscientific evidence linking emotion, social processing, and self, suggests a new approach to understanding how children engage in academic skills, like reading and math (Immordino-Yang, 2011, p. 101). Cognition and emotions are equally important in learning. “While skills like reading and math certainly have cognitive aspects, the reason why we engage in them, the importance we assign to them, the anxiety we feel around them, and the learning that we do about them, are driven by the neurological systems for emotion, social processing and self” (Immordino-Yang, 2011, p. 101).
Author Nicholas Carr, 2010 has expressed criticism about the younger generation and the use of internet in his book, *The Shallows: What the Internet is Doing to our Brains*. Carr believes that the brain remaps itself when affected by new technologies. Historically, the birth of intellectual technologies has changed our society, and these technological innovations have had physical consequences on our brain functions. These changes affect the physiological mapping of our brain that is responsible for our most intimate expressions of self, personal and public identity, and how we cultivate relationships with others (Carr, 2010).

“Susan Price, CEO and Chief Web Strategist at Firecat Studio and an organizer of TEDx in San Antonio, Texas, is optimistic about the effects of new technologies on users: the amazing plasticity of the brain is nowhere as evident as in the rapid adaptations humans are making in response to our unprecedented access to electronic information ... those who bemoan the perceived decline in deep thinking or engagement, face-to-face social skills, and dependency on technology fail to appreciate the need to evolve our processes and behaviors to suit the new reality and opportunities. Young people and those who embrace the new connectedness are developing and evolving new standards and skills at a rate unprecedented in our history. Overall, our ability to connect, share and exchange information with other human beings is a strong net positive for humanity” (Anderson & Rainie, 2012, p. 10).

Since, at a neurological level, learning starts in the emotional areas of the brain, (Amunts et al., 2005) teaching pupils emotional skills such as recognizing their emotions,
handling feelings, directing self towards a goal, empathy, and relationships management (Goleman, 2010) will help them with their learning process. Positive emotions support learning, but negative emotions can be associated with motivation, performance, and learning at decreased levels (Daniels et al. 2009).

**Emotional Intelligence**

*Goodbye, said the fox. And now here is my secret, a very simple secret. It is only with the heart that one can see rightly. What is essential is invisible to the eye* (Saint-Exupéry & Howard, 2000, p. 82).

In the 1980’s, Howard Gardner, Peter Salovey, and John Mayer, outlined with their research the presence of seven domains of intelligence. Howard Gardner’s team was the first one to coin ‘emotional intelligence’ (EI) which became part of the seven intelligences in the ‘Theory of Multiple Intelligences’ (Gardner, 1983). In later years, Dr. Daniel Goleman expanded the studies on emotional intelligence by formulating the *Theory of Emotional Intelligence* (Goleman, 1995). In 1995, Daniel Goleman published his book, *Emotional intelligence: Why it can matter more than IQ*, which gained much attention for Goleman’s controversial idea that life fulfillment and success in life are much better predicted by emotional and social skills than by the academic intelligence quotient (IQ) which is not a major predictor of success (Goleman, 1995).

In our current educational system, intellectual quotient (IQ) scores are regarded as strong predictors of a student’s academic success. While IQ tests may show students’ levels of intellectual aptitude, they do not reveal information regarding the emotional
development of students, or their ability to connect their emotions to the material that they are learning (Davidson, 2010).

Dr. Goleman suggests that Emotional Intelligence is the primary indicator for the determination of social-emotional “skills such as self-control, zeal and persistence, and the ability to motivate oneself” (Goleman, 2010, p. 44). Although IQ and emotional intelligence quotient (EQ) indicators might seem oppose themselves, they are instead indicators for two different types of intelligences; “IQ and emotional intelligence (EI) are not opposing competencies, but rather separate ones” (Goleman, 2010, p. 44).

In recent years, the Emotional Intelligence Theory has been used in business and education to help individuals develop social and emotional skills. And, while the Emotional Intelligence Theory’s elements have been renamed to serve different areas of studies, the five domains that Goleman coined at the time of development of this theory in 1995 have not changed. These core competencies of EI are:

1. Knowing one's emotions: self-awareness; recognizing a feeling as it happens (Goleman, 2010, p. 43);
2. Managing emotions: handling feelings appropriately (Goleman, 2010, p. 43);
3. Motivating oneself: emotional self-control, delaying gratification and stifling impulsiveness (Goleman, 2010, p. 43);
4. Recognizing emotions in others: empathy, the fundamental ‘people skill’ (Goleman, 2010, p. 43); and
5. Handling relationships: a skill in managing emotions in others (Goleman, 2010, p. 43)
Emotional intelligence, according to Goleman (2010), suggests that individuals must have the ability and aptitude to control feelings through the identification the assessment of these feeling. Particularly, emotional intelligence refers to emotions such as enjoyment, fear, anger and sadness (Goleman, 2010).

In essence, emotional intelligence is the aptitude to accurately recognize and understand emotional reactions in self and others in abilities such as self-esteem, self-management, acquiring and managing responsibility, being accountable, being social and practicing integrity and honesty (Bradberry & Greaves, 2009, p. 219). Dr. Robert Cooper, author of *Executive EQ: Emotional Intelligence in Leadership and Organizations*, defines emotional intelligence as “the ability to sense, understand and effectively apply the power of and acumen of emotions as a source of human energy, information, trust, creativity and influence” (Singh, 2006, p. 35). Caruso and Salovey (2004) stated that “the key idea behind emotional intelligence is that our emotions, in effect, make us smarter” (p. 25). And, emotionally intelligent individuals show a greater degree of capability in meeting the demands of daily life, managing their “emotions effectively” (Bar-On et al., 2007, p. 2) and in being “sufficiently optimistic, positive, and self-motivated” (Bar-On et al., 2007, p. 2).

Although EI skills might not seem transferable to education curricula, Dr. Goleman believes that emotional intelligence can be taught (Goleman, 2010). In fact, in the past two decades, emotional intelligence principles have successfully been applied to school and business programs with promising results. The application of emotional intelligence principles has been found to be very beneficial in increasing personal
wellbeing and improving quality of life in individuals; there is a strong correlation between emotional intelligence and life fulfillment (Palmer et al., 2002).

**Emotional Intelligence Applications**

Recent studies in emotional intelligence disclosed that acquiring emotional intelligence skills is essential for the foundation of core academic skills in literacy and in math (Bennis et al., 2006). Emotional intelligence skills are also key elements for building and supporting strong individual qualities, and for maintaining interpersonal as well as intrapersonal relationships (Bennis et al., 2006). EI skills are important in business where they create a strong foundation for the management of customer relationships, people management and for the management of relationships with individuals or groups (Bennis et al., 2006). In business the mastering of emotional intelligence skills is critical to success, for such skills account for 58% of performance in all types of jobs (Bradberry, & Greaves, 2009).

All emotional intelligence elements are important; learning social emotional skills includes learning coping skills as well. The need to develop positive coping mechanisms applies to every child, or student. Just like the learning that we do with our intellectual capacity, learning how to deal with our emotions is an individual endeavor that is not dependent upon the amount of intellectual capacity a student possesses (Goleman, 2010). For children who do not acquire coping skills necessary for dealing with life challenges during their developmental years, their learning patterns may be negatively affected.

Even worse, the lack of these skills can result in the formation of habits that lead to mental disorders. By learning about emotions in this framework, young adults can
better understand what they are feeling and how to manage their emotions. Especially at a young age, being able to adopt positive coping mechanisms is crucial to pupils’ development and academic success (Goleman, 2010; Immordino-Yang, 2011).

It is no revelation that we live in a time that is ever more complex and challenging, especially for the younger generation (Peltokorpi et al., 2011). This is evident in the observation that “the proportion of school terminations attributable to mental disorders was largest for high school graduation (10.2%)” (Breslau et al., 2008, p. 1). And, gifted students are more prone to emotional problems such as “fear of the unknown, insomnia, and death anxiety” (Harrison & Van Haneghan, 2011, p. 678) when compared to non-gifted students.

Dr. Caroline Leaf, in her book *Who Switched off my Brain? Controlling Toxic Thoughts and Emotions* created a list of the twelve most powerful negative emotions ‘the dirty dozen’ (2008) which, long-term, have devastating effects on our mental functions. Dr. Leaf placed stress at the top of this list of the dirty dozen, with the explanation that all negative emotions feed off stress. Extreme stress prompts the brain to flood the body with chemicals and create physical effects caused by intense feelings. In instances such as anger, fear, anxiety or bitterness, the effects can become long term. Dr. Leaf believes that some of the most devastating emotions are hostility and rage, and can produce physiological reactions in the body and cause serious mental and physical illness (Leaf, 2008).
Emotional Intelligence in Education

It has been reported that “cognitive abilities are necessary in developing a mastery of a knowledge base and the tools required to effectively problem solve” (Grehan et al., 2011, p. 326) and “individuals high in EI are more likely to be successful academically and in demanding interpersonal situations” (Grehan et al., 2011, p. 326). The benefits of socio-emotional literacy can be seen inside and outside the classroom. Results from educational programs that have integrated emotional intelligence into their curriculum are encouraging. Teaching emotional literacy has been found to be very beneficial, especially in the areas of self-awareness, managing emotions, harnessing emotion productively, empathy, reading emotion, and handling relationships (Goleman, 2010, pp. 283-284).

Emotional Self Awareness

1. Improvement in recognizing and naming own emotions (Goleman, 2010, p. 283).
2. Better able to understand the causes of feelings (Goleman, 2010, p. 283).
3. Recognizing the difference between feelings and actions (Goleman, 2010, p. 283).

Managing Emotions


Harnessing Emotions Productively

2. Better able to focus on the task at hand and pay attention (Goleman, 2010, p. 284).

Empathy; Reading Emotions

1. Better able to take another person’s perspective (Goleman, 2010, p. 284).
2. Improved empathy and sensitivity to other’s feelings (Goleman, 2010, p. 284).

Handling Relationships

1. Increased ability to analyze and understand relationships (Goleman, 2010, p. 284).


8. More “pro social” and harmonious in groups (Goleman, 2010, p. 284).


The Emotional Intelligence Theory has been used as the foundation of Social-Emotional Learning Theory. During the last two of decades, EI has influenced education in the form of programs in Social Emotional Learning or SEL, and today many schools worldwide can testify to the benefits of adding SEL courses to their curricula, which require that students acquire competencies in sciences and literature as well as essential life skills (Goleman, 2010). Illinois, which implemented SEL learning standards in every grade from kindergarten through high school, has benefitted remarkably from the integration of SEL courses into its curricula (Durlak et al., 2011). “Several hundred studies conducted using experimental designs with control groups have documented the positive effects of SEL programming on children of diverse backgrounds from preschool through high school in urban, suburban, and rural settings” (CASEL, 2012, para. 11).
A research synthesis of 300 studies on SEL effectiveness, completed by Joe Durlak of Loyola University in Chicago, and Roger Weissberg of the University of Illinois at Chicago “clearly demonstrates that SEL programming significantly improves children’s academic performance on standardized tests” (CASEL, 2012, para. 11). And, “compared to control groups, children who have participated in SEL programs have significantly better school attendance records, less disruptive classroom behavior, like school more, and perform better in school. The research also indicates that children who have participated in SEL programs are less likely than children in control groups to be suspended or otherwise disciplined” (CASEL, 2012, para. 11).

