2015

Social Intelligence of Undergraduates Enrolled in Traditional vs. Distance Higher Education Learning Programs

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Walden University
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Abstract

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MA, Walden University, 2013

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

May 2015

Abstract

Participation in, and acceptance of, distance education has reached an all-time high. Yet many academics, policy makers, and laypeople remain concerned that distance education can adversely affect one's social development. The purpose of this quantitative study was to test that concern by comparing the social intelligence of distance undergraduates with the social intelligence of traditional undergraduates at different class ranks (i.e., freshman, sophomore, junior, senior) while limiting the ages of the participants ($n = 190$) to 18–24. Social intelligence, an operationally defined measure of the construct often referred to as *social development* has been a popular focus of research in the last few decades, and the benefits of social intelligence are numerous. This study used Bandura's social learning theory and Goleman's theory of social intelligence as the theoretical framework. A 2-way ANOVA was used to measure the main effect of class rank, the main effect of learning environment (traditional vs. distance), and the interaction between these variables on social intelligence. There was no statistically significant difference in the level of social intelligence between distance and traditional undergraduates, there was a statistically significant difference in the level of social intelligence among undergraduate class ranks, and there was no significant difference between learning environments in social intelligence across levels of class rank. The results of this study can provide meaningful insights to course architects, educators, parents, and students who all have an interest, even if just exploratory, in distance education and its social implications by addressing concerns that distance learning environments might impede social intelligence development of undergraduates.

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Dedication

I dedicate this dissertation to a member of my family who has recently passed away. She

was there for me every day while writing this dissertation, supporting me through her

sweetness. Yes, she was a rodent, but a rodent that I can honestly say that I loved, and I

will greatly miss. I dedicate this dissertation to my daughter's guinea pig, CookieDough.

Acknowledgements

I would like to express my sincere gratitude and appreciation all those who were instrumental in helping me along the way, either academically or otherwise. This includes my wife, Kim, who I love very much for putting up with me essentially taking a four-year vacation from business. Dr. Anthony Perry for agreeing to be my chair when everyone else rejected me. Dr. Anthony Napoli for holding my metaphorical hand through the stats portion of this journey. Dr. Lee Stadtlander, who has helped me and perhaps thousands of other students in this the dissertation process through her blog (http://phdrealities.blogspot.com) and her personal responses to my e-mails. Thank you all.

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Chapter 1: Introduction to the Study

In the autumn of 2012, the number of students taking at least one distance course rose to a record 7.1 million, or 33.5% of all higher education students (Allen & Seaman, 2013). According to the same source, 77% of academic leaders rated the learning outcomes in distance education as the same or superior to traditional learning environments with face-to-face instruction. Despite this widespread approval, it is unlikely that academic leaders include social intelligence development in "learning outcomes." Silvera, Martinussen, and Dahl (2001) define *social intelligence* as "the ability to understand other people and how they will react to different social situations" (p. 314).

There is a vast amount of research providing evidence for the known benefits of social intelligence (e.g., Cohen, 2006; Emmerling & Boyatzis, 2012; Goleman, 2007; Hooda, Sharma, & Yadava, 2009; Joseph & Lakshmi, 2010; Kobe, Reiter-Palmon, & Rickers, 2001), as well as many more theoretical benefits that are too numerous to have all been realistically researched. For example, in his book *Social Intelligence: The New Science of Human Relationships*, Goleman (2007) devoted many pages to discussing research and polls that connect some aspect of social intelligence with well-being. Given the clear importance of social intelligence, there is little known about the effects of distance learning on one's social intelligence development.

The move of formal education from the traditional face-to-face environment to the distance environment can be seen as a relatively recent paradigm shift in education (Harasim, 2000). This paradigm shift is one in which has given countless students access to a higher quality education that would not otherwise be practical pursue, and provided

other students with an alternative to traditional education as a financial or practical convenience (Khalid, n.d.). There are those who are skeptical about the overselling of benefits and the overlooking of potential downsides to this paradigm shift (e.g., Francescato, Mebane, Solimeno, Sorace, & Tomai, 2006; Glader, 2009; Sivin-Kachala & Bialo, 2009; Small & Vorgan 2009), specifically, referring to the social development implications of a distance learning environment. The outcome of this study will either identify a correctable problem with distance education that is potentially adversely affecting millions of lives or provide evidence that the common claim that distance education has repercussions on one's social development is without merit. Debunking such a claim would contribute to the growing public and academic support for distance education, and because distance education is the only practical option for many, this would reasonably have an impact on the overall education level of our society.

In this chapter, I summarize the background of this study and the major areas of research pertaining to this study. The problem being addressed is discussed, the purpose of the study is defined, and the formal research questions and hypotheses are presented. The theoretical framework and nature of study are summarized and discussed in more detail in Chapters 2 and 3, respectively. Definitions are discussed in part, with more discussion in the following chapters. A brief discussion of the methodology follows including assumptions, scope and delimitations, and limitations of the study. The chapter concludes with the significance of the study and a summary of the chapter.

Background

Distance Education

Much of the demographic information pertaining to distance education was compiled in a report on the state of distance learning in U.S. higher education (Allen & Seaman, 2014). The information in this report establishes both the benefits and importance of distance higher education in the U.S. in terms of growth, acceptance, perceptions, and widespread integration into traditional programs.

The literature pertaining to the differences in distance and traditional students suggests what might be assumed by common sense. Distance students were more likely to be older, be lifelong learners, have a job or childcare responsibilities, have longer commutes to campus, as well as have more experience with computers (Dutton, Dutton, & Perry, 2002). Some researchers, such as Stevens and Switzer (2006), have found that distance students have attitudinal and motivational advantages over their traditional student counterparts. Others have suggested that distance students tend have deficiencies in social skills (e.g., Small & Vorgan 2009). However, in these studies, causality is neither established nor implied.

There is ample literature related to the differences between distance and traditional learning environments. Perhaps the most researched aspect of this area is the effectiveness of each environment compared with the other. Overall, it cannot be reasonably assumed that there is strong evidence for students in either environment performing better or being more effective in a general sense (DiRienzo & Lilly, 2014; Hayward & Pjesky, 2012; Myers, 2002). Dutton et al. (2002) and Khalid (2013) speculate

as to the advantages and disadvantages of distance education which, for the most part, appear to be conceptually sound. The overall perception is that distance learning has its niche in the marketplace of education, but is unlikely to replace traditional education completely.

Social Intelligence

Since social intelligence was formally introduced by Dewey in 1909, the concept has been defined and repeatedly redefined by researchers. Tests such as the George Washington Test of Social Intelligence attempted to measure social intelligence, but ultimately received widespread criticism in its validity (Cronbach, 1960). Today, social intelligence is understood as a multidimensional construct that can be accurately measured, given the right instrument for the right population (Grieve & Mahar, 2013; Silvera et al., 2001).

Recent literature contains many studies pertaining to social intelligence, many of which focus on the benefits of social intelligence or the problem associated with a lack of social intelligence. Among a sample of the many benefits suggested by research findings, social intelligence: (a) helps individuals function in a social group, secure social advancement, achieve work satisfaction, and enter and maintain intimate relationships or friendships (Joseph & Lakshmi, 2010); (b) plays a significant role in determining one's resilience, which is inversely related to suicidal thoughts and behaviors (Palucka, Celinski, Salmon, & Schermer, 2011); (c) relates to positive psychological health (Hooda et al., 2009). When social intelligence is less narrowly defined, the associated benefits multiply. Lack of social intelligence has also been found to be associated with a myriad of problems in

individuals, some of which include: (a) displaying odd behaviors, having a lack empathy, disrupting peace and harmony of society (Joseph & Lakshmi, 2010); (b) being "off" (i.e., cold, aloof, or abrasive) when it comes to communication and relationships (Stichler, 2007); and (c) having an increased likelihood of social phobias that may include public speaking, sharing public bathroom, meeting new people, talking with strangers, etc. (Goleman, 2007).

The growing field of neuroscience has prompted researchers to look at social intelligence from a new perspective and offer empirical explanations not available to their predecessors. Goleman and Boyatzis (2008) explain social intelligence's relationship to leadership by looking at specific structures in the brain found to be associated with empathy, which is a key part of social intelligence. According to Goleman (2007), neuroscience does offer support to the idea that humans are "wired" to connect and that neuroscience tells us that the brain is designed[1] to be social. Regarding culture and social intelligence, most of the literature in this area recognizes that specific behaviors that might contribute to social intelligence in one culture can detract from one's perceived social intelligence in another culture (Habib, Saleem, & Mahmood, 2013), although the general concept of social intelligence remains fairly stable across cultures.

Social intelligence is one of many different types of intelligences that have been studied in the last several decades. Others are (a) general intelligence; (b) emotional intelligence (Goleman, 2007); (c) social-emotional intelligence (Arghode, 2013; Bar-On, 1985;

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[1] "Designed" is the term used by Goleman (2007) referring to the process of natural selection, as in "designed by natural selection."

Emmerling & Boyatzis, 2012; Seal, Boyatzis, & Bailey, 2006); (d) cultural intelligence

(Earley & Ang, 2003); (e) "multiple" intelligences including musical–rhythmic and

harmonic, visual–spatial, verbal–linguistic, logical–mathematical, bodily–kinesthetic,

interpersonal, intrapersonal, naturalistic, and sometimes existential (Gardner, 2011); and

(f) "successful" intelligence (Sternberg, 1999). While some of these intelligences are

related to social intelligence, and some comprise social intelligence, researchers have

concluded that social intelligence is different enough from other intelligences to stand as

a valid construct on its own (Crowne, 2013; Ford & Tisak, 1983; Goleman, 2007;

Sternberg, 1999).

Beyond intelligence, there are many related concepts and terms that are part of social

intelligence used in the literature. A table of these terms is presented in Chapter 2. Social

intelligence also comprises dimensions or facets. Depending on the researcher exploring

social intelligence, these dimensions vary (Albrecht, 2009; Goleman, 2007; Marlowe,

1986; Silvera et al., 2001). Some researchers developed instruments to measure social

intelligence, and while most have been used with just specific populations, others such as

the Tromsø Social Intelligence Scale (TSIS) have been widely used and validated in

several languages and for many populations.

There are studies that look at distance education and other studies that look at aspects of

social intelligence (e.g., Joakim & Harikrishnan, 2013; Sivin-Kachala & Bialo, 2009).

There are also studies that compare aspects of distance education with traditional

education (e.g., Allen & Seaman, 2014; Astani, Ready, & Duplaga, 2010). What is

missing from the literature are studies that compare distance and traditional

undergraduates' social intelligence. The purpose of this study is to fill that gap in the literature.

Problem Statement

There is little in the literature about the effects of distance learning on one's social intelligence development. Silvera et al. (2001) define social intelligence as a multifaceted construct comprising (a) social information processing, (b) social skills, and (c) social awareness. While social intelligence is understood to comprise dispositional and even innate traits, it is a learnable skill that facilitates positive social change by fortifying human relationships and increasing wellbeing, contributing to one's success in all areas of life (Joseph & Lakshmi, 2010; Nejad, Pak, & Zarghar, 2013; Saxena, 2013). A traditional learning environment with face-to-face interaction with faculty and peers can reasonably be understood as an environment conducive to social intelligence development, but there is no known evidential support for how distance higher education compares to traditional higher education in social intelligence development. This study will fill this gap in understanding by measuring social intelligence of both traditional and distance undergraduates.

Purpose of the Study

It has been suggested that an online environment is not conducive to social intelligence development (Goleman, 2007). The purpose of this quantitative study was to test that assumption by comparing social intelligence (DV) of distance undergraduates with social intelligence of traditional undergraduates (IV_1; collectively referred to as "learning environment") at different class ranks (IV_2; i.e., freshman, sophomore, junior, senior)

while limiting the age of the participants from 18–24 years. An increasing difference in the social intelligence levels between the learning environments as the class ranks progress would suggest an association between learning environment and social intelligence.

Research Questions and Hypotheses

Following are the research questions and hypotheses for this study:

RQ_1: Is learning environment (distance versus traditional) associated with the level of social intelligence as measured by the Tromsø Social Intelligence Scale among undergraduate college students?

H_0: There is no significant difference in the level of social intelligence between distance and traditional undergraduates.

H_1: There is a significant difference in the level of social intelligence between distance and traditional undergraduates.

RQ_2: Is college rank (freshman, sophomore, junior, senior) associated with the level of social intelligence as measured by the Tromsø Social Intelligence Scale among undergraduate college students?

H_0: There is no significant difference in the level of social intelligence among undergraduate college students based on college rank.

H_1: There is a significant difference in the level of social intelligence among undergraduate college students based on college rank.

RQ$_3$: Is the difference between learning environments in social intelligence different across levels of class rank?

H$_0$: The difference between learning environments in social intelligence is not significantly different across levels of class rank.

H$_1$: The difference between learning environments in social intelligence is significantly different across levels of class rank.

Theoretical Framework

This research is primarily based on Bandura's social learning theory (1977) and Goleman's theory of social intelligence (2006), which provide adequate justification for the hypotheses in this study. Social learning theory states that people learn human behavior through observing others' behavior and the outcomes of those behaviors, which is accomplished through continuous reciprocal interaction between cognitive, behavioral, and environmental influences (Bandura, 1971). Some research has provided support for the claim that, under the right conditions, social learning can take place in Web-based environments (Hill, Song, & West, 2009). However, neuroscience's explanation of social learning as accomplished through the activation of mirror neurons that sense both movement and feelings of another would seem to be inhibited by a distance environment (Goleman, 2007).

Goleman's theory of social intelligence was developed from the theory of emotional intelligence as an extension beyond the individual to include interaction with others (Goleman, 2007). The key constructs of Goleman's theory of social intelligence

(Goleman, 2007) are: *social awareness* (what we sense about others) and *social facility* (what we do with that awareness). Within each category, Goleman lists four "capacities." Under social awareness are *primal empathy*, *attunement*, *empathic accuracy*, and *social cognition*. Under social facility are *synchrony*, *self-presentation*, *influence*, and *concern* Goleman states that the Internet lacks the kind of feedback the orbital frontal cortex needs to help us stay on track socially, suggesting that the Internet is not conducive to social intelligence development. Goleman further argues that, in previous research, distance communication was unable to contribute to the development of social intelligence based on the findings from neuroscience, and stated that face-to-face communication was necessary (Goleman, 2007). However, results of research conducted since Goleman's theory of social intelligence was published in his book appear to suggest that Goleman's conclusion about social intelligence development and the distance environment might no longer be accurate.

Nature of the Study

For this study, used a quantitative, nonexperimental design. A survey was constructed combining the TSIS with qualifying items and items related to the independent variables. The TSIS measures the dependent variable (social intelligence) and other items on the survey measure both class rank and learning environment (independent variables). Survey methodology was chosen because it is a practical way to measure social intelligence of the sample population and is believed that this method could adequately address the research questions.

I collected data from a sample of adults ages 18–24 who (a) claimed to reside in the United States; (b) were currently enrolled in a 4-year, degree-granting, distance or traditional undergraduate program; and (c) had not had one or more years of formal distance schooling or homeschooling as an alternative to a public or private high school. The prospective participants were solicited from Facebook, and redirected to the survey on the SurveyMonkey website, where they were prompted to agree or disagree with the letter of consent. Upon agreement, the participants continued to the qualification screen where, based on their answers, were either disqualified from the survey or taken to the final page of the survey.

Post data collection, SPSS was used to enter and analyze the data. Assumptions were tested, and a two-way ANOVA was run on the data (IVs: learning environment and class rank) from each of the three subscales in the instrument, as well as run on the total score. Simple main effects were reported along with any interaction effect and post-hoc tests. Additional information about participants, instrumentation, data collection, and analysis procedures follow in Chapter 3.

Definitions

There are many terms related to distance education that are used synonymously, and sometimes used in slightly different ways. For example, the terms *distance*, *remote*, and *online* often precede the terms *education* and *learning* creating six different terms sharing the same meaning. In this study, the term *distance* was used because it is more commonly used than "remote" and more accurate than "online" given the percentage of actual instruction that takes place online. For practical purposes, in the context of education, the

terms "remote," "online," and "distance" are synonymous. The terms "education,"

"learning program," "higher education learning program," "learning environment,"

"higher education learning environment," "students," "higher education students," and

"undergraduates" are all used in this study, but not synonymously. Each of the terms

indicate a level of specificity, and is used in the most appropriate context. Note that these

terms are often mixed and matched for clarity, (e.g., *distance undergraduate program*).

The terms related to education are rarely operationally defined in the literature. This is

probably because of their generic use and commonly understood definitions. *Higher*

education is generally understood as education beyond high school whereas

undergraduate refers specifically to college or university learning after high school (e.g.,

Associate's and Bachelor's programs) and before graduate school. The term *distance* has

no commonly accepted definition when referring to the percent of content delivered or

interaction with students or teachers over the Internet. It is common for distance

programs to require the purchase of physical textbooks or other course materials, as well

as it is common for students to interact with professors or other students over the

telephone. Distance education may also include some required face-to-face instruction in

the form of residencies or conferences.

The operational definition used in this study of social intelligence is "the ability to

understand other people and how they will react to different social situations" (Silvera et

al., 2001, p. 314). *Class rank* is operationally defined as the label that would most

accurately describe where the student is in the undergraduate program. *Learning*

environment is operationally defined as the student's description of his or her setting in

which he or she interacts with the instructors and students. This operational definition was adapted from Allen and Seaman (2014). The operational definitions of the variables used in this study are described in more detail in Chapter 3.

Besides the terms related to education and the variables used in this study, there are dozens of terms used related to social intelligence. A complete list of these terms along with definitions can be seen in Table 4.

Table 1

Terms Related to Education Used in This Study and Their Level of Specificity

Broad term	More specific	Even more specific
Education	Courses	Higher Education
		Undergraduate
	Programs	Higher Education
		Undergraduate
	Environment	Higher Education
		Undergraduate
	Students	Higher Education
		Undergraduate
Traditional	Face-to-Face	-
Distance	Online	Web-based

Assumptions

There are several assumptions pertinent to this study. These were aspects that were supported by reason, but that cannot be demonstrated to be true. Assumptions that I made in this study were:

1. I assumed that the students completing the survey would answer honestly. A statement reminding the students about the importance of this survey and scientific integrity is assumed to have a positive effect on the honesty of the participants.

2. It was assumed that the students completing the survey have carefully read and understood the items as they are written and that their answers reflect what the item intends to measure.

3. It was assumed that class rank is strongly correlated with age. The age range for this study is 18–24 years. For example, it is assumed that Freshman would be in the 18–19 year range and seniors would be in the 21–24 year range. It is possible that some students, while still in the age range, might have spent several years working in an environment where their social intelligence could be developed. A freshman was assumed to be in her 1st year of the undergraduate program, although it is possible that she could be on a slow path, and she is actually in her 5th year. It is reasonable to speculate that a 24-year-old freshman is likely to have a higher base level of social intelligence than an 18-year-old freshman. The significance being that the age limit for this study is 24 years, and there could be no 28-year-old seniors participating in the study that would offset the 24-year-old freshman.

Scope and Delimitations

That this study is about intelligence and education. However, describing the study that way would not capture the essence of the research. The literature on both intelligence and education is overwhelming, and many areas have been thoroughly explored by researchers. The idea of multiple intelligences, while not new, has strongly influenced education in recent decades both from a learning perspective and teaching perspective (Gardner, 2011). Social intelligence is one of those intelligences that have gained the attention of modern researchers as increasing evidence is shown to associate social intelligence with well-being (Goleman, 2007). Despite this trend, general intelligence (g) and emotional intelligence continue to attract more research, together accounting for nearly three times the number of published papers on the topic. This fact opened up many opportunities for research in the area of social intelligence.

Education is another broad topic that must be narrowed to use in a study if any useful information is to be obtained from the study. Higher-education was chosen as a focus for this study because in the United States, the college years are generally known as a time of social growth for those living away from their parents for the first time, and living in a community of their peers. In addition, more choices exist for higher-education including which school to attend, a distance versus a traditional program, and the option not to pursue any higher-education. Given the paradigm shift in support of distance learning, the educational focus of this study surrounds the choice of distance versus traditional higher-education programs.

It was difficult choosing where to draw the lines for this study (i.e., delimitations) as many of the lines drawn can be seen as somewhat arbitrary. Social intelligence has been defined in numerous ways by various researchers and many concepts are subsumed under the construct of social intelligence. The literature review contains research either directly on social intelligence or on a major aspect of social intelligence, for which no clear delineation exists. For example, in the literature review for this study, I included research on emotional intelligence, social skills, and empathy, since these are generally recognized as major aspects of social intelligence (Albrecht, 2009; Bar-On, 1985; Goleman, 2007; Silvera et al., 2001). The literature review for this study excludes studies on what would be considered specific applications of social intelligence such as rapport, influence, and political skills.

In the area of education, the scope is limited to undergraduates in higher education, distance versus traditional learning programs. Delimitations in this area have a clearer boundary given the somewhat formal structure of education in the United States. For example, I chose the ages 18–24 based on the typical ages of undergraduates that follow the typical progression through the education system as well as societal norms (i.e., students graduate high school and go right into college). There appears to be a clear delineation between distance programs and traditional programs, although it is likely for both to incorporate aspects of each. However, in the case of students enrolled in a true hybrid program (as defined by more than 20% of both online and face-to-face interaction), students who claim to attend such programs were excluded from the study.

I limited this study to students living in the U.S. attending a U.S.-based institution due to the differences in measuring social intelligence across cultures (Silvera et al., 2001). A final delimiter has to do with how much formal homeschooling or distance education the student had in his or her high school years as a substitute for attending a traditional high school. It was reasoned that if the type of college learning environment has an effect on social intelligence, then the type of high school learning environment would also have an effect on social intelligence. It was also reasoned that students who were enrolled in a distance learning program for high school would be more likely to enroll in a distance learning program for college, adding an unnecessary confounding variable to the study. Based on the scope of this study, the methodology used, and the delimitations, I believe that the results of this study would generalize well over other student populations that meet the criteria of the defined sample population that I used in this study. I suspect that social intelligence development of older adults would be less influenced by learning environment; therefore, any demonstrable influence of learning environment on social intelligence development is limited to students between the ages of 18–24 and may not generalize to older students. Generalization of the results might be limited to the fact that data were collected from a convenience sample. More limitations are discussed in the next section.

Limitations

In this study, I examined learning environment as an influence of social intelligence of the students. As such, a strong causal claim cannot be made without a true experiment. The strength of the conclusion of this study was limited to the kind of results obtained

from survey methodology. However, it was not my intent of with study to establish causality, but rather to look for an association, which this design can. It would be up to future researchers to design and conduct a true experiment to move from association to a strong causal connection.

The measurement tool being used for this study is a self-report measure, which has several inherent limitations including biases that result in participants giving answers that do not reflect reality. These include the *self-serving bias* and the *social desirability bias*, two ways in which participants can consciously or unconsciously give inaccurate answers. The self-serving bias occurs when a participant attempts to maintain a positive, even if fantasy-based, self-image (Silvera et al., 2001). According to Crowne and Marlowe (1964), social desirability "refers to the need for social approval and acceptance and the belief that it can be attained by means of culturally acceptable and appropriate behaviors" (p. 109). Although not as much of a consideration in an anonymous survey, the social desirability bias may still be a factor in self-reports by young adults ages 18–24. Additionally, some aspects of social intelligence such as empathy are difficult to capture on a self-report measure, but as Grieve and Mahar (2013) point out, a self-report generally works well for measuring social intelligence.

This measurement tool that I used in this study, TSIS, while arguably the most valid and reliable tool for measuring social intelligence in an English-speaking, American, undergraduate population, is still an imperfect tool to measure a highly complex and multifaceted psychological construct that has not achieved universal agreement on it definition or on which factors comprise the construct. A possible limitation of the TSIS,

and by extension this study, was noted by Grieve and Mahar (2013) who suggested that rather than measuring social intelligence the TSIS could be measuring an individual's perception of their own social intelligence. This limitation could be part of the general limitations with any self-measures.

<div align="center">**Significance**</div>

Joakim and Harikrishnan (2013) measured social intelligence of 1040 distance higher education students in India and looked at factors internal to the population such as marital status, courses taken, and whether the students lived in an urban or rural setting. They found that students living in a rural setting scored significantly lower on social intelligence. There was no comparison to traditional higher education students; therefore, it remains unknown if a difference in social intelligence exists between the two groups. Given the steady rise in distance higher education program participation, it is important to know if these programs are conducive to social intelligence development or if they are inferior to traditional programs in cultivating social intelligence.

This study will contribute to the literature by measuring social intelligence of undergraduates between 18 and 24 years of age in both distance and traditional undergraduate programs, and looking for a difference in social intelligence. If distance higher education programs are found to lack the structure that fosters social intelligence development, educators involved in course design can focus more on developing social intelligence among students, ensuring that this life skill found to play a significant role in one's well-being (Cohen, 2006; Lopes, Salovey, & Straus, 2003; Marlowe, 1986) is not ignored. If distance higher education programs do not appear to inhibit social intelligence

development at any significantly different rate as traditional education programs do, than this information can be shared with educators, parents, and students who may assume the opposite conclusion and factor that assumption into how much they do or do not support distance education.

Summary

Participation in and acceptance of distance education has reached an all-time high (Allen & Seaman, 2013) yet many academics, policy makers, and laypeople remain concerned that distance education can adversely affect one's social development (Francescato et al., 2006; Glader, 2009). Social intelligence, a construct that can be loosely referred to as *social development*, has been a popular focus of research in the last few decades, and the benefits of social intelligence are numerous (Cohen, 2006; Emmerling & Boyatzis, 2012; Goleman, 2007; Hooda et al., 2009; Joseph & Lakshmi, 2010; Kobe et al., 2001). It has been suggested that a distance environment is not conducive to social intelligence development (Goleman, 2007). The purpose of this quantitative study was to test that assumption by comparing social intelligence (DV) of distance undergraduates (IV_1) with social intelligence of traditional undergraduates (IV_1) at different class ranks (IV_2; i.e., freshman, sophomore, junior, senior) while limiting the age of the participants. This study's contribution to the literature will be in the effects of distance learning on one's social intelligence development, which is a gap this study intends to fill.

The research questions that I addressed in this study were: Does learning environment (distance versus traditional) influence the level of social intelligence as measured by the TSIS among undergraduate college students, and does college rank (freshman,

sophomore, junior, senior) influence the level of social intelligence as measured by the TSIS among undergraduate college students? Justification for studying these research questions is primarily based on Bandura's social learning theory (1977) and Goleman's theory of social intelligence (2006).

In this study, I used a quantitative, nonexperimental design and a survey where I combining the TSIS with qualifying items and items related to the independent variables was administered to a sample of adults ages 18–24 who meet the requirements of this study. Post data collection, SPSS was used to enter and analyze the data, assumptions were tested, and multiple two-way ANOVAs were run on the data.

The assumptions pertinent to this study include (a) participants answering the survey honestly, (b) participants carefully reading and understanding the survey items, and (c) class rank being correlated with age. The study's scope is limited to social intelligence and higher education, specifically social intelligence of American undergraduates attending four-year degree-granting education programs. Limitations include the standard limitations with self-report measures (i.e., self-serving bias), the standard limitations with survey methodology (i.e., weak causal attribution), and general ambiguity and professional disagreement on the precise nature of social intelligence as a construct.

This study will contribute to the literature by offering evidence of the effect (or lack thereof) of learning environment on social intelligence development of undergraduates. A rejection the null hypotheses or a failure to reject the null hypotheses would offer meaningful insights to course architects, educators, parents, and students who all have an interest, even if just exploratory, in distance education and its social implications.

Chapter 2: Literature Review

Overview

The 2013 distance education report from the Babson Survey Research Group provided evidence for the continuing growth and importance of distance higher education programs in the United States (Allen & Seaman, 2013). In the autumn of 2012, the number of students taking at least one distance course rose to a record 7.1 million, or 33.5% of all higher education students (Allen & Seaman, 2013). According to the same source, 77% of academic leaders rated the learning outcomes in distance environments as the same or superior to traditional learning environments with face-to-face education. Despite this finding, there is little known about the effects of a distance learning environment on one's social intelligence development.

Silvera et al. (2001) defined social intelligence as a multifaceted construct comprising (a) social information processing, (b) social skills, and (c) social awareness. Social intelligence is understood to comprise both dispositional and innate traits, however, it is also a learnable skill. It is a skill that facilitates positive social change in numerous ways including (a) the fortification of human relationships, (b) increased wellbeing, and (c) contributing to one's success in all areas of life (Joseph & Lakshmi, 2010; Nejad et al., 2013; Saxena, 2013). A traditional learning environment, with face-to-face interaction with faculty and peers, can reasonably be understood as an environment conducive to social intelligence development, but there is no known evidential support for how a distance higher education learning environment compares to a traditional higher education learning environment in social intelligence development of undergraduates.

This study will fill this gap in understanding by measuring social intelligence of both traditional and distance undergraduates.

Content and Organization of the Review

There are two broad areas of interest included in this review: distance education and social intelligence. Much of the literature pertaining to distance education includes information about traditional education for comparison purposes. While the population that I examined in this study was undergraduates ages 18–24, some of the literature included a range of students from young children to post graduate students of all ages. Limitations with these populations are noted when appropriate. Similarly, some of the research on social intelligence referenced in this paper uses non-English speaking populations. Again, limitations are noted when appropriate.