SEL programs teach children how to recognize, label and show their emotions in order to make them react while they are in elementary school. During elementary school children learn how to identify nonverbal cues that lead to understand someone’s feelings. Meanwhile, in high school, students learn listening and communication skills that aim to solve conflict and negotiate solutions (Goleman, 2010).

In higher education, studies report that students who completed social-emotional programs own an increased level of emotional intelligence when compared to students who have not participated social emotional learning programs (Lankisch, 2007). In programs like business and nursing, social emotional learning has been successful in increasing students’ motivation to pursue their degrees and finish their studies when compared to students who did not finish their degrees (Lankisch, 2007). The benefit from learning social-emotional skills for college students is also obvious in their grades.
Higher GPAs is positively correlated with the EI scores of undergraduate students (Holt, 2007; Jaeger & Eagan, 2007).

**Measuring Emotional Intelligence**

The growth of applications for the Emotional Intelligence Theory among various disciplines has prompted the development of different types of emotional intelligence assessment surveys used to calculate the Emotional Intelligence Quotient. While all surveys can be used to assess emotional intelligence, each survey targets different types of strengths and areas of improvements of the individuals who are surveyed.

The surveys for the measurement of EI by the Bar-on EQ-i (Bar-On & Parker, 2009) consists of a 131-item survey assessing emotional intelligence on a diverse population in varied settings to further deepen the research on emotional and social intelligence (Bar-On & Parker, 2009). The *Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT)* (Mayer et al., 2004) survey designed by Dr. Mayer, Dr. Salovey, and Dr. Caruso, consists of a 141-item survey and is used to evaluate individuals’ emotional intelligence and individuals’ leadership skills in four different areas. These areas are “appraisal and expression of emotion, regulation of emotion and utilization of emotions in solving problems” (Schutte et al., 2008, p. 119). The *Emotional Competence Inventory (ECI)* (Boyatzis et al., 1999) is a survey used to evaluate EI based on emotional competencies identified by Dr. Daniel Goleman and Dr. Richard Boyatzis’s which assesses the emotional and social competencies of individuals in organizations (Boyatzis et al., 1999).
One of the most recent assessment tools for emotional intelligence is The Schutte Self Report Emotional Intelligence Test or the ‘SSEIT’ survey, has been created by Dr. Nicola Schutte (2008) and used in over 200 publications (Schutte et al., 2009). The 33-item survey is designed to evaluate emotional intelligence based on the scale created by Salovey and Mayer (1990) which proposes that emotional intelligence is comprised of “the appraisal of emotion in self and others, the expression of emotion, the regulation of emotion in self and others, and the utilization of emotion in problem solving” (Schutte et al., 2009, p. 119).

Today, a simple web-search can fetch many different scales for the measurement of emotional intelligence. A visitor to some web sites designed for teens can come across emotional intelligence pop-quizzes that are designed to assess emotional intelligence with only a few questions (Quibble, 2013). However, not all scales follow reputable standards for a true assessment of the social-emotional skills that Dr. Goleman indicated in the original design of his theory for emotional intelligence.

Thus, for the purpose of this research, with the permission of the author (Appendix: A) the SSEIT survey will be used.

The Schutte Self Report Emotional Intelligence Test

The Schutte Self Report Emotional Intelligence Test (Schutte et al., 2008), developed by Schutte et al. (2008), which has been linked to “over 200 publications listed in the PsycINFO database” (Schutte et al., 2008, p. 124), was built on the scale designed by Salovey and Mayer (1990) and proposes that EI is an “appraisal of emotion in the self and others, expression of emotion, regulation of emotion in the self and others, and
utilization of emotion in solving problems” (Schutte et al., 2009, p. 119). The SSEIT uses the same model expressed by Salovey and Mayer (1990) and subsumes under these same functions. These functions are: “appraisal of emotion in the self and others, expression of emotion, regulation of emotion in the self and others, and utilization of emotion in solving problems. Subsumed under these branches are functions such as verbal and nonverbal appraisal and expression of emotion and using emotions to motivate” (Schutte et al., 2009, p. 119). Lastly, “this model proposed that emotional intelligence consists of appraisal of emotion in the self and others, expression of emotion, regulation of emotion in the self and others, and utilization of emotion in solving problems” (Schutte et al., 2009, p. 119).

Comprised of 33 items, this survey takes approximately 5 minutes to complete, and it is built on a five-point Likert-type scale that ranges 1 to 5 where ‘1 = strongly disagree’ and ‘5 = strongly agree’. “Total scale scores are calculated by reverse coding items 5, 28 and 33, and then summing all items. Scores can range from 33 to 165, with higher scores indicating more characteristic emotional intelligence” (Schutte et al., 2009, p. 120).

In literature, the SSEIT has been referred to as the Assessing Emotions Scale or the Self-Report Emotional Intelligence Test because it is a self-report measure of emotional intelligence. The SSEIT can be used to calculate 4 individual scores for each area of emotional intelligence for which this test is set up to investigate, or, one IE total score that can be calculated by factoring all scores of the 33-items on the SSEIT.
Literature recommends that this scale of assessment for emotional intelligence may be used as one factor/dimension for EI (Schutte et al., 2009).

“The SSEIT has been used to assess respondents from a variety of populations and the development sample of participants consisted of adults with a range of ages” (Schutte et al., 1998, p. 128). During the development of this scale a sample of 346 participants was found have the internal consistency of the Assessing Emotions Scale which was measured by Cronbach’s Alpha .90. The internal consistency of the 33 item scale was reported by numerous other studies for diverse samples. The internal consistency of a diverse sample was measured across samples through Cronbach’s Alpha .87. “A two-week test-retest reliability reported a coefficient of .78 for total scale scores” (Schutte et al., 1998, p. 125).

Education and the Future

The future demands individuals who possess strong social-emotional skills in order to be able to work with an increasingly diverse workplace, and to be able to compete for jobs in global markets where the skills that matter are communication, collaboration, critical thinking, and problem solving skills (Berry, 2011).

From business research, we know that “at best, IQ contributes about 20 percent to the factors that determine life success, which leaves 80 percent to other forces” (Goleman, 2010, p. 34). And, “people with the highest levels of IQ outperform those with average IQ just 20% of the time, while people with average IQs outperform those with high IQs 70% of the time” (Bradberry & Greaves, 2009, pp. 7-8). Emotional intelligence skills are critical for success. EI “accounts for 58% of performance in all
types of jobs …only 36% of the people we tested are able to accurately identify their emotions as they happen” (Bradberry, & Greaves, 2009, p. 20). Lastly, statistics report that the lack of emotional intelligence affects salary. The “link to EI and earnings is a direct one; for every point increase in EI there is a corresponding $1300 increases in an annual salary” (Bradberry, & Greaves, 2009, p. 22). Statistics point out that while there is still a need for traditional skills a new ‘internet literacy’ is regarded as one of the skills of the future (Anderson & Rainie, 2012).

Both in the higher education and PK-12 classroom technology integration will continue to increase. The need for colleges of education to adequately prepare future teachers to use technology is a critical matter (EDUCAUSE, 2011).

Emotional intelligence is a valuable enhancement to teachers’ effectiveness “emotionally intelligent teachers are active in their orientation to students, work, and life” (Nelson et al., 2005, p. 4). Emotionally intelligent teachers are found to be “resilient in response to negative stress and less likely to overwhelm themselves with pessimism and strong negative emotions” (Nelson et al., 2005, p. 4). Literature reports that emotionally intelligent teachers lead a more fulfilling life, and have more personal success and satisfaction in their professional career. In general, teachers who have a high level of emotional intelligence are found to be more resilient and proactive in responding in a positive manner to stressful situations (Nelson et al., 2005) such as the use of technology in classroom and the impact of cyber-bullying on student behavior.
Summary

The technological innovations that have revamp ed our society are changing our educational institutions. Learners of the new millennia, in contrast to previous generations, require a different type of education, which includes new curricula that require students to master intellectual and social-emotional skills in technology-driven learning-environments.
Chapter 3: Methodology

This chapter will include a description of the research process for the implementation of this study; the statement of the problem, the design of this research, the demographics and other characteristics of the population selected for the study. This chapter will also include the data collection instruments, data analysis procedures, and the consent received by the Institutional Review Board (IRB) approval.

Research Methodology and Design

The methodology selected to meet the objectives proposed by this study was a descriptive research design, which sought to explore the relationship between college students’ emotional intelligence and technology skills in a teacher preparation program. In an attempt to gain a better understanding of this relationship, the descriptive research design was the most appropriate method to gather data regarding college students’ emotional intelligence quotients and levels of technology skills.

The end-product of this research is a description which “refers to the factual accuracy of the account as reported by the researchers” (Burke & Christensen, 2010, p. 265). And, in contrast to an experiment, descriptive research design does not allow the researcher to manipulate the variable, nor to allow him to infer causality (Mitchell & Jolley, 2012).

This type of research examines the context as it exists and identifies attributes of a particular phenomenon, or the exploration of a relationship between two or more variables (Leedy & Ormrod, 2001). “A descriptive research involves asking the same set of questions (often prepared in the form of a written questionnaire or ability test) of a
large number of individuals either by mail, by telephone, or in person” (Freankel & Norman, 2008, p. 149). Once the data is collected, “Responses are then tabulated and reported, usually in the form of frequencies or percentages of those who answer in a particular way to each of the questions” (Freankel & Norman, 2008, p. 149).

**Research Question**

The study aimed to determine the relationship between technology proficiency and emotional intelligence of students at Ohio University. This research will be guided by the following question:

1. To what extent does a relationship exist between emotional intelligence and technology skills among undergraduate pre-service teachers in a College of Education teacher preparation technology course at a Midwestern University?

**Sample Population**

The sample was 113 students who are representative of the undergraduate population enrolled in the College of Education at a large Midwestern University during the spring semester of the academic year 2012-2013. The students who participated in this study were pre-service teachers enrolled in a teacher preparation technology course. The researcher asked the professors teaching this course for the permission to survey their students, and the professors agreed to allow the researcher to ask students for their volunteer participation in the study.

The students enrolled in technology courses were participating in their first course in which technology is integrated in teaching and learning. It is important to note that students enrolled in technology courses, were a cohort of students who come from an
array of majors in education including early childhood, adolescent to young adult [special education, math education, science education, social studies, and language arts], and middle childhood [integrated math, science, social studies, and language arts].

**Research Instrument**

**Design of research survey.**

Technology-related and non-technology-related factors were examined through the administration of one survey instrument constructed with the web tool Qualtrics, version 35756. The survey was divided into two parts; the first part (Part #1) of the survey focused on non-technology-related factors while the second part (Part #2) of the survey focused on technology-related factors. Part #1 was *The Schutte Self Report Emotional Intelligence Test* developed by Schutte et al. (2008) and Part #2 was the researcher-designed technology survey. At the beginning of the survey participants were given the Informed Consent Statement for participation in the study (Appendix B: Informed Consent Statement). After reading the consent statement, participants had the choice to opt out of the survey or to sign the form to enter the study. The participant’s checkmark in the “I agree” checkbox on the Informed Consent Statement indicated the willingness to participate in the study, while a checkmark in the “No thanks” checkbox on the Informed Consent Statement withdrew the participant from the study. The permission to conduct this study was obtained from the Institutional Review Board (Appendix A: IRB approval).
Survey Section Part #1

Part #1, the Schutte Self Report Emotional Intelligence Test developed by Schutte et al. (2009) which proposes that emotional intelligence comprises of the “appraisal of emotion in the self and others, expression of emotion, regulation of emotion in the self and others, and utilization of emotion in solving problems” (Schutte et al., 2009, p. 119). The SSEIT uses the same model expressed by Salovey and Mayer (1990) which subsets “under these branches are functions such as verbal and non verbal appraisal and expression of emotion and using emotions to motivate as part of the utilisation of emotions” (Schutte et al., 2009, p. 119).