I begin this chapter with a detailed description of the literature research strategy proceeded by a discussion of the theoretical foundation for the study. In the first major section, I discuss the literature on distance education, while offering comparisons to traditional education. Distance learning programs have been growing in popularity and acceptability since their introduction on the Internet back in the 90s (Allen & Seaman, 2014). Distance students and traditional students are compared using many measures, including measures that are commonly understood to be aspects of social intelligence. The literature in this area includes mixed results, with distance students often displaying different aspects of social intelligence than traditional students. However, none of the literature provides any empirical evidence for causal inferences suggesting that distance education has an effect on social intelligence development.

In the second major section, I review the literature on a concept that first appeared in the literature in 1909 and had renewed interest in the last two decades: social intelligence (see Figure 1). The many definitions and aspects of social intelligence are examined along with several benefits of social intelligence and the problems associated with a lack of social intelligence. Other major types of intelligences, as well as select terms and constructs that have social implications, are compared to social intelligence. Social intelligence is understood to be a multi-dimensional construct. The most common dimensions (or factors) are examined in detail. The section concludes with a discussion of the measurement of social intelligence, some studies that have used the TSIS, the scale chosen for this research, and similar studies that look at social intelligence and distance education.
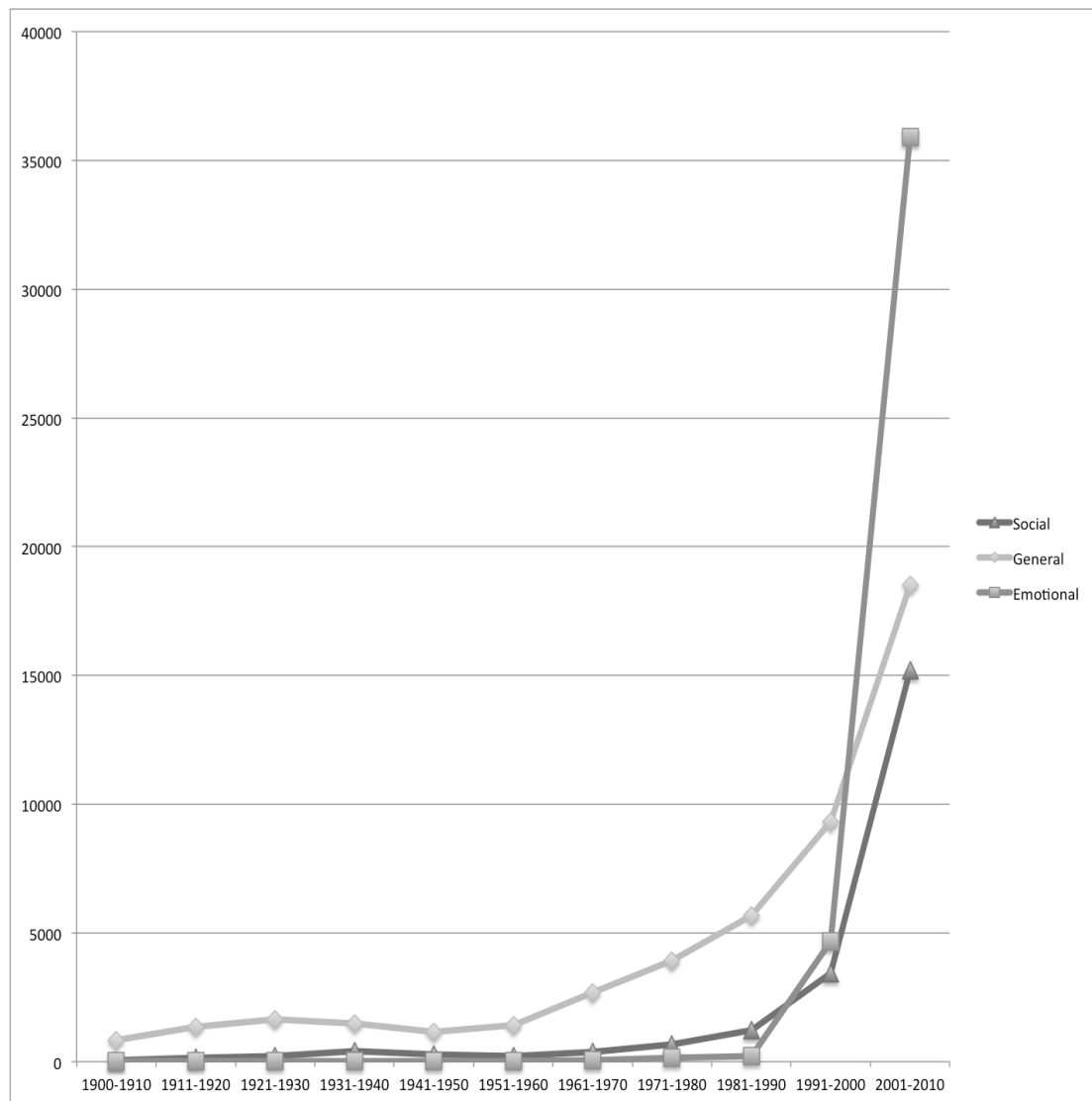
Figure 1. The number of results per decade appearing in Google Scholar for the exact phrases "social intelligence," "general intelligence," and "emotional intelligence." This chart is meant for comparison purposes only. The amount of published and indexed literature has also seen significant increases in the last several decades.

Literature Search Strategy

In this review of the literature, I primarily focus on what is known about the construct of

social intelligence. The central themes include distance education and differences

between distance and traditional students. In conducting this literature review, I used

Walden University Library's multiple databases (mostly Thoreau and ProQuest). The

majority of the research was conducted using Google Scholar since the other databases

seemed far more limited in which publications were included in the searches. These

themes are presented beginning with what is known followed by what is not known (i.e.,

the gaps in the literature). Arguments are made throughout this chapter for why studying

the research questions presented in this dissertation is a useful endeavor that will make a

significant contribution to the literature in this area.

Strategies for Conducting the Literature Review

To understand what effect a higher education learning environment might have on social

intelligence development for undergraduates, I researched the following keywords: *social

intelligence*, *remote learning*, *distance education*, and *distance students*. In Google

Scholar, all articles were reviewed from 1900–2014 containing the exact phrase *social

intelligence* in the title. In Thoreau and ProQuest where more search control is possible,

all articles that contained the exact phrase *social intelligence* in the abstract or as a key

term were reviewed, as well. The terms related to distance education were searched in

Google Scholar without other terms, and only results in the last five years were reviewed

in detail for inclusion. Then, in Google Scholar, the phrase *social intelligence* was joined

with the other terms related to online education, and all the related results were reviewed.

In addition, *distance education* along with similar phrases such as *remote learning*, *remote education*, *online learning*, and *distance learning* were combined with the terms *students* and *differences*. This search turned up many articles in the last 20 years that discussed the differences between distance and traditional education and students. Based on the keywords used in the articles found from the initial searches, other keywords were researched including: *emotional intelligence*, *social skills*, and *social competencies*. These terms were substituted for the initial terms using similar searching strategies as described above, and only the relevant articles were reviewed in any detail. The vast majority of literature searched were from peer-reviewed journals; however, this search did include some articles written in major media outlets, industry reports by academic institutions, and textbooks by university presses. Goleman is perhaps the most influential researcher in the area of modern social intelligence.

Theoretical Foundation

This research is primarily based on the theoretical foundation of Bandura's social learning theory (1977) and Goleman's theory of social intelligence (2006). Together, both theories provide adequate support for the hypothesis that a distance higher education learning environment is likely to have a different effect on social intelligence development. The direction of the effect is unclear based on the theories; however, research will be discussed that might offer some clues on the direction.

Bandura's Social Learning Theory

The theory of social learning was developed over several years by Bandura, starting in the early 60s and (Bandura & Walters, 1963). The theory states that people learn human

behavior through observing others' behavior and the outcomes of those behaviors, which is referred to as "modeling." According to the theory, there are four necessary conditions for effective modeling. These are (a) attention paid to the model, (b) retention of the information, (c) reproduction of the action or behaviors of the model, and (d) having the motivation to imitate. Social learning is accomplished through continuous reciprocal interaction between cognitive, behavioral, and environmental influences (Bandura, 1962, 1971).

Hill, Song, and West (2009) provided an in-depth review of the research related to social learning theory and Web-based learning environments. They concluded that social learning can take place in web-based learning environments, given the right conditions: interactions, group and class size, resources, culture, community, epistemological beliefs, individual learning styles, self-efficacy, and motivation. From a social learning perspective, learning takes place when participants are engaged and interacting with other humans while receiving feedback. Newer, web-based technologies make this kind of social learning environment possible, but not necessarily ubiquitous. Hill et al. (2009) cite several studies that support the idea of social learning beginning to take place in distance environments.

Social learning can be facilitated in distance environments. Hiltz, Coppola, Rotter, Toroff, and Benbunan-Fich (2000) randomly placed each of 140 students in one of four conditions: individuals in a traditional learning environment, individuals in a distance learning environment, groups in a traditional learning environment, and groups in a distance learning environment. They found that when students worked in a group online,

the results of their work were as good or better than those in the other three conditions.

However, students working individually online did poorer than all other groups.

Social learning theory focuses on modeling as the primary source of learning. Research

has demonstrated that given the right conditions, modeling can take place online. More

modern research in the area of neuroscience might explain social learning through the

activation of *mirror neurons* (a variety of brain cells) that sense both movement and

feelings of another and prepare us to imitate the move and feel with them (Goleman,

2007). Social skills, and by extension social intelligence, are dependent upon mirror

neurons, and by further extension, social learning theory. Little information exists about

how social learning in a distance environment affects social intelligence. This research

will provide some clarity in that area.

Goleman's Social Intelligence

Goleman (1990) came across an article in an academic journal by two psychologists,

John Mayer and Peter Salovey, who offered the first formulation of a concept they called

"emotional intelligence," which was a departure from the prevalent view of intelligence

at the time, which was the idea that life success was influenced by other components

besides intellectual ability. In 1995, Goleman supported the theory with updated research

in his 10th anniversary edition (Goleman, 2005). Goleman explains how his view of

emotional intelligence is based on a set of human capacities within us as individuals that

he characterizes as crucial. His theory of social intelligence developed from the theory of

emotional intelligence, as an extension beyond the individual to include interaction with

others (Goleman, 2007).

As detailed in the section on the historical development of social intelligence, social intelligence is not a new concept, dating back to Dewey in 1909. Goleman could be seen as a researcher who stood on the shoulders of giants, modernizing and expanding upon the existing research on social intelligence as well as developing a theory of social intelligence. The key constructs of Goleman's theory of social intelligence (Goleman, 2007) are divided into two broad categories: *social awareness* (what we sense about others) and *social facility* (what we do with that awareness). Within each category, Goleman lists four "capacities." Under social awareness are *primal empathy*, *attunement*, *empathic accuracy*, and *social cognition*. Under social facility are *synchrony*, *self-presentation*, *influence*, and *concern*.

Goleman's theory recognizes the difference between the unconscious, automatic, and effortless neural circuitry that operates beneath our awareness (that he refers to as the "low road") with speed and efficiency, and the conscious, deliberate, and effortful cognition (which he refers to as the "high road"). According to Goleman (2007), the full spectrum of social intelligence abilities embraces both high and low road aptitude, where the low road reacts and high road often rationalizes actions of the low road. Goleman explains this behavior as a function of our biological system designed to conserve energy. The brain achieves efficiency by firing the same neurons (mirror neurons) while perceiving and performing an action. Perceiving someone's distress makes coming to their aid the brain's natural tendency, which is a critical part of being socially aware, and social awareness is a precursor to social facility.

The *social brain* refers to the particular set of circuitry that is used as people relate to one another. Although Goleman (2007) recognizes that there is no major zone in the brain that appears to be devoted exclusively to social life and that virtually all neural tracks in the social brain handle a range of activities, Goleman states that the Internet lacks the kind of feedback the orbital frontal cortex needs to help us stay on track socially (p. 74), suggesting that the Internet is not conducive to social intelligence development. Goleman further argues that, in previous research, distance communication was unable to contribute to the development of social intelligence based on the findings from neuroscience, and stated that face-to-face communication was necessary.

Meyer and Jones (2012) challenged Goleman's conclusion by asking the question: Do students experience social intelligence, laughter, and other emotions at a distance? They used a U.S. based sample of 67 graduate students. The researchers created their own social intelligence instrument based on Goleman's two categories and eight capacities, possibly to test Goleman's doubts on social intelligence extending to the Internet using his own understanding of social intelligence. Ample evidence was found that the participants did experience emotions at a distance, contrary to Goleman's supposition. The researchers conclude, perhaps more intuitively than from the results of their research, that having prior knowledge of an individual could provide and understanding of that individual's personality, which in turn could provide a context in which text-based distance communication could be interpreted.

In the time since Goleman's theory of social intelligence was published in his book, a plethora of research has been conducted in the area of distance education, web-based

courses used by most universities have been technologically enhanced, and the definition of social intelligence has broadened to be more inclusive of social interactions in a distance environment. It is likely that the limitations Goleman saw on social intelligence development and distance communication while perhaps significant in 2007 no longer have as much impact as they did in 2007.

Distance Education and Comparisons to Traditional Education

For this research, I obtained the most up to date information on distance education at the time of this writing through the eleventh annual report on the state of distance learning in U.S. higher education (Allen & Seaman, 2014), which is a survey designed and administered by the Babson Survey Research Group using responses from more than 2,800 colleges and universities in the United States (degree-granting, postsecondary institutions) on questions focused on distance education. The information in this report establishes the importance of distance higher education in the U.S. in terms of growth, acceptance, perceptions, and widespread integration into traditional programs. Highlights of the report include:

- Only 9.7% of institutions surveyed reported distance education as not being critical to their long-term strategy.

- 77% of the academic leaders surveyed rated the learning outcomes in distance education as the same or superior to those in face-to-face education.

- An all-time high of 7.1 million higher education students are reported to be taken at least one distance course. Allen and Seaman (2014) operationalize "distance course" as one in which at least 80 percent of the course content is delivered distance.

- An all-time high of 33.5% of higher education students reported taking at least one distance course.

It is reasonable to conclude from this data that distance education is not a trend that is likely to go away anytime soon, rather it represents a paradigm shift in education. As such, it is imperative that the focus be on more than how this new paradigm just affects our students academically since academic intelligence is widely recognized to be only a part of intelligence, and certainly not sufficient for well-being (Gardner, 2011; Goleman, 2006; Joseph & Lakshmi, 2010; Seligman, 2012).

Profile of Distance Students

Much research has been conducted looking at the differences between students who prefer distance education to more traditional educational settings. Dutton, Dutton, and Perry (2002) surveyed students taking an introduction to programming course. This course was available both distance and as a traditional course. The results of the survey showed that distance students were older and more likely to be lifelong learners. They are more likely to have a job or childcare responsibilities, longer commutes to campus, as well as have more experience with computers. As for the importance to the students, distance students rated class conflict with work, reducing commute time, and flexibility in study schedule as most important, whereas traditional students rated contact with instructors and students, motivation from class meetings, and need to hear a lecture as most important. In another study, Jadric (2009) looked at the profiles of students who have decided to take a distance course in information technology. These students rated favorably in learning skills, time management, computer literacy, access to technology,

and motivation. Other studies corroborate these findings: Stevens and Switzer (2006) found that distance students reported higher levels of interest, curiosity, and intrinsic motivation, suggesting that distance students may prefer autonomy in course design. In addition, and Diaz and Cartnal (1999) found that distance students enrolled in a health course were more independent.

How do students feel about distance education? Students who have more experience with distance learning have more favorable perceptions about distance courses. While this finding may seem somewhat intuitive, Astani, Ready, and Duplaga (2010) provided evidence for this by surveying business students. While those students with more experience with distance learning were more receptive to distance learning, they also felt that a total distance program would not provide them with the same experiences, indicating a preferential difference between the two learning venues, possibly suggesting that those students who are resistant to distance learning might also be those who not only have no experience with distance learning, but those who are also more resistant to change.

One of the most often repeated rules of critical thinking is that correlation does not equal causality. One would be wise to keep this in mind as one learns about the differences between distance and traditional students. Does the distance environment attract a particular kind of student, or is the distance environment a causal factor for one or more of the many characteristics of distance students? Since virtually all of the studies reviewed here are survey-based or quasi/experimental studies with a short time between tests, there is little empirical evidence for causality. However, in some cases reasonable

assumptions can be made. For example, some characteristics are clearly dispositional and not easily changed. In these cases, it can be assumed with a high degree of confidence that students with these dispositional qualities tend to prefer distance to traditional education. The question remains, however, if distance education has different effects on the students' social intelligence development than traditional education does.

Comparing Distance and Traditional Learning Environments

There are clear differences between distance and traditional learning environments that extend beyond the obvious. Many of the differences between distance and traditional education environments are exacerbated by the student in the environment. For example, Nandi, Hamilton, Harland, and Warburton, (2011) measured the activity of distance students in course-related forums and found a positive correlation with the grades they achieved in the course. On the negative side, Keramidas (2012) found that distance students struggled with deadlines and time management skills more than students that attended traditional classes, concluding that a distance learning environment can magnify these problems in students who tend to struggle with deadlines and time management skills. In a series of surveys spanning a decade, Fetzner (2013) found that the number one reason students felt they were unsuccessful in their distance course was because they "got behind and could not catch up" (p. 13). These results make it difficult to draw any reliable conclusions when comparing the two education environments.

Effectiveness of Distance Vs. Traditional Education. Several researchers have looked at the effectiveness of distance education versus traditional face-to-face education. Lu and Lemonde (2013) found that distance education was just as effective in terms of

student performance than face-to-face education, but only for high performing students. Those students who performed poorly in traditional face-to-face learning environments performed significantly worse in distance environments. This study, however, did not look at any of the moderators that might affect performance. A more detailed study by Mgutshini (2013) argued that comparing distance versus face-to-face education strictly on student performance was incomplete, and offered a measurement of total learning experience, which includes student-centered factors such as students' satisfaction. Self-direction was found to be a significant moderator that led to greater distance performance by some students. Overall, the results of the study suggest that distance and face-to-face learning have comparable academic outcomes, although the student satisfaction for distance learning was higher than traditional face-to-face education. Dutton, Dutton, and Perry (2001) found that distance students did significantly better than traditional students, at least when the distance students self-selected for the distance format, in a computer science course.

Despite the many studies that demonstrate increased distance student performance and satisfaction, Macon's (2011) meta-analysis found that traditional undergraduates were generally more satisfied with face-to-face courses than distance students were with distance courses. Lundberg, Merino, and Dahmani (2008) looked at performance as well as possible moderators such as the type of course and the type of student, and concluded that due to methodological differences, the literature contains evidence that supports superior performance in both groups; therefore, it cannot be reasonably assumed that there is strong evidence for either group performing better, at least in a general sense.

Other researchers drew a similar conclusion (DiRienzo & Lilly, 2014; Hayward & Pjesky, 2012; Myers, 2002).

Advantages and Disadvantages of Distance Education. Efficacy measures are certainly important when comparing distance and traditional learning environments; however, there are also many advantages and disadvantages associated with each environment that have influence over other factors not being measured by effectiveness. Starting with the advantages or benefits of distance education, Khalid (2013) lists the following:

- Distance education allows for increased educational opportunities for working professionals and mature students.

- Distance education provides flexibility of schedule for both students and instructors.

- Distance education offers instructors the ability simultaneously to teach a large number of students from all over the world.

- Students or faculty do not have to commute or travel to school. This is very beneficial to students in remote areas who have little access to local quality education.

- Distance capabilities help reduce the costs of distance education, including extra expenses of having to live near or commute to campus.

- Distance education is a "green" alternative that requires no or fewer papers.

Some of the disadvantages or challenges of distance education noted by Khalid (2013) include:

- Distance education decreases the dynamism some instructors enjoy.

- Distance education is associated with increased administrative work.

- There is a significantly higher dropout rate within the distance education

environment (Dutton et al., 2002)

Perhaps one of the greatest disadvantages posited by Khalid (2013) was that the inter-personal and communication skills of students may not develop or may not be at par in a distance environment when compared to traditional on-campus students due to not interacting with students, faculty, and colleges in person. Khalid (2013) shares his opinion that the instant non-verbal feedback students give instructors in a traditional environment can contribute to this communication problem in a distance environment. Although Khalid's opinion might be just speculation, it is one that is common among researchers.

Looking Ahead

A logical question to ask would be: How will the growing popularity and acceptance of distance education affect traditional education? Will traditional universities suffer the same fate as the Betamax? Perhaps television's effect on radio is a better analogy. Radio remains popular today despite the explosive growth of television because the two forms of media are different enough to not directly compete, with the public embracing both in different situations. The literature supports this conclusion through many examples of strong preferences to traditional learning environments even by those who also embrace distance learning environments. For example, considering that many courses provide students with web-based lecture technologies that deliver distance lectures, do students still feel the need to come to lectures? Gysbers, Johnston, Hancock, and Denyer (2011)

asked this question to 563 undergraduates in Sydney. Despite distance availability of the material, 82% of the responding students reported that they always or mostly always attend lectures. Based on the qualitative responses from the students, the researchers concluded that this was due mostly to the "university experience" and to what they referred to as the "social aspect."

Social Interaction

When it comes to social interaction in an undergraduate learning environment, what do students want? Drouin and Vartanian (2010) asked this question to just under 200 midwestern university undergraduates taking psychology, enrolled in distance and traditional sections. The researchers found that relatively few students had any desire for a sense of community (SOC). However, the researcher's acknowledge the limitation of how they measure SOC and understand that what the students say they want and what they actually want can be different. For example, most students in the study did say that they appreciated the interaction with their classmates. Another limitation with the study is the sample. Different majors and courses attract students on various locations of the introvert/extrovert spectrum.

Social Intelligence

In his book, *Social Intelligence: The New Science of Human Relationships*, Daniel Goleman explains that social intelligence is about being intelligent about our relationships and in them (Goleman, 2007). As previous intelligence researchers such as John Dewey, E.L. Thorndike, Robert Sternberg, and Howard Gardner have discovered, intelligence extends beyond academic knowledge (often referred to as "g" or general

intelligence). The benefits and the importance of other types of intelligences, specifically

social intelligence, cannot be overstated. It is recognized that social intelligence develops

over time and can be taught (Saxena & Jain, 2013; Joseph & Lakshmi, 2010; Stichler,

2007). What is not understood is how distance education impacts this development

process.

Historical Development of Social Intelligence

Dewey (1909) is recognized as the first psychologist to academically use the term "social

intelligence." In his book *Moral Principles in Education*, Dewey defines social

intelligence as "the power of observing and comprehending social situations" (p. 43).

Eleven years later, Thorndike (1920) would popularize the construct where he suggested

that social intelligence was one of the three components of intelligence, the others being

abstract and *mechanical* intelligence. Thorndike defined social intelligence as "the ability

to understand and manage men and women, boys and girls—to act wisely in human

relations" (p. 228), addressing both the cognitive and behavioral aspects of social

intelligence.

For several decades after Thorndike's popularization of social intelligence, researchers

did not alter his definition or apparently even question the construct. They used and

accepted a test, most often the George Washington Test of Social Intelligence (GWTSI)

as an operational definition of social intelligence (Walker & Foley, 1973). This paper and

pencil test was first prepared by F. A. Moss and his associates at George Washington

University in 1926, and has went through several revisions since (Walker & Foley, 1973).

Despite Thorndike and his associate concluding that there was no conclusive evidence

that the GWTSI was a valid measure of social intelligence due to the inability for the test

to differentiate between abstract intelligence and social intelligence (Thorndike & Stein,

1937), the GWTSI was commonly used for social intelligence until about 1960 when

Cronbach (1960) concurred that that the test did not measure anything distinct from

verbal ability. From the 1940s to the mid 1960s, the exploration of social intelligence

virtually came to a halt (Walker & Foley, 1973).

Social Intelligence as it is Generally Understood Today. Over the years, social

intelligence has been defined in many different ways (see Table 2), helping future

researchers to understand the multi-dimensional aspect of the construct (Palucka et al.,

2011), which earlier researchers understood by making the distinction between cognitive

social intelligence (e.g., social perception or the ability to decode verbal and nonverbal

behaviors of others) and behavior social intelligence (i.e., effectiveness in social

situations; Lievens & Chan, 2008). As empathy started to be understood as being part of

social intelligence, the affective component of social intelligence was added. This

affective component is a significant part of Goleman's theory of social intelligence.

Table 2

Different Definitions and Understandings of Social Intelligence from the Literature

Definition / understanding	Primary component(s)
"[T]he power of observing and comprehending social situations" (Dewey, 1909, p. 43).	Cognitive
"[T]he ability to understand and manage men and women, boys and girls—to act wisely in human relations" (Thorndike, 1920, p. 228).	Cognitive, Behavioral
"Social intelligence is just general intelligence applied to social situations" (Wechsler, 1944, p. 84–85).	Cognitive, Behavioral
"The ability to understand the feelings, thoughts, and behaviors of persons, including oneself, and to act appropriately upon that understanding" (Marlowe, 1986).	Cognitive, Behavioral
Social intelligence can be divided by (1) basic social and interpersonal skills generally needed to get along in the world and (2) occupationally relevant social abilities and personality variables. Social intelligence represents the social skills needed for a normal range of behavior, e.g., to date, make friends, and interact comfortably in social settings (Lowman & Leeman, 1988).	Behavioral
Social intelligence is the skills component required to decode social information, and adaptiveness in social performance (Kaukiainen et al., 1999).	Behavioral
The ability to understand others' emotions and act in a desirable manner in social situations by following rules, values, and norms of the community/society (Hedlund & Sternberg, 2000).	Cognitive, Behavioral
Social intelligence involves a tendency to anticipate another's response across a broad range of circumstances and sources (Kihlstrom & Cantor, 2000).	Cognitive
Social intelligence comprises (1) being aware of others' needs and problems and (2) responding or adapting to different social situations (Kobe et al., 2001).	Cognitive, Behavioral

Definition / understanding	Primary component(s)
"[T]he ability to understand other people and how they will react to different social situations" (Silvera et al., 2001, p. 314).	Cognitive, Behavioral
The ability to relate to others, which implies the construction of understanding about others' beliefs, feelings, and behaviors (Parales-Quenza, 2006).	Cognitive, Behavioral
Emotional intelligence is based on a crucial set of human capacities within us as individuals, whereas Social intelligence extends beyond the individual to include interaction with others. Any complete definition of social intelligence requires the inclusion of "noncognitive" aptitudes (e.g., talent). There are two broad categories of social intelligence: social awareness (what we sense about others) and social facility (what we do with that awareness; Goleman, 2007).	Cognitive, Behavioral, Affective
When referring to leadership, social intelligence is a set of interpersonal competencies built on specific neural circuits (and related endocrine systems) that inspire others to be effective (Goleman & Boyatzis, 2008).	Cognitive, Behavioral, Affective
A genuine interest in others is an essential characteristic of a socially intelligent person (Joseph & Lakshmi, 2010).	Cognitive
Social intelligence is often associated with the ability to recognize others' motivations, anticipate future behavior, empathize, manipulate, and take another person's perspective (Barber, Franklin, Naka, & Yoshimura, 2010).	Cognitive, Behavioral, Affective
The socially intelligent person is concerned with win-win outcomes (Wawra, 2009; Goleman 2011).	Cognitive
The capacity to know oneself and others which is an inalienable part of the human condition (Gardner, 2011).	Cognitive
"[T]he ability to judge, comprehend and reason well, together with good sense, the faculty to adapt and use initiative" (Sembiyan & Visvanathan, 2012, p. 1).	Cognitive, Behavioral
Social intelligence is the ability that helps an individual understand social interactions and deal with others purposefully and effectively (Habib et al., 2013).	Cognitive, Behavioral

Social intelligence is a construct that exists on a spectrum, that is; it is not something that one either has or does not have. Some research focuses on social intelligence deficiencies or the negative end of the spectrum, to the left of "normal." Deficiencies in social intelligence are often associated with one of many forms of social disorders, such as social anxiety, Aspergers, or even Autism, and characterized by underdevelopment in the areas of the brain associated with social interactions (Goleman & Boyatzis, 2008). Referring to well-being, Seligman (2012) observed that eliminating the negatives does not produce happiness; is produces emptiness. In this spirit, as part of the positive psychology movement, the vast majority of social intelligence research is conducted on the positive side of what is considered "normal" on the social intelligence spectrum. Positive psychology is defined as "the scientific study of the strengths and virtues that enable individuals and communities to thrive. The field is founded on the belief that people want to lead meaningful and fulfilling lives, to cultivate what is best within themselves, and to enhance their experiences of love, work, and play" (Park & Peterson, 2008).