Comprised of 33 items, this survey takes approximately 5 minutes to complete, and it is built on a five-point Likert-type scale that ranges 1 to 5 where ‘1 = strongly disagree’ and ‘5 = strongly agree’. “Total scale scores are calculated by reverse coding items 5, 28 and 33, and then summing all items. Scores can range from 33 to 165, with higher scores indicating more characteristic emotional intelligence” (Schutte et al., 2009, p. 120).

In literature, the Dr. Schutte’s test is referred to as the Assessing Emotions Scale and as the Self-Report Emotional Intelligence Test because it is a self-report assessment tool of emotional intelligence. The SSEIT can be used to calculate 4 individual scores for each area of emotional intelligence for which this test is set up to investigate, or, one IE total score that can be calculated by factoring all scores of the 33-items on the SSEIT. Literature recommends that this scale of assessment for emotional intelligence may be used as one factor/dimension for EI (Schutte et al., 2009).
Survey Section Part #2

Part #2, was a researcher-developed survey (Appendix F: Survey) which, in conjunction with Part #1, was used as an instrument for this research. A survey is the most appropriate instrument for this type of research, as stated by Freankel and Norman (2008), “In educational research, the most descriptive methodology is the survey, as when researchers summarize the characteristics (abilities, preferences, behaviors, and so on) of individuals or groups or (sometimes) physical environments (such as schools)” (Freankel & Norman, 2008, p. 14). This survey was designed to collect information regarding the level of technology skills of participants in relation to the 21st Century Skills paradigm (Partnership for 21st Century Skills, 2009, p. 2) which includes a specific area for skills such as information, media, and technology.

Qualtrics, version 35756, a web-based survey tool (Qualtrics, 2012), was used to construct this 26-item survey, and to collect the responses of the participants. This survey contained 4 different types of questions: (1) technology skills assessment, (2) one multiple-response question in which participants specify some of their online-application accounts, (3) one open-response question to understand the technology skills perception of participants (4) demographic information.

Section 1: Technology skills.

A 21st Century education requires the adoption of new skills, “effective citizens and workers must be able to exhibit a range of functional and critical thinking skills, such as: information literacy; media literacy; ICT (Information, Communications and Technology) literacy” (Partnership for 21st Century Skills, 2009, p. 2). This portion of
the survey which was comprised of 19 multiple-choice questions was designed to collect data regarding the technology skills of student participants of this study. Participants had to select one of five possible choices, which they thought best answered the survey question. Among those five questions, only one answer was the correct answer. All questions in this area of the survey were constructed by following the standards of *The Partnership for 21st Century Skills* model for information literacy, media literacy, and information, communication and technology skills. A review of survey of questions from created by Mary Ann Trail, Carolyn Gutierrez, and David Lechner (2006) to assess literacy skills of college students was examined during the design to help in the formulation for the questions for the researcher-designed survey used in Part #2 of the study (Trail et al., 2006).

**Section 2: Multiple-response.**

Critics of this younger generation state that digital natives are well able to use pioneering technology to consume content, yet they are uneducated and immature (Bauerlein, 2010, p. 86; pp. 94-95). This area of the survey seeks to gather information regarding the mastery of online-applications, and participants’ social networking usage. The question seeks to understand if participants of this survey own personal web-application accounts, and thus are users of pioneering technologies on a regular basis. See Appendix F: *Survey* for the references used in the design of this question.

**Section 3: Open-response.**

Millennials view new technologies as tools to enhance their social life (Carson, 2012). This portion of the survey contained one open-response question: *Do you think*
you are technology savvy? Please, explain your answer. This question was designed to provide some perspective on what students perceive to be an individual who is technologically savvy. And, it allowed the participants to explain in their own words their understanding of what it means to be technologically savvy (dictionary.cambridge.org, 2013). The data collected from this survey answer may be useful to educators to provide them with an insight about the viewpoint of digital natives regarding the use of technology and whom they perceive as being technology savvy.

**Section 4: Demographic Information.**

Technology skills are not evenly distributed among young adults; each person masters a different level of technology skills (Hargittai, 2010). Five demographic questions were added to this survey which were designed to collect information regarding participants’ gender, age, major, and year in college. Collecting this demographic data provided information regarding the level of technology proficiency and emotional intelligence of participants based on gender, age, major, and year in college. The only optional question included in this survey was the last one; *If you would like to receive information regarding your emotional intelligence score please enter your name and email address (Optional)*. This question gave participants the option to enter their email addresses and names in case they were interested in receiving their EQ score and material related to emotional intelligence.
Research Procedure

Data collection.

The faculty teaching the EDCT 2030 technology course allowed the researcher to administer the surveys during the month of January 2013. The study utilized a researcher-designed survey (Appendix A: Technology Questions Survey Design). Participants of this study were asked to take the survey that was divided into two parts; Part #1 is an emotional intelligence assessment test, the Schutte Self Report Emotional Intelligence Test (Schutte et al., 2009) and Part #2 is a researcher-designed survey concerning technology skills. This technique allows for the data collection to be completed in the researcher-developed survey which was designed using the web application Qualtrics, version 35756. “Qualtrics is an online survey platform” (Qualtrics, 2012, para. 1) that is used for research, data collection and analysis of data (Qualtrics, 2012).

Data Analysis

The results were reported using descriptive statistics including, mode, frequencies, and percentages. Best and Kahn (1998) indicate that “descriptive analysis provides valuable information about the nature of a particular group of individuals” (p. 340). The Part #2 contained a question asking the participants to identify their gender; the gender variable will only be used to describe the demographics of the students participating in this study. The open-ended question will be coded to examine the students’ perspective regarding their personal technology understanding. Emerging themes from the coding will be used to report the students’ perception of technology use in teacher preparation course in which technology is the focus.
Summary

This chapter presented a description of the research process for the implementation of this study. This study sought to explore the relationship between college students’ emotional intelligence and their technology skills. In order to gain a better understanding of this relationship the study employed a descriptive research question and design as the methodology to meet the proposed objectives.
Chapter 4: Analysis of the Data

This chapter is designed to provide information regarding the statistical examination of the responses received in the survey which was created for this research. The analysis procedure includes the demographic data analysis, the research question analysis, the open-response question analysis, and the chapter summary.

With a survey, this study explored the relationship between emotional intelligence and technology skills in college students. The results from this study, which evaluated participants’ emotional intelligence competency, was measured by the Schutte Self Report Emotional Intelligence Test (Schutte et al., 1998) and the technology competency component part of the survey was measured by the standards presented by The Partnership for 21st Century Skills Model for Information Literacy (Partnership for 21st Century Skills, 2009, p. 2). The statistical data analysis for this study was completed using Excel and SPSS software packages, and the Qualtrics data analysis tool.

Q1. To what extent does a relationship exist between emotional intelligence and technology skills among undergraduate pre-service teachers in a College of Education teacher preparation technology course at a Midwestern University?

Participants in this study were comprised of undergraduate college of education students enrolled in educational technology courses at a Midwestern University during spring semester. The surveys were set up with the ‘forced response’ option turned on, thus eliminating the possibility for partial completion of surveys. The total number of responses from the survey tallied to 114; 1 response was removed from analysis due to incomplete data. Consequently, the study analyzed 113 responses.
The demographic characteristics of participants in this study, as explained in Table 1, included 40 males (35%) and 73 females (65%). The higher percentage of female students in the education field can be explained with the statistical findings reported by the U.S. Department of Education, National Center for Education Statistics; in the school year 2007–08 (U.S. Department of Education, 2008). In this study, the ratio of males to females was not divergent. The reason for a smaller difference between the number of female participants versus male participants in this survey could be attributed to the type of education courses in which these students were enrolled. A factor in this study is that sports pedagogy majors are required to take this course although they are not in teacher preparation and at present, this is a predominantly male field.
Table 1

*Distribution of Students According to Gender (n=113)*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>Female</td>
<td>73</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td>113</td>
<td>100</td>
</tr>
</tbody>
</table>

The age of respondents ranged from 18 years to 31 years. The majority of respondents were in the age range 19 to 21 (70.8%). This majority in Prensky’s classification would be identified as “digital natives”; it would be identified by Oblinger as “Millennials” - people born after the advent of the digital era (Prensky, 2001; Oblinger, 2003). Specifically, it has been reported that learners born after 1994 are challenging our teaching styles and our teaching philosophies, and are driving us into a new evolution in our pedagogical approach (Oakes, 2012). Twenty-three percent of students participating in this study were born in 1994 or after. According to Oblinger all students participants can be categorized as Digital Natives, or Millennials, because they were born after 1982 (Oblinger, 2003).
Table 2

*Distribution of Students According to Age (n=113)*

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>19</td>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td>20</td>
<td>39</td>
<td>34</td>
</tr>
<tr>
<td>21</td>
<td>30</td>
<td>26</td>
</tr>
<tr>
<td>22</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>23</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>24</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>27</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>29</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>31</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>113</td>
<td>100</td>
</tr>
</tbody>
</table>

The survey offered four areas of study as possible selection choices in addition to a blank field in which ‘other’ majors could be written. The distribution of respondents, according to their major, reported the majority of respondents being, respectively, Fifty-seven (50%) Adolescence to Young Adult (AYA) majors – add majors, 23 (20%) Middle School Education majors, and 22 (19%) Early Childhood majors. Twelve of these 11
participants (10%) were from the programs ‘Outdoor Recreation’ (6 respondents), ‘Recreation Management’ (3 respondents), ‘Physical Education’ (1 respondent) and ‘Other’ (1 respondent).

Table 3

*Distribution of Students According to Area of Study (n=113)*

<table>
<thead>
<tr>
<th>Major</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Childhood</td>
<td>22</td>
<td>19</td>
</tr>
<tr>
<td>AYA – Adolescence to Young Adult</td>
<td>57</td>
<td>50</td>
</tr>
<tr>
<td>Middle School Education</td>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>113</td>
<td>100</td>
</tr>
</tbody>
</table>

The distribution of respondents according to their year in college, as described in Table 4, reported a majority of students being in their second year (41%) and third year (42%) of college. Only 2 respondents were in their first year of college (2%), 12 respondents in their fourth year (11%), and 5 respondents (4%) were in their fifth year of college.
Table 4

_Distribution of Students According to Year in College (n=113)_

<table>
<thead>
<tr>
<th>Year in College</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Second</td>
<td>46</td>
<td>41</td>
</tr>
<tr>
<td>Third</td>
<td>48</td>
<td>42</td>
</tr>
<tr>
<td>Fourth</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Fifth</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>113</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**The Assessing of Emotional Intelligence Scale**

The assessment of emotional intelligence survey uses a 5-point scale where ‘1’ is ‘Strongly Disagree’ and will be given the numeric value 1; ‘2’ is ‘Somewhat Disagree’ and will be given the numeric value 2; ‘3’ is ‘Neither Agree or Disagree’ and will be given the numeric value 3; ‘4’ is ‘Somewhat Agree’ and will be given the numeric value 4; ‘5’ is ‘Strongly Agree’ and will be given the numeric value 5. “Total scale scores are calculated by reverse coding items 5, 28 and 33, and then summing all items. Scores can range from 33 to 165, with higher scores indicating more characteristic emotional intelligence” (Schutte et al., 2009, p. 120).
Figure 2. Emotional Intelligence Survey Cronbach’s Alpha.