Benefits of Social Intelligence

The expected benefits of social intelligence are too numerous realistically to have all been researched; however, researchers have made what they believe to be legitimate claims based on what is known both experimentally and theoretically about social intelligence. Goleman (2007) devotes many pages discussing research and polls that connect some aspect of social intelligence with well-being. For example, Goleman mentions a collection of Gallup surveys comprising more than 5 million participants that

show one of the best predictors of how happy someone felt while working was agreement with the statement, "I have a best friend at work." Social connectedness is just one of the measurable outcomes of social intelligence positively correlated with well-being. The following is a partial list of benefits found in the literature, some of which refer specifically to social intelligence, and some of which refer to one of many aspects of social intelligence.

Relationships being a critical part of our well-being. Dr. William Glasser (originator of Choice Theory) estimated that over 80% of our happiness is dependent upon our relationships (Joseph & Lakshmi, 2010). Social intelligence helps individuals function in a social group, secure social advancement, achieve work satisfaction, and enter and maintain intimate relationships or friendships (Joseph & Lakshmi, 2010). Social intelligence can even lessen conflicts and put an end to prejudices and divisions (Joseph & Lakshmi, 2010).

According to Joseph and Lakshmi (2010), social intelligence paves the way for social reform and activities that seek to develop human well-being, intensify civic culture, increase commitment to other human beings, and bring about positive changes in society. Presumably, these lofty effects are a result of improved relationship through social intelligence. Researchers Saxena and Jain (2013) concur with with conclusion by stating that social intelligence helps an individual develop healthy co-existence with other people. Cohen (2006) suggests that social-emotional skills are foundational for participation in a democracy and overall improved quality of life.

Social intelligence serves as an accurate predictor of perceived adolescent popularity with the two constructs being strongly correlated. Research by Meijs, Cillessen, Scholte, Segers, and Spijkerman (2010) found that high peer status, as represented by perceived popularity, was significantly related to social intelligence. Further, Östberg (2003) found that high social status predicts well-being, whereas students with low socials status are at risk for conduct problems (Dodge & Pettit, 2003; Laird, Jordan, Dodge, Pettit, & Bates, 2001). According to Libbey (2004), students who feel connected to school including teachers, other students, or school itself, do better academically, as well.

Social intelligence plays a significant role in determining one's resilience, according to Palucka et al. (2011). They have found that social connectedness is one of the main protective factors against high-risk behaviors which include suicidal thoughts and behaviors. Social intelligence assists in adaptive functioning and effective negotiation of ones social world, ultimately helping one to cope successfully with life's demands.

Social intelligence has been found to both affect (Rahim, 2014) and predict (Emmerling & Boyatzis, 2012) creative and work performance, respectively. Using a sample of upper-management members, Rahim (2014) found that supervisors with greater social intelligence contributed more to creative performance. As for prediction, recent research suggests that emotional intelligence and social intelligence is a better predictor of work performance than global personality measures (Emmerling & Boyatzis, 2012).

Hooda, Sharma, and Yadava (2009) found that individuals with a high level of social intelligence possess positive psychological health. Further, they concluded that one can enhance positive health by improving their social intelligence. There is evidence that

physical or overall health is positively associated with social intelligence. The suppression of cortisol and enhanced immune function is facilitated by vibrant social connections that boost our good moods and limit our negative ones (Cohen, 1988). Goleman and Boyatzis (2008) concluded that social intelligence, specifically the empathy and self-knowledge components, play an important role in leadership. They found that there is a large performance gap between socially intelligent and socially unintelligent leaders. Of course, with socially intelligent leaders having measurably greater performance. Other researchers looked at how social intelligence affects leadership and have come to similar conclusions (Kobe et al., 2001).

Social intelligence can also benefit those in the areas of persuasion (Hackworth & Brannon, 2006), trust (Yamagishi, Kikuchi, & Kosugi, 1999), and international communications (Wawra, 2009). In one study, individuals with high social intelligence reported a broader base of persuasion tactics in many situations (Hackworth & Brannon, 2006). General trust may be considered a byproduct of social intelligence (understanding internal states, perspective taking, etc.). High trusters are people who hold the view that people are trustworthy unless proven otherwise. Insensitivity to information revealing untrustworthiness is a sign of gullibility (Yamagishi et al., 1999). And Wawra (2009) writes that social intelligence is a necessary, if not quite sufficient, characteristic of a good international communicator who must be able to maximize positive and minimize negative emotions in interactions.

As the scope of social intelligence expands and includes cognitive, behavioral, and affective components, the benefits multiply. Likewise, the benefits multiply as related

concepts are subsumed under social intelligence either as factors resulting from factorial analyses (e.g., social information processing, social skills, social awareness) or as the outcome of having social intelligence (e.g., social connectedness). The literature provides ample support for the importance of social intelligence through the numerous established benefits.

General Correlates

It is difficult to establish causality with a psychological construct such as social intelligence. While in some cases causality can be inferred, in other cases only correlation can be implied. Some of these correlates can be seen as positive, some negative, and some with neutral valence.

Socioeconomic Status. Gnanadevan (2011) found that social intelligence scores of secondary students in India increased significantly with the increase in caste, mother's education, and parent's income. Kaur and Kalaramna (2004) also found that social intelligence and socioeconomic status were significantly positively correlated when looking at both sexes across various age levels among an Indian population.

Personality. There has been some research on the relationship between social intelligence and personality factors. Shafer (1999) conducted a study to examine the subcomponents of Factor V and the remaining Big Five factors to Sternberg's Social Intelligence items. The results suggested strong associations between Big Five factors and social intelligence items, notably Conscientiousness with Planning and Agreeableness with Nonjudgemental. Birknerová and Zbihlejová (2013) also researched this question, but used just the Big Five personality inventory rather than both the Big

Five and Factor V, and use the TSIS rather than Sternberg's Social Intelligence items. Despite these differences, the results were similar. The three factors of social intelligence (social information processing, social skills, and social awareness) are connected to personality traits, specifically, Neuroticism is correlated to lower social intelligence while Extraversion, Openness, Conscientiousness, and agreeableness are all positively correlated with social intelligence.

Social contact. There is evidential support for social contact with siblings being significantly correlated with social intelligence. Goel and Aggarwal (2012) looked at social intelligence of children with and without siblings using an Indian population. They found a significantly higher level of social intelligence for those children with siblings, concluding that self-confidence plays a moderating role. Although no empirical research could be found supporting a direct correlation between social contact with other individuals or group and social intelligence, many of the concepts and constructs related to social intelligence require social contact, so by definition the two should be highly correlated.

Solitary computing. Small and Vorgan (2009) present a pessimistic picture of what they argue to be solitary computing's effect on the mind, noting that what they refer to as young tech savvy "Digital Natives" experiencing poor development of social skills, having poor direct communication skills, and having poor abilities to read nonverbal cues. What they do not do is establish, or claim to establish, any kind of causality. They simply are reporting correlation.

Online behavior. Social intelligence has been associated with online behavior. Cheshire, Antin, and Churchill (2010) refer to this online social intelligence as "the ability to make prudent decisions in the presence of Internet uncertainties and risks" (p. 1487), which raises the question as to the possibility of an entirely new dimension of social intelligence that deals with online affect, cognitions, and behaviors. The existence of such a dimension that is not currently being captured by any social intelligence measurement tool could contribute to the inaccuracy of general statements about social intelligence of online students.

Gender. While several significant differences have been found between males and females in the area of emotional intelligence (Goleman, 2006), the differences found between males and females in the area of social intelligence are far more ambiguous, less consistent among studies and researchers, and often dependent on specific subscales of the instrument used. Significant gender differences are a more commonly found in studies that examine specific aspects of social intelligence, rather than social intelligence as a construct (Saxena & Jain, 2013).

Potential Downsides of Social Intelligence

As far as downsides are concerned, there is not much when it comes to social intelligence. Goleman (2007) does warn about the exploitation of social intelligence by a subset of people that could be classified into one or more of three groups, often referred to as *the dark triad* by psychologists. *Narcissists* are those who have a pathological sense of self-concern at the expense of others. *Machiavellians* are those whose outlook on life reflects a cynical, "anything goes" attitude, due to what appears to be a core deficit in

processing emotions in themselves and others. Machiavellians or "Machs" view relationships from a cold, rational, probabilistic perspective, devoid of human concern. The last of the group, perhaps the most dangerous, are *psychopaths* who lack emotions beyond Machs such as anxiety and fear. While this lack of emotion and emotion detection in others would translate to a deficiency in social intelligence, members of this dark triad can fake social intelligence for exploitative purposes rather than us social intelligence to enrich healthy relationships. Goleman (2007) makes the point that any sound test for social intelligence would need to exclude people from the dark triad who can ace the test by being well-prepped. He offers the suggestion of evaluating empathy in action. Habib, Saleem, and Mahmood (2013) suggest that anyone with high levels of social intelligence can engage in social manipulation. Psychopathology is not required. Related to misuse and abuse of social intelligence is increased indirect aggression. Kaukiainen et al. (1999) studied Finnish schoolchildren ages 10–14 and found that indirect aggression has a significant positive relationship with social intelligence. *Indirect aggression* is noxious behavior where social manipulation is used to target a person, which requires a high level of social intelligence, rather through physical or verbal abuse. However, the researchers did not look specifically at the reduction of the more common forms of aggression in this group, and the net overall effect of higher levels of social intelligence on aggression.

A potential downside to increased social intelligence not related to the abuse or misuse of social intelligence was studied by Barber, Franklin, Naka, and Yoshimura (2010). They found that source memory was negatively effected by participants who scored higher in

social intelligence. Source memory is important for giving credit where credit is due and perhaps more important, not taking credit for that which credit is not deserved. The strong rapport felt by those who score high in social intelligence results in a more unified relationship with others. Contributions made by others, the researchers found, are more often mistaken to be personal contributions by those with higher social intelligence. This study did not look at the inverse of this consequence, however, sharing the credit with others despite the level of contribution by the other party. This possibility could make the net benefit positive.

Overall, social intelligence is viewed as a morally neutral tool in one's psychological toolkit, just like any tool it can be used to fix things or to break things. Perhaps the downside associated with the abuse of social intelligence and social manipulation is more related to the human condition than social intelligence itself.

Problems Due to a Deficiency in Social Intelligence

As previously discussed, social intelligence exists on the high end of the spectrum with social disorders, such as Autism or Aspergers on the low end and normal social functioning in the middle. Therefore, when one refers to problems due to the lack of social intelligence one might be more accurately describing what might be seen as a problem normally distributed within the population, or in the case of social disorders, the problem might better be explained by the presence of the disorder rather than the lack of social intelligence. Regardless what language is chosen and where the causal finger is point, the literature strongly supports a negative correlation between what can be considered social problems and level of social intelligence. Table 3 shows some of the

problems associated with lack of social intelligence found in the literature. Discussion of these problems raises the question: How much of social intelligence is a result of genetic or biological factors? To answer this, we turn to neuroscience.

Table 3

Problems Correlated with Low Social Intelligence from the Literature

Problem
Displaying odd behaviors, having a lack empathy, disrupting peace and harmony of society (Joseph & Lakshmi, 2010).
Being ying odd behaviors, having a lack empathy, disrupting peace and harmony of society (Joseph & Lakshmi, 20r, 2007).
Adolescents with low social status are at risk for conduct problems (Meijs et al., 2010).
An increased presence of social phobias that may include public speaking, sharing public bathroom, meeting new people, talking with strangers, etc. (Goleman, 2007).

Neuroscience and Social Intelligence

Social intelligence can be better understood through a hybrid field between neuroscience and social psychology, called *social neuroscience*. Social neuroscience, simply put, is the study of what happens in the brain when people interact (Goleman & Boyatzis, 2008). Social neuroscientists focus on the brain's role in driving social behavior and how our social world influences our brain and biology (Goleman, 2006). Aspects of social intelligence are better understood through the findings of social neuroscience. In their article on social intelligence and the biology of leadership, Goleman and Boyatzis (2008) explain how those leaders who are "finely attuned" (p. 4) to those whom they lead have what many would call greater intuition, which is produced by a class of neurons called *spindle cells*. These long cells attach to other cells making the transfer of thoughts and feelings (what Goleman would refer to as low road processes) occur quicker. Spindle

cells also bond the high and low roads, helping us to orchestrate our emotions with our responses (Goleman, 2007).

Goleman and Boyatzis (2008) also discuss mirror neurons, which they describe as a type of neural Wi-Fi (which is a variety of brain cells) that detect the emotions of others and duplicates emotions within us. Mirror neurons sense both movement and feelings of another and prepare us to imitate and feel with them. Mirror neurons make emotions contagious. They help us perceive intentions of others, keeping us a step ahead in our social interactions. Goleman (2007) explains the importance of the behavioral component of social intelligence from an evolutionary perspective. The existence of mirror neurons can be understood as part of a biological system that, like all biological systems, has evolved to conserve energy through efficiency. The brain achieves this efficiency by firing the same neurons while perceiving and performing an action. Therefore, perceiving someone's distress makes coming to their aid the brain's natural tendency (Goleman, 2007).

Bloom (2013) is more skeptical about the social function of mirror neurons as Goleman appears to be. Bloom writes that many of the claims associated with mirror neurons are overblown and cannot be sufficient for social reasoning, since Macaque monkeys also possess these neurons, but do not have complex social reasoning. Bloom suggests that there is much controversy in this area as to whether mirror neurons do have a social function or if they are primarily for learning motor movements.

A review of the most recent literature on mirror neurons seems to support the conclusions of both Goleman and Bloom. For example, Sperduti, Guionnet, Fossati, and Nadel (2014)

concluded from their review of the literature that mirror neurons do have a social function as suggested by Goleman, but are also not sufficient for social functioning as suggested by Bloom. The precise function of mirror neurons also does appear to be controversial as also suggested by Bloom. Neuroscience does offer support to the idea that humans are "wired" to connect, or as Goleman (2007) puts it, neuroscience tells us that the brain is designed to be social, or in other words, to "link" to other brains when possible through communication.

Cultural Considerations

The construct of social intelligence is closely related to cultural norms and values, that is, what qualifies as socially intelligent behaviors differs across cultures (Habib et al., 2013). However, like all definitions, social intelligence is both descriptive and prescriptive. It describes a set of feelings, cognitions, and behaviors it also prescribes what feelings, cognitions, and behaviors qualify as part of social intelligence. With globalization and increased research in social intelligence, there is more of a ubiquitous understanding of the general concept of social intelligence as one's ability to successfully navigate the social environment, although the ability is still based on specific cultural behaviors.

Relation to Other Intelligences

There is no shortage of intelligence theories. Intelligence has been and continues to be a controversial construct in psychology with some researchers maintaining a very narrow definition, others accepting a very broad view, and everyone else falling somewhere in between. The controversy surrounds the word "intelligence" and what could legitimately be considered an "intelligence" as opposed to a skill, ability, talent, or disposition. As the

construct expands in scope, children who were previously labeled as "unintelligent" due to their academic performance can now be seen as "intelligent" in other ways. These intelligences are not clearly delineated and frequently overlap. In this section, the most common intelligences used today are discussed.