The coefficient used to test the reliability of the internal consistency of the scales was the Cronbach’s alpha. The overall reliability coefficient for the emotional intelligence (SSEIT) part of the survey was .84. This coefficient indicates that this scale has a high degree of internal consistency, since the alpha values exceeds the level of acceptability of ‘0.7’, which according to Nunnally (1978) is considered suitable for exploratory research (Nunnally, 1978). The mean score for all participants in the survey was 3.94 on a scale of ‘1’ to ‘5’ with ‘5’ being the highest value, which suggests an above average level of emotional intelligence on the scale used in the survey in which ‘3’ is average.

Figure 3. Descriptive Statistics Emotional Intelligence (n=113).
The highest value of emotional intelligence obtained was ‘160’ on a scale of ‘33’ to ‘165’ with ‘165’ being the highest value. This denotes a high level of emotional intelligence. Emotional intelligence is the primary indicator for the determination of social-emotional “self-control, zeal and persistence, and the ability to motivate oneself” (Goleman, 1997, p. xiii) thus confirming emotional intelligence as a valuable skill for educators (Goleman, 2010).

<table>
<thead>
<tr>
<th>Descriptives</th>
<th>Statistic</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total_Emotion_Score</td>
<td>Mean</td>
<td>132.8496</td>
</tr>
<tr>
<td></td>
<td>95% CI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower Bound</td>
<td>130.3785</td>
</tr>
<tr>
<td></td>
<td>Upper Bound</td>
<td>135.3206</td>
</tr>
<tr>
<td></td>
<td>5% Trimmed Mean</td>
<td>133.1701</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>134.0000</td>
</tr>
<tr>
<td></td>
<td>Variance</td>
<td>175.754</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>13.25722</td>
</tr>
<tr>
<td></td>
<td>Minimum</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>160.00</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>60.00</td>
</tr>
<tr>
<td></td>
<td>Interquartile Range</td>
<td>20.50</td>
</tr>
<tr>
<td></td>
<td>Skewness</td>
<td>-.293</td>
</tr>
<tr>
<td></td>
<td>Kurtosis</td>
<td>-.426</td>
</tr>
</tbody>
</table>

*Figure 4. Descriptive Statistics Total Emotional Intelligence (n=113).*
### Table 5

**Distribution of Answers for the Emotional Intelligence Questionnaire**

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Somewhat Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  I know when to speak about my personal problems to others.</td>
<td>2</td>
<td>6</td>
<td>6</td>
<td>46</td>
<td>53</td>
</tr>
<tr>
<td>2  When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>56</td>
<td>54</td>
</tr>
<tr>
<td>3  I expect that I will do well on most things I try.</td>
<td>2</td>
<td>5</td>
<td>16</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td>4  Other people find it easy to confide in me.</td>
<td>0</td>
<td>1</td>
<td>21</td>
<td>37</td>
<td>54</td>
</tr>
<tr>
<td>5  I find it hard to understand the non-verbal messages of other people.</td>
<td>43</td>
<td>42</td>
<td>11</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>6  Some of the major events of my life have led me to re-evaluate what is important and not important.</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>43</td>
<td>60</td>
</tr>
<tr>
<td>7  When my mood changes, I see new possibilities.</td>
<td>1</td>
<td>10</td>
<td>27</td>
<td>52</td>
<td>23</td>
</tr>
<tr>
<td>8  Emotions are one of the things that make my life worth living.</td>
<td>2</td>
<td>8</td>
<td>25</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>9  I am aware of my emotions as I experience them.</td>
<td>0</td>
<td>2</td>
<td>11</td>
<td>52</td>
<td>48</td>
</tr>
<tr>
<td>10 I expect good things to happen.</td>
<td>2</td>
<td>13</td>
<td>24</td>
<td>38</td>
<td>36</td>
</tr>
<tr>
<td>11 I like to share my emotions with others.</td>
<td>9</td>
<td>25</td>
<td>16</td>
<td>49</td>
<td>14</td>
</tr>
<tr>
<td>12 When I experience a positive emotion, I know how to make it last.</td>
<td>2</td>
<td>11</td>
<td>19</td>
<td>54</td>
<td>27</td>
</tr>
<tr>
<td>13 I arrange events others enjoy.</td>
<td>2</td>
<td>3</td>
<td>27</td>
<td>47</td>
<td>34</td>
</tr>
<tr>
<td>Question</td>
<td>Strongly Disagree</td>
<td>Somewhat Disagree</td>
<td>Neither Agree or Disagree</td>
<td>Somewhat Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>---------------------------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>14 I seek out activities that make me happy.</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>34</td>
<td>73</td>
</tr>
<tr>
<td>15 I am aware of the non-verbal messages I send to others.</td>
<td>2</td>
<td>16</td>
<td>17</td>
<td>61</td>
<td>17</td>
</tr>
<tr>
<td>16 I present myself in a way that makes a good impression on others.</td>
<td>0</td>
<td>3</td>
<td>16</td>
<td>50</td>
<td>44</td>
</tr>
<tr>
<td>17 When I am in a positive mood, solving problems is easy for me.</td>
<td>1</td>
<td>3</td>
<td>14</td>
<td>32</td>
<td>63</td>
</tr>
<tr>
<td>18 By looking at their facial expressions, I recognize the emotions people are experiencing.</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>61</td>
<td>40</td>
</tr>
<tr>
<td>19 I know why my emotions change.</td>
<td>2</td>
<td>13</td>
<td>18</td>
<td>46</td>
<td>34</td>
</tr>
<tr>
<td>20 When I am in a positive mood, I am able to come up with new ideas.</td>
<td>1</td>
<td>2</td>
<td>14</td>
<td>53</td>
<td>43</td>
</tr>
<tr>
<td>21 I have control over my emotions.</td>
<td>2</td>
<td>10</td>
<td>23</td>
<td>51</td>
<td>27</td>
</tr>
<tr>
<td>22 I easily recognize my emotions as I experience them.</td>
<td>0</td>
<td>5</td>
<td>10</td>
<td>60</td>
<td>38</td>
</tr>
<tr>
<td>23 I motivate myself by imagining a good outcome to tasks I take on.</td>
<td>2</td>
<td>6</td>
<td>16</td>
<td>53</td>
<td>36</td>
</tr>
<tr>
<td>24 I compliment others when they have done something well.</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>42</td>
<td>68</td>
</tr>
<tr>
<td>25 I am aware of the non-verbal messages other people send.</td>
<td>2</td>
<td>7</td>
<td>12</td>
<td>57</td>
<td>35</td>
</tr>
<tr>
<td>26 When another person tells me about an important event in his or her life, I almost feel as though I experienced this event myself.</td>
<td>5</td>
<td>11</td>
<td>35</td>
<td>50</td>
<td>12</td>
</tr>
</tbody>
</table>
Table 5 (Cont.)

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Somewhat Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>2</td>
<td>8</td>
<td>46</td>
<td>43</td>
<td>14</td>
</tr>
<tr>
<td>28</td>
<td>65</td>
<td>33</td>
<td>11</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>29</td>
<td>4</td>
<td>13</td>
<td>27</td>
<td>58</td>
<td>11</td>
</tr>
<tr>
<td>30</td>
<td>0</td>
<td>1</td>
<td>14</td>
<td>42</td>
<td>56</td>
</tr>
<tr>
<td>31</td>
<td>2</td>
<td>4</td>
<td>23</td>
<td>47</td>
<td>37</td>
</tr>
<tr>
<td>32</td>
<td>2</td>
<td>4</td>
<td>21</td>
<td>52</td>
<td>34</td>
</tr>
<tr>
<td>33</td>
<td>26</td>
<td>42</td>
<td>27</td>
<td>14</td>
<td>4</td>
</tr>
</tbody>
</table>

The scale used was: Strongly disagree=1; Somewhat disagree=2; Neither agree nor disagree=3; Somewhat agree=4; Strongly agree=5

The Assessing of Technology Skills and Scale

The second part of the survey aimed to assess the technology skills of participants with a researcher-designed survey. All questions in this area of the survey were constructed by following the standards of The Partnership for 21st Century Skills model for information literacy, media literacy, and Information, Communication and Technology (ICT) skills. Partnership for 21st Century Skills, which promotes the adoption of new skills for students, states that effective “citizens and workers must be
able to exhibit a range of functional and critical thinking skills, such as information literacy, media literacy, and Information, Communication and Technology (ICT) literacy” (Partnership for 21st Century Skills, 2009, p. 2). This portion of the survey, which was comprised of 19 multiple-choice questions, was designed to collect data regarding the technology skills of student participants of this study.

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.691</td>
<td>.705</td>
<td>19</td>
</tr>
</tbody>
</table>

*Figure 5. Technology Survey Cronbach’s Alpha.*

The coefficient used to test the reliability of the internal consistency of the scales was the Cronbach’s alpha. The overall reliability coefficient for the technology survey was .71. This coefficient indicates that this scale has a good degree of internal consistency, since the alpha values exceeds the level of acceptability of ‘0.7’, which according to Nunnally (1978) is considered suitable for exploratory research (Nunnally, 1978).
The results from the technology survey indicate that participants have a very low level of technology skills. Based on the data analysis in Table 9, participants’ highest score was 14 points out of 19 possible points, and the mean of all technology scores was 7.02 out of 19 possible points.

### Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Sum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total_Technology_skills</td>
<td>113</td>
<td>14.00</td>
<td>.00</td>
<td>14.00</td>
<td>793.0</td>
<td>7.0177</td>
<td>3.09083</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>113</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 6. Technology Results (n=113).*
Table 6

*Distribution of Correct Answers for the Technology Questions (n=113).*

<table>
<thead>
<tr>
<th>Question</th>
<th>Correct Answer</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  What does a file’s extension tell you?</td>
<td>What kind of file it is</td>
<td>35</td>
<td>31</td>
</tr>
<tr>
<td>2  How does computer piracy affect all of us?</td>
<td>It increases the cost of technology</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>3  Which software controls all the software on a computer?</td>
<td>Operating System</td>
<td>35</td>
<td>31</td>
</tr>
<tr>
<td>4  Which is an improper use of an on-line chat room?</td>
<td>Posting innuendo about classmates</td>
<td>101</td>
<td>89</td>
</tr>
<tr>
<td>5  Which of the following best describes uploading information?</td>
<td>Sending information to a host computer</td>
<td>43</td>
<td>38</td>
</tr>
<tr>
<td>6  Your Internet cookies are stored</td>
<td>In the Internet “cache”</td>
<td>46</td>
<td>41</td>
</tr>
<tr>
<td>7  You are returning on a business site where you had previously made a</td>
<td>Because last time I was on this site my browser created a cookie with my</td>
<td>50</td>
<td>44</td>
</tr>
<tr>
<td>purchase with your credit card, and notice a greeting message at the</td>
<td>information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>top of the page addressed to you (Hello “your name”!). How does the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>site know your name?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8  What is RAM?</td>
<td>Short-term memory for processing data into information</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>9  An example of analog technology would be</td>
<td>A VHS tape</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>10 If you download open-source software are you committing a piracy</td>
<td>No, because this type of software has open-licensing agreements</td>
<td>42</td>
<td>37</td>
</tr>
<tr>
<td>crime?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 The library periodical databases are freely accessible on the web to</td>
<td>This is false because not all web-accessible periodical databases are free</td>
<td>33</td>
<td>29</td>
</tr>
<tr>
<td>anyone from anywhere</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6 (Cont.)

<table>
<thead>
<tr>
<th>Question</th>
<th>Correct Answer</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Your professor gives you an assignment to find journal articles about global warming. What should you do?</td>
<td>Search the ALICE (OU) Library catalog</td>
<td>56</td>
</tr>
<tr>
<td>13</td>
<td>Say you are writing a paper about gun violence and you use information from the National Rifle Association (NRA) website. In this example, which website evaluation criterion do you need to pay attention to the most?</td>
<td>Bias/Objectivity/Accuracy</td>
<td>60</td>
</tr>
<tr>
<td>14</td>
<td>When performing a search on a web engine which of the following will fetch fewer items?</td>
<td>Dogs or Cats</td>
<td>20</td>
</tr>
<tr>
<td>15</td>
<td>The website <a href="http://www.feedthechildren.org/likely">www.feedthechildren.org/likely</a> belongs to a:</td>
<td>Non-profit Organization</td>
<td>89</td>
</tr>
<tr>
<td>16</td>
<td>Wireless networking, or Wi-Fi, can be used to connect computers in a home, and many cities are using the technology to offer free or low-cost Internet access to residents. What's another name for Wi-Fi?</td>
<td>801.11 networking</td>
<td>9</td>
</tr>
<tr>
<td>17</td>
<td>A wireless network uses ___ waves to transmit signals.</td>
<td>Radio</td>
<td>47</td>
</tr>
<tr>
<td>18</td>
<td>When posting on Facebook, which of the following should be your primary concern?</td>
<td>Tagging</td>
<td>0</td>
</tr>
<tr>
<td>19</td>
<td>If you had to collaborate with classmates on a writing sample, what type of technology tool would you use?</td>
<td>Google Docs</td>
<td>52</td>
</tr>
</tbody>
</table>

Multiple-answer Question

One multiple-answer question asked respondents to choose all the online accounts that they owned from a list of some of the most popular networking sites and open-source applications offered on the web. Nearly all participants owned a Facebook account (96%)
and a Pandora account (90%); many participants owned a Twitter account (68%) and used instant messenger applications (62%).

![Figure 7. Distribution of Students According to Ownership of Personal Accounts (n=113).](image)

**Open-Response Question**

Participants of the survey were asked to respond to an open answer question in which they were asked to assess their technology skills level: *Do you think you are technology savvy? Please, explain your answer.* Student participants in this study answered this question in a variety of ways. Thirty-six (32%) students responded that they thought they were technology savvy; 44 students (39%) responded that they were
not technology savvy; 6 students (5%) responded with either ‘Social Networks Only’, ‘I Have a lot More to Learn’, ‘I Don’t Know’, or ‘Technology Savvy’. Five students (4%) responded that they were ‘somewhat’ technology savvy; 5 students (4%) responded that they were ‘about half’ or ‘decently so’, technology savvy; 5 students (4%) responded with ‘Above Average’, ‘For the Most Part’, ‘I Know a lot’; ‘Slightly Tech Savvy’, and ‘Technology Savvy’. Lastly, 15 students (13%) submitted the responses ‘A little’, ‘Mediocre’, ‘Relatively’, ‘to a Certain Extent’, ‘Neither Terrible at it or Very Good at it’, ‘Understand the Basics’, ‘Enough to get by’, ‘I am Competent’, ‘I can get Around’, ‘It Depends’, ‘Not Good at Difficult Forms of Technology’, or ‘Technology savvy’.

**Research Question and Findings**

The purpose of this research was guided by the following question:

1. *To what extent does a relationship exist between emotional intelligence and technology skills among undergraduate pre-service teachers in a College of Education teacher preparation technology course at a Midwestern University?*

   In order to test the relationship between these variables, the survey utilized the Pearson product-moment correlation coefficient. “The Pearson correlation coefficient, *r*, can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association; that is, as the value of one variable increases, so does the value of the other variable” (statistics.laerd.com, 2013, para. 2).

   The Pearson correlation coefficient for the two variables used in this study (technology skills and Emotional Intelligence) indicates that there is no significant
relationship between emotional intelligence and technology skills among undergraduate pre-service teachers in a College of Education teacher preparation technology course at a Midwestern University. Figure 8 reports a relationship of .151 between emotional intelligence and technology abilities when the alpha value of p < .05 was used to determine significance.

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Total Emotional Intelligence</th>
<th>Total Technology Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total_Emotional_Int</strong></td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.111</td>
<td></td>
</tr>
<tr>
<td>Sum of Squares and Cross-products</td>
<td>19617.420</td>
<td>691.893</td>
</tr>
<tr>
<td>Covariance</td>
<td>176.734</td>
<td>6.233</td>
</tr>
<tr>
<td>N</td>
<td>113</td>
<td>113</td>
</tr>
<tr>
<td><strong>Total_Technology_Skills</strong></td>
<td>Pearson Correlation</td>
<td>.151</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.111</td>
<td></td>
</tr>
<tr>
<td>Sum of Squares and Cross-products</td>
<td>691.893</td>
<td>1069.965</td>
</tr>
<tr>
<td>Covariance</td>
<td>6.233</td>
<td>9.553</td>
</tr>
<tr>
<td>N</td>
<td>113</td>
<td>113</td>
</tr>
</tbody>
</table>

*Figure 8. Correlations (n=113).*

**Summary**

This chapter provided a detailed analysis of the data collected from 113 surveys administered to undergraduate pre-service teachers enrolled in teacher preparation technology courses. The purpose of this study was to gain a better understanding of the relationship between emotional intelligence and technology skills among undergraduate pre-service teachers in a College of Education technology course. The data was analyzed using the software package SPSS and the Qualtrics web tool. The results of this study
indicate that participants own a high level of emotional intelligence and very low technology skills. Statistical analysis reports that the Pearson correlation coefficient relationship between Emotional Intelligence and technology abilities is .151. Thus, there is no significant relationship between Emotional Intelligence and technology skills among undergraduate pre-service teachers in a college of education teacher preparation technology course at a Midwestern University.
Chapter 5: Findings, Recommendations, Limitations and Conclusions

This chapter aims to summarize the findings of this research study and to examine its implications for teaching techniques. This chapter will include a summary of purpose and findings, recommendations for further research, limitations of the study, and final conclusions.

Summary of the Study

The changes made to our pedagogical approach in recent years include curricula changes (Zarling, 2012), and the use of technology in classrooms. Technology has become an essential part of our society and of our lives, and education is integrating technology into the classroom to use it as an alternative method for the delivery of instruction (Dunn, 2011). Schools have concentrated their efforts in making classrooms technology-compliant and in revising curricula, but little attention has been given to social-emotional skills, which are some of the most important skills for the development of today’s youth (Davidson, 2010; Goleman, 2010) and preparing teachers to use technology in the classroom (EDUCAUSE, 2011).

The purpose of this study was to explore a possible relationship between technology skills and emotional intelligence among college students enrolled in pre-service teacher courses. The results of this study indicate that participants of this study (who will become future teachers) own a high level of emotional intelligence but a very low level of technology skills. Statistical analysis reported that the Pearson correlation coefficient relationship between emotional intelligence and technology abilities is .151. This value indicates that there is no significant relationship between emotional
intelligence and technology skills among undergraduate pre-service teachers. These results provide insights into the emotional skills of university pre-service teachers, and provide feedback relative to our current educational aims.

**Discussion of Emotional Intelligence Findings**

The analysis of the emotional intelligence (EI) portion of the survey found that the highest value of emotional intelligence obtained for a single response among 113 responses was ‘160’ and the lowest EI score was ‘100’. The total mean among 113 respondents was 132.8 on a scale of ‘33’ to ‘165’ with ‘165’ being the highest value. This denotes a high level of emotional intelligence among these future teachers.

**Emotionally intelligent educators.**

Emotional Intelligence is the primary indicator for the determination of social-emotional skills such as self-control, zeal and persistence, which is a set of skills that is very valuable for educators (Goleman, 2010). Emotional intelligence is a valuable enhancement to teachers’ effectiveness, “emotionally intelligent teachers are active in their orientation to students, work, and life” (Nelson et al., 2005, p.4). Emotionally intelligent teachers are found to be “resilient in response to negative stress and less likely to overwhelm themselves with pessimism and strong negative emotions” (Nelson et al., 2005, p.4). It has been reported that emotionally intelligent teachers lead a more fulfilling life, and have more personal success and satisfaction in their professional career. In general, teachers who have a high level of emotional intelligence are found to be more resilient and proactive in responding in a positive manner to stressful situations (Nelson et al., 2005).
Discussion of Technology Skills Findings

Technology findings total scores.

The results from the technology survey indicate that participants own a very low level of technology skills. The highest score that a single participant achieved was 14 points out of 19 total possible points and the lowest score achieved by participants was 0. The total mean for all 113 student-participants in this survey was 7.02 points. The survey questions were constructed by following the guidelines expressed by Partnership for 21st Century Skills for technology, which emphasizes that a twenty-first century education requires the adoption of skills that includes functional and critical thinking skills in the areas of information literacy; media literacy; ICT (Information, Communications and Technology) literacy” (Partnership for 21st Century Skills, 2009, p. 2).

The findings from this study indicate that digital natives are skilled with emerging technologies and social networking-based tools. Nearly all participants owned a Facebook account (96%) and a Pandora account (90%) and, many participants owned a Twitter account (68%) and used instant messenger applications (62%). Only 44 students (39%) assessed themselves as not being technology savvy, all other participants reported being technology savvy or to have mastered some amount of technology skills. There is a disconnect between the scores achieved on the survey and student perceptions of being technology savvy. These findings are consistent with recent studies which report that digital natives, members of a generation of students born after the invention of digital technologies and the internet, are not as tech-savvy as expected (Combes, 2008). The recommendations proposed by this research echo the recommendations in literature.
which states that students of this generation must acquire the technical abilities necessary to flourish in a world that is becoming increasingly dependent on online services or they will be disadvantaged in comparison with those who have strong technical skills (Combes, 2008).

**Technology skills and teachers of the twenty-first century.**

Since the population assessed by this study was comprised of undergraduate pre-service teachers enrolled in teacher preparation technology courses, it is important to note that technology skills are necessary components for the success of teachers in the twenty-first century. Studies lend to the notion that teachers must develop technology skills, “effective use of technology in teaching is an essential skill for teachers because it can help make complex subject matter ideas more accessible to students while preparing them for the demands of the modern technological workplace and the reality of their future” (U.S. Department of Education, 2010).