A good starting point is with *general intelligence*, or what is commonly referred to as "the g factor" or as just "g," which is the ability to reason deductively and inductively, think abstractly, use analogies, synthesize information, and apply the information to new domains (Kanazawa, 2010). The g factor is not intelligence, but a measure or indicator of intelligence, which is uncorrelated or sometimes even negatively correlated with social intelligence (Kanazawa, 2010). It is an independent form of reasoning from social intelligence (Marlowe, 1986; Parales-Quenza, 2006).

Goleman's theory of emotional intelligence was introduced as an expansion of the work of Mayer and Salovey, where Goleman distinguished social intelligence from emotional intelligence by explaining social intelligence as an extension beyond the individual to include interaction with others (Goleman, 2007). Wawra (2009) considers emotional intelligence as a necessary condition for social intelligence, since it comprises self-management and self-awareness of one's emotions. Emotional involvements have clear effects on social interactions. Goleman (2007) writes that emotional involvements such as friendships or romantic involvements between individuals from either side of a hostile divide make people far more accepting of each other's groups whereas casual contact does little, if anything, which is a prime example of the line between social and emotional

intelligences becoming obscured, and perhaps why social and emotional intelligence is often used as a single construct.

Emotional and social intelligence is commonly used referring to a broader set of behaviors and cognitions than just social intelligence alone, sometimes abbreviated as ESI (Bar-On, 1985; Seal et al., 2006), ESIC (Arghode, 2013), or ESC (Emmerling & Boyatzis, 2012). According to Seal, Boyatzis, and Bailey (2006) the modern ESI construct is credited to Bar-On (1985) for establishing the link between the social and emotional constructs. While there are differences in the definitions among researchers, it is generally agreed that the social component includes the interpersonal competencies and clusters such as social awareness and relationship management. The emotional component includes the intrapersonal competencies and clusters such as self-awareness and self-management.

Cultural intelligence is another construct that has been offered recently by Earley and Ang (2003) that describes one's knowledge of cultural differences and can understand different cultural cues and behaviors. However, this appears to be making the definition of "intelligence" so broad that simply knowledge of a topic can account for an "intelligence," such as "automobile maintenance intelligence."

Gardner (2011) proposes three distinct uses of the term *intelligence*: (1) a property of all human beings, (2) a dimension on which human beings differ, and (3) the way in which one carries out a task in virtue of one's goals. Gardner's view of intelligence allowed him to propose his theory of multiple intelligences claiming that humans possess a set of relatively autonomous intelligences rather than a single, general intelligence. This is a

claim which sparked controversy with the psychological establishment's long cherished norm of IQ tests. Gardner's multiple intelligences include *musical–rhythmic and harmonic, visual–spatial, verbal–linguistic, logical–mathematical, bodily–kinesthetic, interpersonal, intrapersonal, naturalistic,* and sometimes *existential* (Gardner, 2011). Intrapersonal intelligence is Gardner's attempt to combine emotional and social intelligence into a single construct, which is similar to the many social-emotional constructs.

Another theory of intelligence is presented by Sternberg. Sternberg's triarchic theory of intelligence which he presents as a "middle ground" between one intelligence rigidly defined (g) and too many intelligences with little empirical support (suggesting the work of Gardner). Sternberg's proposed intelligence, also known as "successful intelligence," is defined as "the ability to balance the needs to adapt to, shape and select environments in order to attain success" (Sternberg, 1999, p. 438). Successful intelligence is comprised of three factors: (a) analytical intelligence (analyzing, evaluating, critiquing, comparing and contrasting things), (b) creative intelligence (creating, exploring, discovering, inventing, imagining, and supposing), and (c) practical intelligence (applying, using, putting into practice). Practical intelligence, which would include social intelligence, was found to be a better predictor of adaptive functioning in the everyday world than was academic intelligence (Sternberg, 1999).

The question of whether social intelligence is unique enough to be its own measurable construct has been asked since Thorndike (1920). Crowne (2013) examined the hypotheses that social intelligence might be superordinate to both cultural and emotional

intelligence, that is, both cultural and emotional intelligence are entirely contained within social intelligence. Using the TSIS, along with separate measurement tools for emotional and cultural intelligence, the researcher conducted factor analysis and found that neither emotional nor cultural intelligence was simply a subset of social intelligence. Goleman (2007) described emotional intelligence as distinct from social intelligence. Repeated investigations found that general intelligence is unrelated to Sternberg's practical intelligence, which supports the idea of social intelligence as a unique construct (Sternberg, 1999). As will be explored later in this chapter, many validated instruments have been developed to measure social intelligence.

Related Concepts and Constructs

There are many terms that are used in the literature that are sometimes synonymous with social intelligence, sometimes representing a factor of social intelligence, sometimes representing a combination of different aspects of social intelligence, and sometimes representing a variety of aspects of both social intelligence and a construct or concept outside of social intelligence. To complicate things, not all researchers use the same operational definitions for the same terms. Table 4 represents a collection of some of these terms found in the literature most related to social intelligence, some of which are referred to in this dissertation.

Table 4

Concepts and Constructs Related to Social Intelligence Found in the Literature

Term	How it is defined
Agentic	Not caring about the feelings of another but only what is wanted from them (Goleman, 2007).
Attunement	"[A]ttention that goes beyond momentary empathy to a full, sustained presence that facilitates rapport" (Goleman, 2007, p.86).
Cognitive Dysfunction	A highly emotional state where cognitive reason (high road processes) are impaired (Goleman, 2007).
Concern	Propels us to take responsibility for what needs doing. It is the impulse that lies at the root of helping professions (Goleman, 2007).
Discriminative Facility	An individuals sensitivity to subtle cues about the psychological meaning of a situation (Hackworth & Brannon, 2006).
Emotional Economy	The give and take feeling of every human encounter (Goleman, 2007). Goleman (2007) explains how we can trigger any emotion in someone else, or they in us through this emotional economy. This is how emotions spread.
Empathetic Accuracy	Includes an explicit understanding of what someone else feels and thinks, and combines the primal empathy of the low road with high road activity in the prefrontal cortex (Goleman, 2007).
Empathy	Goleman (2007) offers a three part definition to empathy: (1) knowing another's feelings, (2) feeling what another feels, and (3) responding compassionately to another's distress.
Frazzle	"[A] neural state in which emotional upsurges hamper the workings of the executive center" (Goleman, 2007 p. 267).
Influence	Constructively shaping the outcome of an interaction using tact and self-control (Goleman, 2007).
People Skills	The ability to (1) get along with, (2) develop trusting relations with, and (3) communicate effectively with others (Morand, 2001).
Political Skill	"[T]he ability to effectively understand others at work, and to use such knowledge to influence others to act in ways that enhance one's personal and/or organizational objectives" (Ahearn, Ferris, Hochwarter, Douglas, & Ammeter, 2004, p. 311).

(table continues)

Term	How It Is Defined
Primal Empathy	The ready ability to sense the emotions of another, largely activated by mirror neurons (Miller, 2006). Primal empathy can be taught, claims Paul Ekman who devised a way to help teach people how to improve primal empathy by bypassing the high road and going directly through the low. He devised a video-based training called Microexpression Training Tool which takes less than an hour to complete. As of this writing, there are no published validation studies, despite positive preliminary data that is posted on his website (Goleman, 2007).
Prosocial Skills	Synonymous with social skills and social competence (Kaukiainen et al., 1999).
Rapport	Rapport exists between people and is recognized by pleasant, engaged, and smooth interaction. Rapport fosters an environment of creativity and efficiency in decision making (Hall & Bernieri, 2001). Rapport requires mutual attention, shared positive feeling, and a well-coordinated nonverbal duet (Goleman, 2007).
Social Awareness	One's ability to observe and understand the context of a situation as well as the ways in which the situation influences the behavior of the people in it (Albrecht, 2009).
Social Brain	The parts of the brain that distinguish between accidental and intentional harm and reacts more strongly if it seems malevolent. The social brain refers to the particular set of circuitry that is used as people relate to one another. There is no major zone in the brain that appears to be devoted exclusively to social life. Virtually all neural tracks int he social brain handle a range of activities (Goleman, 2007).
Social Capital	A range of resources available to individuals due to their participation in social networks (Herreros, 2004).
Social Cognition	Knowledge about how the social world works (Goleman, 2007).
Social Competence	Skill to decipher other's emotions and act in an acceptable manner with respect to others (Arghode, 2013). Also defined as effectiveness in social interaction (core aspect of most definitions; Rose-Krasnor, 1997).
Social Creativity	Creativity in the social domain is a form that is expressed when one or more individuals choose new strategies to solve social problems or enhance social activities, within dyads or in larger groups (Mouchiroud & Lubart, 2002).
Social Facility	The behavioral component to Goleman's theory of social intelligence. Social facility builds upon social awareness to allow for effective interactions (Goleman, 2006).

(table continues)

Term	How It Is Defined
Social Information / Social Knowledge	Knowledge of other people's behaviors, attributes, intentions, and preferences (Hertwig & Herzog, 2009).
Social Intelligence Competency	"[T]he ability to recognize, understand, and use emotional information about others that leads to or causes effective or superior performance" (Emmerling & Boyatzis, 2012, p. 8). Individuals are not likely to have accurate insights to their own competencies and even less insight to the motives that drive these competencies. There is generally a low correlation between ratings of self-reported competencies and competency ratings done by others (Emmerling & Boyatzis, 2012).
Social Memory	Memory for and processing of social information, social judgments, and social behaviors (Bower & Forgas, 2001).
Social Neuroscience	The study of what happens in the brain when people interact. Social neuroscience is concerned with how the brain drives social behavior and how our social world influences our brain and biology. It comprises both cognitive and non-cognitive aptitudes (Goleman, 2006).
Social Perception	Consists of: (1) ability to recognize the behavior or psychological states of others, (2) predictive abilities, and (3) ability to behave in ways expected by the context of the social system (Bronfenbrenner, Harding, & Gallwey, 1958).
Self-presentation	"[T]he ability to present oneself in ways that make a desired impression" (Goleman, 2007, p. 93).
Social Responsibility	Acting in ways that help create optimal states in others (Goleman, 2007).
Social Self-Efficacy	"People's beliefs in their capabilities to voice their own opinions with others, to work cooperatively and to share personal experiences with others, and to manage interpersonal conflicts" (Di Giunta et al., 2010, p. 78).
Social Skills	Social information that is learned as opposed to fairly stable personality traits used in social interaction (Lievens & Chan, 2008). Interventions have been used as a strategy to control anger, enhance sexuality, improve marital family and parenting relationships, decrease social anxiety, and overcome numerous childhood dysfunctions (Taylor, 1990).
Social Understanding	The way in which children come to understand their own and others' minds—the formulation of a theory of mind (Carpendale & Lewis, 2004).
Synchrony	Lets us "guide gracefully through a nonverbal dance with another person" (Goleman, 2007, p. 91). People with dyssemia have a deficit in reading the nonverbal signs of other people. Eighty-five percent of people with this disorder can attribute the disorder to lack of interaction with peers or from family who lacked a given range of emotion, 10% can attribute the disorder to emotional trauma, and only 5% have diagnosable neurological disorder (Goleman, 2007).

Dimensions of Social Intelligence

In its infancy, at a time before social intelligence was an established construct, social intelligence was often understood as a unidimensional concept. As more research was conducted on social intelligence, it became apparent that social intelligence was a multidimensional construct. The exact dimensions, however, are not well established nor ubiquitous. For example, Guilford (1965) proposed a multidimensional formulation of social intelligence that Romney and Pyryt (1999) ran a factor analysis on, finding that it was unnecessarily complicated. The frameworks, models, theories, and formulations presented in this section represent a sampling of the more commonly cited modern understandings of the dimensions of social intelligence.

S.P.A.C.E. - a descriptive framework of social intelligence by Albrecht (2006).
Albrecht describes what he calls the "S.P.A.C.E." framework for defining, measuring, and developing social intelligence. Albrecht built his model on Gardner's concept of social intelligence, but explicitly states that he makes no claims for the statistical validity or psychometric rigor of the model or dimensions (Albrecht, 2009). Albrecht's five dimensions include (adapted from Joseph & Lakshmi, 2010):

1. (S)ituational Awareness. A cognitive and behavioral component that involves analyzing the social situation that would influence one's behavior, and then selecting a behavioral strategy that leads to success.

2. (P)resence. The external sense of oneself or seeing oneself as others perceive.

3. (A)uthenticity. One's honesty with oneself and other people.

4. (C)larity. The ability to persuade and elucidate through clear language that others can understand.

5. (E)mpathy. The ability to connect with others through feeling what they feel and seeing issues from their perspective.

Marlowe's (1986) five dimensions of social intelligence. Marlowe (1986) examined the multidimensional nature of the construct of social intelligence and whether it is independent of general intelligence, using participants who were employed in a state-funded mental hospital. Participants were administered a battery of tests to assess social interest, social self-efficacy, empathy skills, social skills, and intelligence. Factor analyses identified five domains of social intelligence (*prosocial attitude, social skills, empathy skills, emotionality, social anxiety*) that were independent of verbal and abstract intelligence. The prosocial attitude domain reflected both social interest and social self-efficacy, and the domains of emotionality and social anxiety were unexpected findings.

Goleman's theory of social intelligence (Goleman, 2007). Like Albrecht's framework, Goleman's model of social intelligence is "merely suggestive, not definitive, of what an expanded concept might look like" (Goleman, 2007, p. 330). It comprises two broad categories (*social awareness* and *social facility*) and four "capacities" in each category (the following terms have been defined in Table 4).

1. Social Awareness

    a. Primal Empathy

    b. Attunement

    c. Empathic accuracy

      d.   Social cognition

  2. Social Facility

      a.   Synchrony

      b.   Self-presentation

      c.   Influence

      d.   Concern

The TSIS with three factors. This scale will be discussed in detail in the "Measurement of social intelligence" section. It is one of the few psychometrically sound instruments for measuring social intelligence used and validated for an American population. Factor analysis has uncovered a three factor structure to social intelligence: *social information processing*, *social skills*, and *social awareness*. Together, these factors contain all three psychological components of social intelligence: affective, cognitive, and behavioral.