**Technology skills with web applications.**

One question on the survey was *which is an improper use of an online chat room?* This question was included in the survey in order to test students’ understanding of appropriate online behavior, and was answered correctly by 101 students (89%) with the answer *Posting innuendo about classmates.* This denotes an understanding of appropriate online behavior which helps reduce possible cyber-bullying (Partnership for 21st Century Skills, 2009, p. 2). This type of mature behavior is consistent with literature that asserts that individuals with high levels of emotional intelligence will be less likely to engage in cyber-bullying (Goleman, 2010).
While the boundaries between appropriate and inappropriate online behavior might be understood by digital natives, none of the participants answered the question, *When posting on Facebook, which of the following should be your primary concern?*, for which the correct answer was *Tagging*. This indicates that the potential harm caused by Facebook features such as ‘tagging’ is not understood by millennials; they are unaware of the ramifications of their ignorance of certain features offered by online applications (Acquisti et al., 2011). According to a study by Alessandro Acquisti et al. (2011) tagging can be dangerous because pictures run through software face-recognition could allow identity-theft.

One of the most technologically challenging questions included in this portion of the survey was, *Wireless networking, or Wi-Fi, can be used to connect computers in a home, and many cities are using the technology to offer free or low-cost Internet access to residents. What's another name for Wi-Fi?* In today’s world, smart devices and computers with wireless capabilities are able to connect to the Internet with this network adapter. Knowing this information is important when purchasing a wireless Internet-compliant device, when troubleshooting connection problems, and when setting up security settings on devices. While the percentage of student participants who responded correctly with *801.11* was low (8%), this is nevertheless knowledge that digital natives should own.

Knowing the reference-name of the wireless network adaptor might only be useful in particular situations, but knowing which type of software controls the overall functionality of devices is relevant to all users of Internet-compliant electronic devices.
Only 35 participants (31%) answered the question *Which software controls all the software on a computer?* correctly with, *The Operating System*. Millennials without this common knowledge will need to consult more knowledgeable users and rely on experts for help in mundane technology tasks (EDUCAUSE, 2011).

**Multiple-response findings.**

Designed to gather information regarding the mastery of online-applications and participants’ social networking usage, the multi-response question furnished information about participants’ web-presence and interaction with pioneering technologies such as social networking. The most widely used social networking applications were reported to be Facebook (96%) and Pandora (90%). Other applications widely used among the student participants were Twitter (68%) and instant messenger applications (62%). The purpose of these web tools is for social interaction and for networking with other users, thus implying that account owners visit these sites daily, if not multiple times per day. A study conducted by Reynol Junco reports that on average, college students spend over 1 hour and 40 minutes a day on Facebook (Junco, 2011).

While owners of social networking accounts spend time immersed in technology as they create and consume online content, they are not exposed to any challenges from which they would acquire technology skills for their walk into the future. This is because social networking applications are designed to be user-friendly and for those who have nominal technical skills (Mangold & Faulds 2009). The findings of this study are in line with the literature that reports that millennials view new technologies as tools used primarily to enhance their social life (Carson, 2012), and that applying technology in the

**Open-response findings.**

The open-response question, Do you think you are technology savvy? Please, explain your answer, revealed that many student participants in this study 36 (32%) thought they were technology savvy, 44 students (39%) responded that they were not technology savvy, and 6 students (5%) specified that they were technology savvy only on social networks. The remainder of the participants gave a variety of responses to express an intermediate skill-level that ranges between being technology savvy and being unskilled with technology. After estimating the average of total responses for the technology part of the survey (7.02 out of 19), it is evident that the student participants in this study have a much different definition of being ‘technology savvy’ (dictionary.cambridge.org, 2013).

If students only master social networking products that are carefully designed to be user-friendly, they will not be able to acquire skills that will allow them to manipulate the actual tools that hide behind the friendly interfaces (Mangold & Faulds, 2009). Lack of technology skills will limit students who will be future teachers to the use of packaged products that can be used only for specific applications. This is because students will have no proficiency with the underlying tools that, once customized, could help them in their teaching careers. Today’s teachers require technology skills; technology is no longer
just a supplemental teaching tool, but instead is essential in teaching for successful performance outcomes (Ertmer & Ottenbreit-Leftwich, 2010).

**Demographic information findings.**

The five demographic questions added to the survey were designed to collect participants’ gender, age, major, and year in college. Technology skills are not evenly distributed among demographic groups of young adults; each person masters a different level of technology skills (Hargittai, 2010). The study revealed these demographics: 40 males (35%) and 73 females (65%) were enrolled in the range between the first year in school (2%) and the fifth year in school (4%). Among the remainder of those students, the majority were enrolled in either the second year of college (41%), or the third year of college (42%). Participants were enrolled either in majors that lead to degrees in the education field, or in majors in which acquisition of teaching skills is required. The age of respondents ranged from 18 years to 31 years with the majority of students being between 19 and 21 years of age (70%). According to Oblinger’s definition of Digital Natives or Millennials, all participants in this study can be categorized as digital natives (Oblinger, 2003) and this categorization would imply that this generation is tech-savvy. This study’s findings are consistent with literature that reports that digital natives “are not as tech-savvy as portrayed by the world’s media and large Internet software providers” (Combes, 2008, p. 1).

Among digital natives there is an appreciation for new technologies, but the use of new technologies differs significantly. And, the underlying technology skills among these digital natives are unequal; some students who belong to this generation are more
technology savvy than others (Jones et al., 2010). Of little significance are the differences in the amount of technical skills between the male and female genders. Literature reports that males have better technical skill levels than females, but females are rapidly closing that gap in skill levels (Dresang et al., 2007; Combes, 2008). One interesting note specific to this study is that, the reverse is true; female participants were slightly more technology savvy than male participants. The female total average for the technology part of the survey was 7.96. The total average for male participants was 7.70.

The Importance of Emotional Intelligence and Technology Skills

In order to prepare students for the future, it is vital to educate them with a threefold approach that includes fostering of intellectual capabilities, nurturing of social-emotional skills, and learning how to employ technology for education (Berry, 2011). Students need to learn how to apply digital tools in a manner that will be helpful to their careers and learn how technology can help them acquire skills that are on-demand (Berry, 2011; Combes, 2008). The future demands individuals who possess strong social-emotional skills in order to be able to work with an increasingly diverse workplace, and to be able to compete for jobs in global markets where the skills that matter are communication, collaboration, critical thinking, and problem solving skills (Berry, 2011; Goleman, 2010; Partnership for 21st Century Skills, 2009, p. 2).

Recommendations

The following recommendations are presented:

1. Ohio, the state in which this study was conducted, is now preparing to implement an Ohio-mandated technology exit exam for high school graduates.
The results from this study suggest the need for improved technical skills identified in the Partnership for 21st Skills (Partnership for 21st Century Skills, 2009, p. 2).

2. It is recommended that, along with revamping the K-12 technology curriculum to meet Ohio’s New Standards (Ohio Department of Education Teaching, 2013), funding should be provided for technical professional development for teachers.

3. It is recommended that courses within Higher Education teacher preparation programs be revamped to meet Ohio’s New Standards which are consistent with the Partnership for 21st Skills (Partnership for 21st Century Skills, 2009, p. 2).

4. Recent studies conducted by Dr. Goleman show that there is a strong correlation between positive “emotional intelligence and successful business results” (Goleman, 2004, p.1), and that individuals who possess strong social-emotional skills are in high demand in the markets (Berry, 2011). Regardless of whether the field chosen by students is education or business, emotional intelligence skills should be part of their curricula. It has been reported that skills such as communication, collaboration, critical thinking, and problem solving skills (Berry, 2011) are important social-emotional skills that should become part of education requirements (Partnership for 21st Century Skills, 2009, p. 2).
Recommendations for Further Research

Based on the findings of this study, the following recommendations for future research are proposed:

1. It is recommended that a quantitative and/or qualitative study which surveys a larger sample size and includes a greater diversity of students from more areas of study be conducted in order to compare the levels of technology proficiency and emotional intelligence among the survey participants at a larger scale.

2. To determine if geographic location is one of the factors that influences variations in the levels of technology skills and levels of emotional intelligence among college students enrolled in education courses, this study could be conducted at multiple higher education institutions in a wide range of locations.

3. Further research should be conducted to identify and investigate the factors that influence the degree of difference between the levels of technology proficiency and emotional intelligence skills among college students of a variety of majors.

4. While participants in this study were found to have above average emotional intelligence, literature states that measuring emotional intelligence with a quantitative scale is difficult (Dulewicz & Higgs, 2000). Taking a different approach to the exploration of emotional intelligence and technology using
different measurements will increase our understanding of the relationship between these two variables (EI and technology skills).

5. Are teachers more prone to high emotional intelligence?

**Limitations of the Study**

Conducting a study on the relationship between emotional intelligence and technology skills at Ohio University presented some limitations. The limitations of this study were:

1. The research instrument used for the technology proficiency assessment was not piloted for validity and reliability prior to conducting this study.

2. The technology survey used as the research instrument in this study evaluated only a limited subset of technology skills.

3. The survey was only available to students for two weeks during the 2013 spring semester.

4. The population sample did not include students from several different colleges; only students enrolled in the College of Education were surveyed.

5. The study was administered in only one geographical location; the main campus of a Midwestern University.

6. Participants’ attitudes while taking the emotional intelligence part of the survey could have influenced their interpretation of test questions. It is difficult to determine the characteristics of those who should be chosen to be included in the population for the study (Schutte et al., 1998).
7. Assumptions made about participants regarding their knowledge regarding emotional intelligence was not identified and explored.

8. Assumptions made about students’ participation in the Schutte Self Report Emotional Intelligence Test (Schutte et al., 2009) prior to this study were not identified and explored.

**Final Conclusions**

This study explored the relationship between emotional intelligence and technology proficiency among undergraduate pre-service teachers enrolled in a teacher preparation technology course. The purpose of this study was to contribute to our understanding of the relationship between two important educational elements (emotional intelligence and technology skills) that need to be applied to a twenty-first century education (Goleman, 2000; Davidson 2010; Berry, 2011; Partnership for 21st Century Skills, 2009, p. 2).

Today, the application of emotional intelligence in education has been proven to be successful and beneficial for the limited programs that have included social-emotional skills in their curricula (Goleman, 2010). The contribution of this study is important because it strengthens future research by providing additional evidence to investigate two important skills (emotional intelligence and technology skills) that need to be taken into consideration while redesigning standards for education (Goleman, 2000; Davidson 2010; Berry, 2011; Partnership for 21st Century Skills, 2009, p. 2).

This study analyzed 113 surveys administered to undergraduate pre-service teachers enrolled in teacher preparation technology courses. The results of this study
indicate that participants own a high level of emotional intelligence and very low technology skills and that there is no significant relationship between emotional intelligence and technology skills among undergraduate pre-service teachers in a College of Education teacher preparation technology course at a Midwestern University.
References


San Diego, CA.


## Appendix A: Technology Questions Survey Design

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Questionnaire question</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Please enter here below your results from the emotional intelligence survey</td>
<td>Enter #</td>
</tr>
<tr>
<td>2</td>
<td>Please enter your age</td>
<td>Enter #</td>
</tr>
</tbody>
</table>
| 3               | Are you male?                                                                           | 1. Yes  
2. No  
Hargittai, E. (2010). Digital na(t)ives? Variation in Internet skills and uses among members of the “Net generation”. Sociological Inquiry. 80(1):92-113 |
| 4               | Please specify your area of studies                                                     | 1. Early Childhood  
2. AYA - Adolescence to Young Adult  
3. Middle School Education  
4. Other (Please specify)  .....  
Hargittai, E. (2010). Digital na(t)ives? Variation in Internet skills and uses among members of the “Net generation”. Sociological Inquiry. 80(1):92-113 |
| 5               | This is your ___ year in college                                                        | 1. First  
2. Second  
3. Third  
4. Fourth  
5. Fifth  
6. Sixth  
Hargittai, E. (2010). Digital na(t)ives? Variation in Internet skills and uses among members of the “Net generation”. Sociological Inquiry. 80(1):92-113 |
| 6               | What does a file’s extension tell you?                                                  | **1. what kind of file it is**  
2. How much memory space the file has  
3. Whether intended for a Mac or IBM compatible operating system  
4. where the file is located |
<p>| | | |</p>
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<tr>
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</thead>
</table>
| 5. I don’t know | How does computer piracy affect all of us? | 1. It increases public access to computers  
2. **It increases the cost of technology.**  
3. It increases computer power.  
4. It increases legal access to information.  
5. I don’t know |
| 7 | Techliteracy assessment – 21st century skills assessment sample  
http://www.wisegeek.org/how-does-software-piracy-affect-me.htm | 1. It increases public access to computers  
2. **It increases the cost of technology.**  
3. It increases computer power.  
4. It increases legal access to information.  
5. I don’t know |
| 8 | Which software controls all the software on a computer? | 1. Hard drive  
2. **Operating System**  
3. Web browser  
4. The boot-program that controls the motherboard  
5. I don’t know |
http://www.wisegeek.org/how-does-software-piracy-affect-me.htm | 1. Forming study groups with friends  
2. Asking about a class you missed  
3. **Posting innuendo about classmates**  
4. Making plans for a surprise party  
5. I don’t know |
| 9 | Which is an improper use of an online chat room? | 1. Forming study groups with friends  
2. Asking about a class you missed  
3. **Posting innuendo about classmates**  
4. Making plans for a surprise party  
5. I don’t know |
http://www.wisegeek.org/how-does-software-piracy-affect-me.htm | 1. receiving information from a host computer  
2. storing data on the hard drive  
3. **sending information to a host computer**  
4. storing data on a disk drive  
5. I don’t know |
| 10 | Which of the following best describes uploading information? | 1. receiving information from a host computer  
2. storing data on the hard drive  
3. **sending information to a host computer**  
4. storing data on a disk drive  
5. I don’t know |
http://www.wisegeek.org/how-does-software-piracy-affect-me.htm | 1. In the browser |
| 11 | Your Internet cookies | 1. In the browser |
### Questions and Answers

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In the browser “cache”</td>
<td>2. In the browser “cache”&lt;br&gt;3. In your Internet “history” folder&lt;br&gt;4. In the cloud, under your Internet folder&lt;br&gt;5. I don’t know&lt;br&gt;(Partnership for 21st Century Skills, 2009, p. 2).</td>
</tr>
<tr>
<td>You are returning on a business site where you had previously made a purchase with your credit card, and notice a greeting message at the top of the page addressed to you (Hello “your name”!). How does the site know your name?</td>
<td>1. Because I am logged into my personal computer&lt;br&gt;2. Because last time I was on this site my browser created a cookie with my information&lt;br&gt;3. Because this site can recognize the IP addresses of its customers&lt;br&gt;4. Because a hacker is controlling my browser settings&lt;br&gt;5. I don’t know&lt;br&gt;(Partnership for 21st Century Skills, 2009, p. 2).</td>
</tr>
<tr>
<td>What is RAM?</td>
<td>1. The memory allocation of your computer.&lt;br&gt;2. Your hard-drive’s memory.&lt;br&gt;3. It is the central processor of your operating system.&lt;br&gt;4. Short-term memory for processing data into information.&lt;br&gt;5. I don’t know&lt;br&gt;(Partnership for 21st Century Skills, 2009, p. 2).</td>
</tr>
<tr>
<td>If you download</td>
<td>1. Yes</td>
</tr>
</tbody>
</table>

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Techliteracy assessment – 21st century skills assessment sample
<table>
<thead>
<tr>
<th>Question</th>
<th>Choice 1</th>
<th>Choice 2</th>
<th>Choice 3</th>
<th>Choice 4</th>
<th>Choice 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>open-source software are you committing a piracy crime?</td>
<td>2. No</td>
<td>3. I don’t know</td>
<td>4. This type of download cannot be done</td>
<td>5. I don’t know</td>
<td>(Partnership for 21st Century Skills, 2009, p. 2).</td>
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<tr>
<td>16. The library periodical databases are freely accessible on the web</td>
<td>True or False?</td>
<td>1. True</td>
<td>2. False</td>
<td>3. Only the periodicals are not free</td>
<td>4. All library resources are free</td>
</tr>
<tr>
<td>to anyone from anywhere</td>
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</tr>
<tr>
<td>17. Your professor gives you an assignment to find journal articles</td>
<td>1. Search a library periodicals database for journal articles about</td>
<td>2. Browse the journals in the current periodicals section of the library</td>
<td>3 Search the ALICE (OU), the Library catalog</td>
<td>4. Use an internet search engine (such as Google or Yahoo)</td>
<td>5. I don’t know</td>
</tr>
<tr>
<td>about global warming. What should you do?</td>
<td>about global warming</td>
<td>until you come across an article about global warming</td>
<td></td>
<td></td>
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http://intraweb.stockton.edu/eyos/library/content/instructional_services/reconsidering_a_traditional_instruction_technique.pdf

(Campbell, 2009) Millikin University
Student Learning in Library Research Instruction for Critical Writing, Reading and Research I & II Assessment Report for Academic Year 2008-2009
Reported by Debbie Campbell, Instructional Services Coordinator 15 June 2009

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| **18** | Say you are writing a paper about gun violence and you use information from the National Rifle Association (NRA) website. In this example, which website evaluation criterion do you need to pay attention to the most? (choose one) | **1. Bias/Objectivity/Accuracy**  
2. Currency/Timeliness  
3. Functionality/Website easy to navigate  
4. The website’s domain (does the web address end in .com, .org, .edu, .net)  
5. I don’t know |
|   |   | **http://intraweb.stockton.edu/eyos/library/content/instructional_services/reconsidering_a_traditional_instruction_technique.pdf** |
| **19** | When performing a search on a web engine which of the following will fetch less items? | **1. Dogs and Cats**  
2. **Dogs or Cats**  
3. They will find the same number of items  
4. Cats + Dogs  
5. I don’t know |
|   |   | **http://intraweb.stockton.edu/eyos/library/content/instructional_services/reconsidering_a_traditional_instruction_technique.pdf** |
| **20** | The website www.feedthechildren | **1. Commercial or for-profit business**  
2. U.S. government agency |
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</table>
|   | .org/ likely belongs to a: 3. **Non-profit Organization** 4. Educational institution 5. I do not know  
(Campbell, 2009) Millikin University  
Student Learning in Library Research Instruction for Critical Writing, Reading and Research I & II  
Assessment Report for Academic Year 2008-2009  
Reported by Debbie Campbell, Instructional Services Coordinator 15 June 2009  
[http://intraweb.stockton.edu/eyos/library/content/instructional_services/reconsidering_a_traditional_instruction_technique.pdf](http://intraweb.stockton.edu/eyos/library/content/instructional_services/reconsidering_a_traditional_instruction_technique.pdf) |   |
| 21 | Wireless networking, or Wi-Fi, can be used to connect computers in a home, and many cities are using the technology to offer free or low-cost Internet access to residents. What's another name for Wi-Fi?  
1. 801.12 networking  
2. 801.22  
3. **801.11 networking**  
4. 801.23 networking  
5. I do not know  
Wi-Fi is also referred to as 802.11 networking.  
[http://computer.howstuffworks.com/wifi-quiz.htm](http://computer.howstuffworks.com/wifi-quiz.htm) |   |
| 22 | A wireless network uses ___ waves to transmit signals.  
1. mechanical  
2. **radio**  
3. sound  
4. radar  
5. I do not know  
| 23 | When posting on Facebook, which of the following should be your primary concern?  
1. Privacy Settings  
2. Inappropriate content by others  
3. **Tagging**  
4. Befriending people you do not know  
5. I do not know  
| 24 | If you had to collaborate with  
1. Google Chrome  
2. PowerPoint Presentations |   |
| Classmates on a writing sample, what type of technology tool would you use? | 3. MS Office Documents  
4. Google Docs  
5. I do not know  
|---|---|
| I own the following personal accounts: | 1. YouTube  
2. Facebook  
3. Google applications  
4. Twitter  
5. Flicker  
6. I have a Personal Blog page  
7. Wikis  
8. Google +  
9. Instant massagers (i.e. Skype, IM, Facebook massagers…)  
10. Pandora, iTunes  
| Do you think you are technology savvy? Please, explain your answer. | Open ended question  
Appendix B: IRB approval

Ohio University
Office of the Vice President for Research

12E323

A determination has been made that the following research study is exempt from IRB review because it involves:

Category 2. research involving the use of educational tests, survey procedures, interview procedures or observation of public behavior

Project Title: An Exploration of Emotional Intelligence and Technology Skills Among Students at Ohio University

Primary Investigator: Federica Incerti

Co-Investigator(s):

Advisor: Teresa Franklin

Department: Education

Robin Stack, CIP, Human Subjects Research Coordinator
Office of Research Compliance

Jan. 9, 2013

Date

The approval remains in effect provided the study is conducted exactly as described in your application for review. Any additions or modifications to the project must be approved (as an amendment) prior to implementation.
Appendix C: Informed Consent Statement

Ohio University Consent Statement

Title of Research: An Exploration of Emotional Intelligence and Technology Skills Among Students at Ohio University.

Primary Investigator: Federica Incerti

Department: The Gladys W. and David H. Patton College of Education and Human Services of Ohio University

You are being asked to participate in research. For you to be able to decide whether you want to participate in this project, you should understand what the project is about, as well as the possible risks and benefits in order to make an informed decision. This process is known as informed consent. This form describes the purpose, procedures, possible benefits, and risks. It also explains how your personal information will be used and protected. Once you have read this form and your questions about the study are answered, you will be asked to participate in this study. You should receive a copy of this document to take with you.

Explanation of Study

The purpose of this study is to gain a better understanding of the relationship between technology and emotional intelligence among college students. This study seeks to provide insight regarding the emotional skills of university students and our current educational aims.

If you agree to participate, you will be asked to complete an online survey. Your participation in the survey will take approximately 15 minutes.

Risks and Discomforts

Your participation in this study does not involve any type of risks or discomfort.

Benefits

The results of this study will help to further advance techniques used in education in order to prepare students for the future, as well as providing a better understanding of the role of technology in young adults’ lives.

Confidentiality and Records
Any data you provide will be kept confidential, and will only be used for this study. Your responses to the survey questions will be anonymous. Your name will not be kept during the data collection phase nor will it be attached to any responses. All data will be destroyed one year after the completion on this study.

Additionally, while every effort will be made to keep your study-related information confidential, there may be circumstances where this information must be shared with:

* Federal agencies, for example the Office of Human Research Protections, whose responsibility is to protect human subjects in research

* Representatives of Ohio University (OU), including the Institutional Review Board, a committee that oversees the research at OU

**Participation and withdrawal**

Your participation in this study is voluntary. Participants can choose whether to participate in this study or not. If you volunteer to participate in this study, you may withdraw at any time without any consequences.