Measurement and the Establishment of Social Intelligence as a Construct

According to Seligman (2011), five factors comprise well-being: *positive emotion, engagement, relationships, meaning*, and *accomplishment*. He explains that no one element (or factor) defines well-being, but each contributes to it. Some of these factors can be measured objectively while others only subjectively through self-report (Seligman, 2011). Social intelligence can be seen in the same way. When social intelligence is discussed in a scientific context, researchers are referring to a collection of factors, dimensions, concepts, or constructs that can be measured, and these collections comprise the concept of social intelligence. One challenge has been with (mostly early) researchers not recognizing social intelligence as a multidimensional construct, and not

obtaining any useful information from their research. Researchers who recognize the multi-faceted nature of social intelligence can obtain useful information by measuring the factors of social intelligence individually. For example, Habib, Saleem, and Mahmood (2013) developed their own social intelligence scale and identified five factors, and found that male participants showed significantly more social intelligence in the social manipulation and social facilitation dimensions than women. When the factors were combined into the single social intelligence construct, there were no significant differences in the data. Another challenge to researchers of social intelligence over the years has been finding agreement on what constructs to include in social intelligence. A related problem is the inconsistent measurement of social intelligence is mainly due to the emphasis different researchers put on the affective, behavioral, and cognitive components. This disagreement has made social intelligence an elusive concept resulting in many psychologists viewing social intelligence as speculative, at best. However, much progress has been made in recent years.

Keating (1978) was one of the researchers who concluded that, at least by the measures he used in his study, the domain of social intelligence lacked empirical coherency. Out of the measures used in his study, none is commonly associated with social intelligence. Further, at the time of his study, social intelligence was not well defined, being more hypothetical than an empirical construct. Ford and Tisak (1983) conducted a follow-up study to Keating's five years later, and concluded that at least within the adolescent age range, an empirically coherent domain of social intelligence can be found, if a behavioral effectiveness criterion is used to define the domain.

The Development and Validation of Selected Social Intelligence Instruments. There has been no shortage of attempts to measure social intelligence since its popularization in the early 20th century. The first test designed to measure social intelligence was the George Washington University Social Intelligence Test (Moss, Hunt, Omwake, & Ronning, 1925). According to an early critic, the reliability for this test was sufficiently high but the problem was with the validity. Hunt (1928) argues "to know the extent to which the test reliably measures ability to deal in human relationships it is necessary to have some measure of social intelligence with which to compare scores" (p. 324). She continues by calling attention to the lack of means to objectively measure the many factors that comprise the test. Many other instruments have since been developed, each with their own set of advantages and disadvantages. In this section, a selection of the tests is presented that have been chosen based on usage, recency, or multidimensionality.

Social Intelligence Test-Revised (SIT-R). The SIT-R is a restandardization version of the 1955 revision of the George Washington University Social Intelligence Test. It is a paper and pencil test with four subtests that assesses problem-solving in social situations, the attribution of emotions and motives to people's behavior, understanding social rules, and the application of sense of humor (Palucka et al., 2011). This test is rarely used, and little information exists about its reliability, validity, and application to populations.

Chadda and Ganeshan's (2009) Social Intelligence Scale. This test were used for Indian undergrad students by Saxena and Jain (2013). It has eight dimensions: patience, cooperativeness, confidence level, sensitivity, recognition of the social environment,

tactfulness, sense of humor, and memory. The test has been widely used but only with an Indian population.

Habib Social Intelligence Scale (2013). Factor analysis revealed five factors: social manipulation, social facilitation, social empathy, extroversion, and social adaptability (Habib et al., 2013). The test comprises 79 items with a 4 point rating scale (0–3). Validated with Pakistani university students. From the available literature, it appears that this measure was developed for a specific research project and administered just one time using an Indian population.

Magdeburg Test of Social Intelligence (MTSI). This test relies on a potential-based concept of social intelligence rather than just behavior-based approaches, as well as including both cognitive and noncognitive abilities and skills, using the broader definition of social intelligence. This test includes five domains: *social understanding, social memory, social perception, social flexibility*, and *social knowledge* (Conzelmann, Weis, & Süß, 2013). Unlike most other tests of social intelligence, the MTSI consists of performance tests applying realistic and mainly nonverbal material rather than being solely based on self-report. The reliability and validation of this test was done with university students in Germany. The use of the MTSI has been limited, especially with an American population.

Rahim Social Intelligence Test (RSIT). The RSIT uses four dimensions of social intelligence or "components," which include *situational awareness, situational response, cognitive empathy*, and *social skills*. This test was designed to measure subordinates' perceptions of their respective supervisor's social intelligence (Rahim, 2014). This test

appears to have been developed specifically for an Indian population and the one study in which it was used.

Tromsø Social Intelligence Scale (TSIS). This is the 21-item, 3 factor structure, self-report measure created by Silvera et al. (2001) that has been previously introduced in this paper. It is the instrument used for this research; therefore, it is discussed in detail in Chapter 3.

Similar Studies: Social Intelligence and Distance Education

Joakim and Harikrishnan (2013) measured the social intelligence of various students from universities in Tamil Nadu, India. They looked at five variables shared among the distance education students: gender, locality, marital status, medium of instruction (the language used), and course of the study. While these were university students, they were not all undergraduates, there were no age delimiters, no comparison to traditional students, and the population was taken from India, which is a culture arguably quite different from the American culture. The researchers used Chadha and Gananesan's social intelligence scale, which is a social intelligence measurement tool commonly used for Indian populations. The only statistically significant factor was found to be the locality. If the student lived in an urban or rural setting. Urban students were rated as having a higher level of social intelligence than rural students, which is not a surprising conclusion given the expected frequency and variety of interactions a person living in an urban area is more likely to have than a person living in a rural area. This is assuming the quality of social interactions in both localities are equal.

Sivin-Kachala and Bialo (2009) conducted a study in response to expressed concerns that students enrolled in full-time distance public schools may fail to develop important social skills. The research looked at young children in grades 2, 4, and 6, and tested social skills, specifically responsibility, self-control, assertion, and cooperation. The researchers found that the distance students' skills were either not significantly higher or not significantly different from the national norms of traditional students. It was concluded that one of the reasons for the strong social skills of the distance students was the high level of engagement of the students in outside activities, even those not involving peer interaction.

There is evidence that distance education can be used to promote skills taught in traditional learning environments. Francescato, Mebane, Solimeno, Sorace, and Tomai (2006) present both views on the issue: Some educators believe that computer mediated communication can liberate one from the limits of physical locality and allow genuine relationships to develop unconstrained from the judgments and biases often found with relationships in the physical world. Other educators believe the physical presence allows for nonverbal communication that is an important part in the cohesiveness to any group. The authors discuss a series of studies that provide evidence that social capital is built in distance environments, and this social capital was more long lasting than the social capital built in the traditional learning environment.

Glader (2009) reported that the social intelligence of distance high school students was indirectly addressed through concepts such as "social skills" and "social isolation." This was not a controlled study, but rather a journalistic inquiry. The article addressed various

unnamed researchers in the area who were divided on the thought that distance education, at least at the high school level, hindered or facilitated social skills. Those who felt distance education was conducive to building social skills referred to the increasing need to interact with a digital world. The article mentions school administrators who believe, in their experience, that distance students that do withdraw emotionally and socially are the ones without discipline or parental supervision (Glader, 2009).

A possibility is that students with higher or lower levels of social intelligence are predisposed to distance learning. Caplan (2005) looked at problematic Internet use that consists of cognitive and behavioral symptoms that result in negative social consequences. His model hypothesizes that a social skill deficit (which can reasonably be understood as lower social intelligence) predisposes an individual to develop a preference for distance rather than face-to-face interaction. Caplan draws on past research to explain this preference by an individual's lack of self-confidence in his or her self-presentation skills, which leads to social anxiety. Considering distance social interaction is less risky, social anxiety can be mitigated or even avoided with this communication method.

Social Intelligence Training and Social Intelligence Development

If social intelligence were mostly due to dispositional traits or genetic factors, then not only would there be no reason to hypothesize that distance learning can affect social intelligence development, but very little (if anything) could be done about any deficit even if it were found to be an existing condition among students enrolling in distance courses. However, it is clear from the literature that social intelligence not only can be

learned and developed, but it can be learned and developed at virtually any age (Cohen, 2006; Joseph & Lakshmi, 2010; Saxena & Jain, 2013; Stichler, 2007).

Social intelligence develops over time. We are not born socially intelligent; however, the origins of human social intelligence can be traced to the first year of life. Henderson, Gerson, and Woodward (2008) studied infants and through a series of experiments concluded that infants come to understand that intentions guide human action within the first few months of their lives, that attention guide action by 9 to 12 months, and understand that these intentions are specific to individuals by 13 months. Emotional mastery is learned from experience, observation, and interaction with peers (Laursen, Moore, Yazdgerdi, & Milberger, 2013). The vast majority of children and most adults can learn to become more socially competent. The exception is children with social disorders such as autism and adults with injury to the neural circuitry thought to govern social-emotional competence (Cohen, 2006).

Hunt (1928) wrote that social intelligence "seems to increase somewhat regularly from early childhood until about age seventeen or eighteen; after which age makes very little difference" (p. 328). If this were true today, it would be unlikely that a distance education environment would have any significant effect on social intelligence; however, this is unlikely to be the case. Later tests of social and social-emotional intelligence show significantly greater social intelligence in age groups in the 40 year old range than younger age groups starting at 18 years (Bar-On, 2006). This could be due partly to the development of a more stable social intelligence construct since 1928 (i.e., a difference in

measurement), and partly to a changing culture over the last century with a much longer

adolescence period now than in 1928 (Steinberg, 2011).

There is some research that supports the idea that social intelligence development would

be constrained by a lack of face-to-face interaction. For example, our physiology plays a

significant role in "reading people," or detected non-verbal cues that signal one's

intentions or internal states. Our brains automatic and unconscious response is to transmit

our feelings onto the muscles of our face, making our feelings visible which in turn

promotes empathy, which is a key component of social intelligence (Goleman, 2007).

However, it is unclear if a distance learning environment can promote different aspects of

social intelligence not necessary for face-to-face contact. No data could be found in the

literature on the effects of modern distance learning environments on social intelligence.

These are just some more of the gaps this study seeks to address.

Summary and Conclusions

Bandura's social learning theory (1977) and Goleman's theory of social intelligence

(2006) form the theoretical foundation of this research. Both theories provide theoretical

evidence that distance learning is likely to have deleterious effect on social intelligence

development, although empirical evidence looking at similar questions provide mixed

results. As of this writing, no empirical studies directly testing the effect of distance

education on social intelligence could be found.

A survey designed and administered by the Babson Survey Research Group establishes

the importance of distance higher education in the U.S. in terms of growth, acceptance,

perceptions, and widespread integration into traditional programs (Allen & Seaman,

2014). Many studies examined the difference between distance and traditional learning environments, as well as distance and traditional students, some even looking at social factors that could be subsumed under social intelligence. However, at best, these studies have provided evidence for some social competencies of students who prefer distance versus traditional learning environments, not evidence for the effect of distance learning environments on social intelligence.

The concept of social intelligence has existed in the literature for over a century, but has only more recently gained legitimacy as a psychological construct. Some of the reasons for this may be due to (a) being understood as a multidimensional construct rather than a unidimensional one, (b) definitions converging over the years, (c) the popularity of theories of multiple intelligences (e.g., Gardner, 2011; Sternberg, 1999) and (c) being repeatedly tested for validly and reliability with positive results.

The 21-item, 3 factor structure, self-report TSIS was chosen as the measurement tool for this study because (1) it is simple, conducive to rapid administration, and takes a little time to both administer and complete; (2) it has repeatedly been used across cultures with positive results; and (3) the English version has been adequately validated and used on university students, but not on distance undergraduates. To use this tool in testing our hypothesis, a methodological procedure has been designed to account for the existing differences in students' social intelligence when beginning distance education programs and estimate or infer the changes in the sample population over the four year experience, based on the comparisons of the class rank groups. This is something that existing studies have not done that this study has done.

Chapter 3: Research Method

This study contributes to the literature by examining the possible difference in social intelligence of undergraduate students between 18 and 24 years of age in both distance and traditional undergraduate programs. If distance higher education programs are found to lack the structure that fosters social intelligence development, educators involved in course design can focus more on developing social intelligence among students.

In this chapter, I explore the choice of the 2 x 4 between groups design and provide rationale for its selection, along with reasons for not choosing other designs. The population is defined and sample strategy explained. The Tromsø Social Intelligence Scale is discussed in more detail and the variables used in this study are operationalized. Finally, the data analysis plan for this study is reviewed.

Research Design and Rationale

The nature of the study was quantitative, with a nonexperimental design using survey methodology. Two independent variables are used in this study: (a) learning environment (i.e. traditional and distance), and (b) class rank (i.e., freshman, sophomore, junior, and senior). The age rage of the participants were limited from 18 to 24, given the possible differences in social intelligence among age groups. A 2 x 4 between groups ANOVA design, was used for this study. The main effects for each variable are analyzed along with interaction effects.

Following were the research questions and hypotheses for this study:

RQ_1: Is learning environment (distance versus traditional) associated with the level of

social intelligence as measured by the Tromsø Social Intelligence Scale among

undergraduate college students?

H_0: There is no significant difference in the level of social intelligence between

distance and traditional undergraduates.

H_1: There is a significant difference in the level of social intelligence between

distance and traditional undergraduates.

RQ_2: Is college rank (freshman, sophomore, junior, senior) associated with the level of

social intelligence as measured by the Tromsø Social Intelligence Scale among

undergraduate college students?

H_0: There is no significant difference in the level of social intelligence among

undergraduate college students based on college rank.

H_1: There is a significant difference in the level of social intelligence among

undergraduate college students based on college rank.

RQ_3: Is the difference between learning environments in social intelligence different

across levels of class rank?

H_0: The difference between learning environments in social intelligence is not

significantly different across levels of class rank.

H_1: The difference between learning environments in social intelligence is

significantly different across levels of class rank.

The results of this research will provide an indication of the strength of the association of the social intelligence of undergraduates and learning environment. If the establishment of causality was desired, a longitudinal pretest-posttest experiment (repeated measures, within-subjects design) might be conducted with both distance and traditional undergraduates. Before beginning freshman year, the students would be tested for social intelligence, then at the end of senior year, the same students would once again be tested. The average differences in social intelligence development between the distance group and the traditional group could be compared, and any significant difference would support the conclusion that the learning environment does have a significant effect on social intelligence development. However, this type of design is impractical for a dissertation based on limited time. With a change in design, similar conclusions could be drawn from data that is collected at one point in time.