**Contact Information**

If you have any questions regarding this study or your participation in this study, please do not hesitate to contact the researcher Federica Incerti via email at incerti@ohio.edu or her advisor Dr. Teresa Franklin via phone at (740)593-4561 or via email franklit@ohio.edu

If you have any questions regarding your rights as a research participant, please contact Jo Ellen Sherow, Director of Research Compliance, Ohio University, (740)593-0664.

By agreeing to participate in this study, you are agreeing that:

* you have read this consent form (or it has been read to you) and have been given the opportunity to ask questions and have them answered
* you have been informed of potential risks and they have been explained to your satisfaction.
* you understand Ohio University has no funds set aside for any injuries you might receive as a result of participating in this study
* you are 18 years of age or older
* your participation in this research is completely voluntary
* you may leave the study at any time. If you decide to stop participating in the study, there will be no penalty to you and you will not lose any benefits to which you are otherwise entitled.
Please keep a copy of this document for your records.

Signature _________________________________________________

Date _______________

Printed Name _____________________________________________
Appendix D: Permission to The SSEIT Survey

Thank you for your message. You are welcome to use the scale in your research. Please find attached the manuscript version of a published chapter that contains the scale and background information.

All the best, Nicola Schutte

From: Nicola Schutte
Sent: Monday, 24 December 2012 9:21 AM
To: Nicola Schutte
Subject: Emotional Intelligence SSEIT survey

Good Evening Dr. Schutte,

My name is Nicola Incorti and I am Master student at Ohio University. I am currently working on my thesis which is a study of the relationship between emotional intelligence and technology skills in college students. To assess technology skills in young adults I am using a 21st Century Skills survey. And, for the emotional intelligence assessment I would like to ask you about the possibility of using your SSEIT survey. Could I have your permission to use the SSEIT survey in my thesis and information about your survey?

Thank you very much for your time, Dr. Schutte.

Happy holidays,
Nicola Schutte

Ohio University
Instructional Technology Graduate Student
Dept. Educational Studies
The Gault W. and David H. Patton College of Education
Ohio University, Athens, OH 45701
(740) 039-0578

Please consider the environment before printing this email.
Appendix E The SSEIT Assessing Emotions Scale

The Assessing Emotions Scale

Directions: Each of the following items asks you about your emotions or reactions associated with emotions. After deciding whether a statement is generally true for you, use the 5-point scale to respond to the statement. Please circle the “1” if you strongly disagree that this is like you, the “2” if you somewhat disagree that this is like you, “3” if you neither agree nor disagree that this is like you, the “4” if you somewhat agree that this is like you, and the “5” if you strongly agree that this is like you.

There are no right or wrong answers. Please give the response that best describes you.

1 = strongly disagree
2 = somewhat disagree
3 = neither agree nor disagree
4 = somewhat agree
5 = strongly agree

1. I know when to speak about my personal problems to others.
2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.
3. I expect that I will do well on most things I try.
4. Other people find it easy to confide in me.
5. I find it hard to understand the non-verbal messages of other people.
6. Some of the major events of my life have led me to re-evaluate what is important and not important.
7. When my mood changes, I see new possibilities.
8. Emotions are one of the things that make my life worth living.
9. I am aware of my emotions as I experience them.
10. I expect good things to happen.
11. I like to share my emotions with others.
12. When I experience a positive emotion, I know how to make it last.
13. I arrange events others enjoy.
14. I seek out activities that make me happy.
15. I am aware of the non-verbal messages I send to others.
16. I present myself in a way that makes a good impression on others.
17. When I am in a positive mood, solving problems is easy for me.  
18. By looking at their facial expressions, I recognize the emotions people are experiencing.  
19. I know why my emotions change.  
20. When I am in a positive mood, I am able to come up with new ideas.  
21. I have control over my emotions.  
22. I easily recognize my emotions as I experience them.  
23. I motivate myself by imagining a good outcome to tasks I take on.  
24. I compliment others when they have done something well.  
25. I am aware of the non-verbal messages other people send.  
26. When another person tells me about an important event in his or her life, I almost feel as though I experienced this event myself.  
27. When I feel a change in emotions, I tend to come up with new ideas.  
28. When I am faced with a challenge, I give up because I believe I will fail.  
29. I know what other people are feeling just by looking at them.  
30. I help other people feel better when they are down.  
31. I use good moods to help myself keep trying in the face of obstacles.  
32. I can tell how people are feeling by listening to the tone of their voice.  
33. It is difficult for me to understand why people feel the way they do.
Appendix F Survey

Dear EDCT 2030 student,

My name is Federica Incerti and I am Master student at Ohio University. I am currently working on my thesis which is a study of the relationship between emotional intelligence and technology skills in college students. To assess technology skills in young adults I am using a 21st Century Skills survey. I would appreciate your participation in my survey. The survey should take about 10 minutes to complete.

By agreeing to participate in this study, you are agreeing that:

- you have read this consent form (or it has been read to you) and have been given the opportunity to ask questions
- and have them answered
- you have been informed of potential risks and they have been explained to your satisfaction.
- you understand Ohio University has no funds set aside for any injuries you might receive as a result of participating in this study
- you are 18 years of age or older
- your participation in this research is completely voluntary
- you may leave the study at any time. If you decide to stop participating in the study, there will be no penalty to you and you will not lose any benefits to which you are otherwise entitled.

I agree to participate

No thanks

[Progress bar] 0% 100%
I know when to speak about my personal problems to others.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I expect that I will do well on most things I try.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

Other people find it easy to confide in me.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree
I find it hard to understand the non-verbal messages of other people.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

Some of the major events of my life have led me to re-evaluate what is important and not important.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

When my mood changes, I see new possibilities.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

Emotions are one of the things that make my life worth living.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree
I am aware of my emotions as I experience them.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I expect good things to happen.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I like to share my emotions with others.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

When I experience a positive emotion, I know how to make it last.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I arrange events others enjoy.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree
I seek out activities that make me happy.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I am aware of the non-verbal messages I send to others.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I present myself in a way that makes a good impression on others.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

When I am in a positive mood, solving problems is easy for me.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

By looking at their facial expressions, I recognize the emotions people are experiencing.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree
I know why my emotions change.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

When I am in a positive mood, I am able to come up with new ideas.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I have control over my emotions.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I easily recognize my emotions as I experience them.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I motivate myself by imagining a good outcome to tasks I take on.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree
I compliment others when they have done something well.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I am aware of the non-verbal messages other people send.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

When another person tells me about an important event in his or her life, I almost feel as though I experienced this event myself.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

When I feel a change in emotions, I tend to come up with new ideas.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree
When I am faced with a challenge, I give up because I believe I will fail.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I know what other people are feeling just by looking at them.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I help other people feel better when they are down.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I use good moods to help myself keep trying in the face of obstacles.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

I use good moods to help myself keep trying in the face of obstacles.
It is difficult for me to understand why people feel the way they do.
- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

What does a file’s extension tell you?
- What kind of file it is
- How much memory space the file has
- Whether intended for a Mac or IBM compatible operating system
- Where the file is located
- Do not know

How does computer piracy affect all of us?
- It increases public access to computers
- It increases the cost of technology
- It increases computer power
- It increases legal access to information
- Do not know

Which software controls all the software on a computer?
- Hard drive
- Operating System
- Web browser
- The boot-program that controls the motherboard
- Do not know

Which is an improper use of an on-line chat room?
- Forming study groups with friends
- Asking about a class you missed
- Posting innuendo about classmates
- Making plans for a surprise party
- Do not know

Which of the following best describes uploading information?
- Receiving information from a host computer
- Storing data on the hard drive
- Sending information to a host computer
- Storing data on a disk drive
- Do not know
Your internet cookies are stored
- In the browser
- In the internet “cache”
- In your Internet “history” folder
- In the cloud, under your Internet folder
- Do not know

You are returning on a business site where you had previously made a purchase with your credit card, and notice a greeting message at the top of the page addressed to you (Hello “your name”!). How does the site know your name?
- Because I am logged into my personal computer
- Because last time I was on this site my browser created a cookie with my information
- Because this site can recognize the IP addresses of its customers
- Because a hacker is controlling my browser settings
- Do not know

What is RAM?
- The memory allocation of your computer
- Your hard-drive’s memory
- It is the central processor of your operating system
- Short-term memory for processing data into information
- Do not know

An example of analog technology would be
- USB memory card
- A music CD
- A solar calculator
- A VHS tape
- Do not know
If you download open-source software are you committing a piracy crime?
- Yes, because this type of software does not allow you to download the license
- No, because this type of software has open-licensing agreements
- This type of download cannot be done
- No, as long as I can also download the privacy-key associated with the open-source software
- I do not know

The library periodical databases are freely accessible on the web to anyone from anywhere
- This is true because all web-accessible periodical databases are free
- This is false because not all web-accessible periodical databases are free
- Only the periodicals are not free
- All library resources are free
- I do not know

Your professor gives you an assignment to find journal articles about global warming. What should you do?
- Search a library periodicals database for journal articles about global warming
- Browse the journals in the current periodicals section of the library until you come across an article about global warming
- Search the ALICE (OU) Library catalog
- Use an Internet search engine (such as Google or Yahoo)
- I do not know

Say you are writing a paper about gun violence and you use information from the National Rifle Association (NRA) website. In this example, which website evaluation criterion do you need to pay attention to the most?
- Bias/Objectivity/Accuracy
- Currency/ Timeliness
- Functionality/ Website easy to navigate
- The website's domain (does the web address end in .com, .org, .edu, .net)
- I do not know
When performing a search on a web engine which of the following will fetch fewer items?

- Dogs and Cats
- Dogs or Cats
- They will find the same number of items
- Cats + Dogs
- I Do not know

The website www.feedthechildren.org likely belongs to a:

- Commercial or for-profit business
- U.S. government agency
- Non-profit Organization
- Educational institution
- I Do not know

Wireless networking, or Wi-Fi, can be used to connect computers in a home, and many cities are using the technology to offer free or low-cost internet access to residents. What's another name for Wi-Fi?

- 801.12 networking
- 801.22 networking
- 801.11 networking
- 801.23 networking
- I Do not know

A wireless network uses ___ waves to transmit signals.

- Mechanical
- Radio
- Sound
- Radar
- I do not know

When posting on Facebook, which of the following should be your primary concern?

- Privacy Settings
- Inappropriate content by others
- Tagging
- Defriending people you do not know
- I do not know
If you had to collaborate with classmates on a writing sample, what type of technology tool would you use?
- Google Chrome
- PowerPoint Presentations
- MS Office Documents
- Google Docs
- I do not know

I own the following personal accounts - check all that apply
- YouTube
- Facebook
- Google +
- Twitter
- Flicker
- Google applications
- I have a Personal Blog Site
- I use Wikis
- I use instant messengers (i.e. Skype, IM, Googletalk, Facebook messenger...)
- Pandora, iTunes

Do you think you are technology savvy? Please, explain your answer.

Please enter your age

Are you male?
- Yes
- No

Please specify your area of studies
- Early Childhood
- AYA - Adolescence to Young Adult
- Middle School Education
- Other (Please specify)
This is your ___ year in college
  ○ First
  ○ Second
  ○ Third
  ○ Fourth
  ○ Fifth
  ○ Sixth

If you would like to receive information regarding your emotional intelligence score please enter your name and email address (Optional)