Through descriptive research, specifically a survey design (between-subjects), a similar conclusion can be drawn; however, with less causal attribution. A survey can be administered to both distance and traditional students at one point in time, as long as a range of students ranked by class is included in the survey. For example, if freshmen who are enrolled in a distance university score lower than freshmen enrolled in a traditional university, that difference can reasonably be attributed to factors other than learning environment given the brief exposure to learning environment. Both groups (distance and traditional) will each have a mean starting level of social intelligence. The same measurements will be taken for each class rank (different students), and if the learning environment is associated with social intelligence, a pattern should emerge when

comparing the four class ranks, based on the change in the mean difference of social

intelligence for each class rank (see Figure 2).
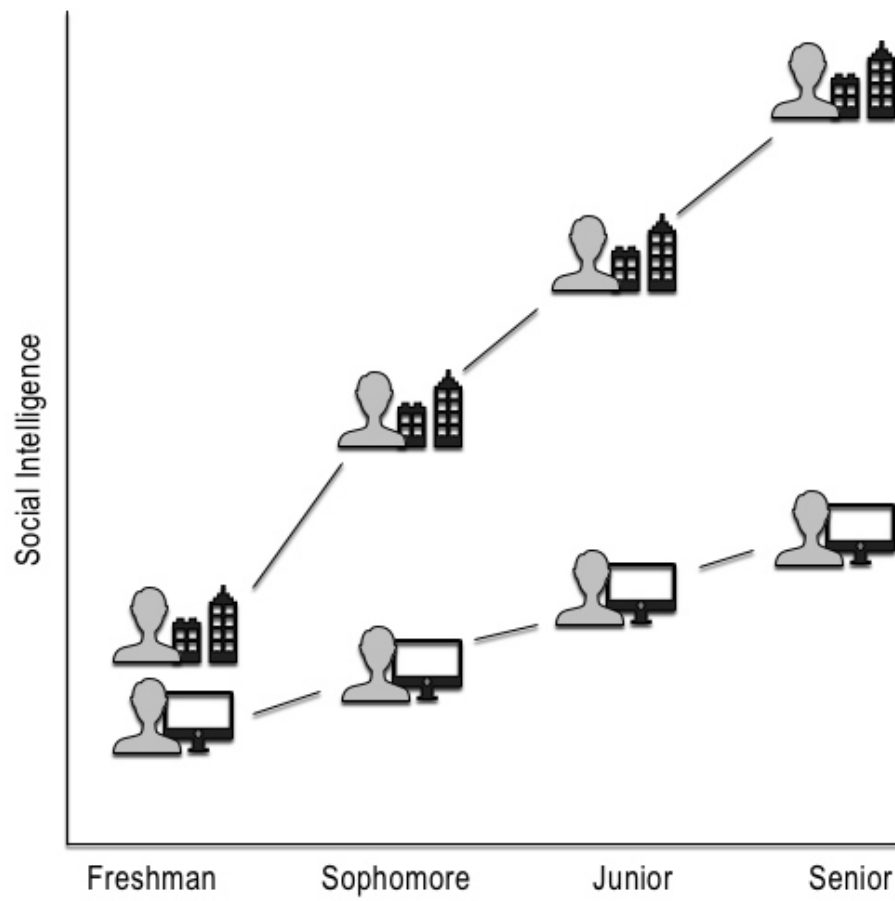
Figure 2. A survey was administered at one point in time to freshmen, sophomores, juniors, and seniors, measuring social intelligence. Differences in the mean score of distance versus traditional students for their class rank will provide evidence to the learning environment's impact on social intelligence development. In this scenario, social intelligence development of distance students (as indicated by the person and the monitor) is not strong as social intelligence development of the traditional students (as indicated by the person and the buildings).

Methodology

Population

I used a sample of adults ages 18–24 claiming residence in the United States for this study. These are adults who were currently enrolled in either a distance or traditional 4-year, degree-granting undergraduate program. Based on data from the U.S. Department of Education Institute of Education Sciences National Center for Education Statistics ("Enrollment in Distance Education Courses, by State," 2014), in 2012 there were approximately 21 million students enrolled in American Title IV[2] educational institutions. Out of these, approximately 13 million are students enrolled in 4-year, degree-granting undergraduate programs. Out of these, approximately 1.5 million are exclusively distance students[3].

Sampling and Sampling Procedures

For this study, I used a nonprobability sample, which is a sampling method that does not involve random selection, and what can most accurately be described in more detail as a hybrid of a convenience (i.e., asking for participants) and nonproportional quota (i.e., specifying how many sampled units in each category) sample is used. I created an advertisement for Facebook that appeared in the feeds of a random selection of Facebook users who meet the following criteria (inclusion and exclusion criteria):

- Location: United States

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[2] An institution that has a written agreement with the Secretary of Education that allows the institution to participate in select federal student financial assistance programs falling under "Title IV."
[3] This is an estimate based on the figures provided by NCES. These exact figures are not directly provided.

- Age: 18–24

- Gender: All

- Interests: university, college, student

The advertisement directed the prospective participants to a survey on SurveyMonkey, where a qualifying page was displayed confirming the participant (a) was between 18–24 years old; (b) was currently enrolled in a U.S. based, 4-year, degree-granting, undergraduate program; and (c) had not had one or more years of formal distance schooling or homeschooling as an alternative to a public or private high school. The survey did not ask the participant for personal or confidential information.

There are many reasons why I chose this strategy. First, access to the entire sampling frame was not available. Student contact information is confidential for the most part and especially confidential to those not affiliated with the student's institution. In order to get participants from a variety of different schools around the country, participants would need to be solicited to complete the distance survey. This is the 21st century equivalent to setting up a table in a crowded location and soliciting potential participants. In this scenario, no student contact information is needed. The "convenience" part has to do with the method of distributing the solicitation for participation in the study. Only users of Facebook saw the solicitation, which according to Digiday, represents 88.6 percent of college-aged adults (age 18 to 24) as of November 2013 (McDermott, 2014), which is a significant part of the total population, although 3 points off from its high. The nonproportional quota is necessary to get a large enough sample from both groups

(distance students and traditional students), given that traditional students outnumber distance students approximately 8 to 1.

I conducted a power analysis using the software G*Power to determine the ideal sample size. For test family, *F* tests I selected, with the specific statistical test being "ANOVA: Fixed effects, special, main effects and interactions" to match the design of this study. The type of power analysis used was *a priori*, or something done prior to conducting the research.

The α (error probability or significance level) was chosen based on the standard of .05. The default power (i.e., the probability of detecting a "true" effect when it occurs) of .8 was chosen indicating that 80% of the time, a statistically significant difference between the groups would be detected. This value was chosen based on a recent common practice in the social sciences to achieve a power of .8. Since no studies could be found that use the same variables as this study, an effect size of .25 will be used to signify a medium effect size using the *F* test for ANOVA (Cohen, 1988). The resulting suggested sample size was 179.

Procedures For Recruitment, Participation, and Data Collection

Expanding on the procedures in the "Sampling and Sampling Procedures" section, In this section I will detail specifically how the participants were solicited for this survey, what information was collected, consent procedures, data collection and storage, and overall participant experience.

The prospective participants were Facebook users meeting the requirements previously noted. Through Facebook's targeted advertising campaigns, I created *sponsored posts*, or

advertisements, that appeared in the Facebook feeds of a pseudo-random segment of the targeted Facebook population[4]. Two advertisements were created each targeting one group of participants: (a) those likely to be enrolled in a traditional college or university, and (b) those likely to be enrolled in a distance college or university[5]. The reason for the two groups has to do with getting a roughly even number of participants in each group (a 1:1 ratio) from groups that currently have a 8:1 ratio (i.e., traditional students outnumber distance students about 8 to 1). See Table B1 in Appendix B for the advertisement targeting information and copy. The advertisement as it appears on Facebook for (a) both education environments, and (b) distance education only can be seen in Figure B1 in Appendix B. The Walden University participant pool was not used because it was important to get participants from a variety of distance schools.

Upon clicking anywhere on the Facebook advertisement[6], prospective participants were taken directly to the survey on the SurveyMonkey website. The first page of the website was the consent form as it was approved by the Walden University IRB (see Appendix A). As an online consent form, prospective participants will be asked to read the form, select *I Agree*, and click the *Next* button at the bottom of the page to agree to the conditions and proceed with the study.

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[4] Facebook has its algorithms that may appear random, and may contain some random element, but their exact criteria for which users get shown the ads remains a company secret. For the purposes of this study, it does not matter.

[5] The current top 10 distance colleges/universities by enrollment were used in the targeting criteria for the advertisement.

[6] If the prospective participant clicked the "Like Page" instead, they were taken to the Facebook page for this study which consisted of regular posts asking the students to complete the survey.

The second page of the study qualified or disqualified the participant from completing the TSIS, as well as records the two independent variables (class rank and learning environment). If the participant does not qualify based on their answers, they are taken to a *Thank you* page, thanking them for their time and informing them that they did not meet the requirements for the study[7]. The third page is the web adaptation, English version of the TSIS, using the seven-point Likert scale ranging from (1) *describes me extremely poorly* to (7) *describes me extremely well* (no other labels are given for values 2–6). Upon completion of the survey, the participants are taken to a "thank you" page, thanked for their time, given the researcher's contact information, and invited to "like" a Facebook page if they want to be kept updated on the results of the study once it is completed. If the participants choose not to contact the researcher, no further contact will be made.

Instrumentation and Operationalization of Constructs

The TSIS is a 21-item, three-factor structure, self-report measure, developed by Silvera et al. (2001) and freely available to use for academic purposes. It is simple, conducive to rapid administration, and takes little time to both administer and complete, although as a self-report measure it is subject to social desirability bias. The TSIS uses a 7-point Likert scale (from 1 *describes me extremely poorly* to 7 *describes me extremely well*) for each of the 21 items for the respondents to rate to the degree that the statement describes them.

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[7] The requirements are clearly explained on the consent form, but it is likely that they would have been missed.

The development of the TSIS comprised three studies. In the first study, the researcher's examined experts' implicit theories about social intelligence to construct an accurate operational definition that could be used, which resulted in the authors of the scale defining social intelligence as "the ability to understand other people and how they will react to different social situations" (Silvera et al., 2001, p. 314). In the second study, the researcher's used a preliminary version of the TSIS containing 103 items designed to correspond with the expert evaluations from the first study.

The purpose of this study was to identify a psychometrically sound subset of the items through factor analysis, which resulted in the three subscales each containing seven items: (a) *social information processing* (SP) that is mostly a cognitive component (e.g., "I can predict other people's behavior"), (b) *social skills* (SS) that is mostly a behavioral component (e.g., "I fit easily in social situations"), and (c) *social awareness* (SA) that has both cognitive and affective components (e.g., "People often surprise me with the things they do"). The factor structure was found internally consistent across two independent samples, and reasonably free of social desirability biases, and the alpha coefficient of internal consistency reliability for the total scale was .87. Finally, in the third study, the researcher's used the 21-item version of the scale with a new sample to verify its psychometric properties. This last study revealed that the TSIS was relatively unbiased for both gender and age, with acceptable internal reliability (Silvera et al., 2001).

Although the TSIS was developed in Nynorsk language, it is widely used among English Speaking, American populations (e.g., Barber et al., 2010; Fassnacht, 2013; Kato, 2012;

Zwolinski, 2011). The psychometric properties of the English version of the TSIS were

investigated by Grieve and Mahar (2013). Their factor analysis clearly revealed the same

three factors found by Silvera et al. (2001). They examined construct validity (N=116)

and as predicted found that social intelligence was strongly and significantly related to

political skill, emotional intelligence and empathy in both male and female participants.

Grieve and Mahar found that internal reliability was adequate to good, and temporal

stability over a 2-week interval was excellent concluding that the English version of the

scale has sound psychometric properties, the factor structure in the English version is

stable and that the scale is successfully capturing the nature of social intelligence. Based

on the work of Grieve and Mahar, the widespread usage of the TSIS on English speaking

populations, and the lack of better alternatives, the English version of the TSIS has been

chosen for this study.

Table 5

Reliability of the Subscales from the Tromsø Social Intelligence Scale (TSIS) Using Cronbach's Alpha Values

Researchers	Population	SP*	SS*	SA*
Silvera et al. (2001)	Norwegian University population, Nynorsk language	0.79	0.85	0.72
Vasiľová and Baumgartner (2005)	Undergraduates in the Faculty of Arts program at the University of Prešov (Slovakia)	0.82	0.74	0.74
Dogan and Cetin (2009)	Students from Sakarya University (Turkey), Turkish language	0.77	0.84	0.67
Meijs, Cillessen, Scholte, Segers, and Spijkerman (2010)	14–15 year-old college preparatory students in Northwestern Europe, English language	0.8	0.79	0.72

Note. * SP=social information processing, SS=social skills, and SA=social awareness

Select Studies Using the TSIS

Maltese, Alesi, and Alù (2012) used the Italian version of the TSIS in their study exploring the proactive and retroactive excuses used by Italian adolescents ages 15–21 and their relationship with self-esteem and social intelligence. They found that social intelligence was negatively and significantly correlated with negative self-esteem and proactive excuses. Unlike many other studies, the researchers did test their variables (self-esteem and proactive excuses) against the three domains of social intelligence, finding all three domains having the same significant correlations. Those with higher self-esteem were found to be less reserved about interacting using adequate behavior for

the social context. Proactive excuses were minimized because social intelligence allows individuals to find adequate resolutions to conflicts.

Meijs, Cillessen, Scholte, Segers, and Spijkerman (2010) used the English language version of the TSIS in their study on social intelligence and academic achievement as predictors of adolescent popularity. The participant sample included 512 14–15 year-old college preparatory students in Northwestern Europe. A reliable composite social intelligence score was computed by averaging the 21 items ($M = 4.79$, $SD = .67$, $\alpha = .82$). The researchers concluded that perceived popularity was significantly related to social intelligence; however, it was not related to academic achievement.

To test the hypothesis that higher social intelligence can impair source memory, Barber, Franklin, Naka, and Yoshimura (2010) used the TSIS on a sample of 116 psychology students at Stony Brook University, NY. The researchers conducted two experiments, both of which provided evidence confirming their hypothesis: a negative relationship was found between social intelligence and source accuracy, and they concluded that social intelligence appears to have negative memorial consequences, but only when the task includes anticipation.

Operationalization

In the current study, three variables were used: social intelligence (DV), class rank (IV), and learning environment (IV). The operational definition for social intelligence comes directly from Silvera et al. (2001) who developed the 21 question instrument being used to measure social intelligence (TSIS). They define social intelligence as "the ability to understand other people and how they will react to different social situations" (Silvera et

al., 2001, p. 314). The instrument contains three subscales each containing seven items: (a) *social information processing* (e.g., "I can predict other people's behavior"), (b) *social skills* (e.g., "I fit easily in social situations"), and (c) *social awareness* (e.g., "People often surprise me with the things they do"). Each item is scored using a Likert scale from 1 (*describes me extremely poorly*) to 7 (*describes me extremely well*). ANOVAs were run on all three subscales plus the total score of the measure.

Class rank is operationally defined as the label that would most accurately describe where the student is in the undergraduate program, with the possible values being "freshman," "sophomore," "junior," and "senior." At times, class rank can be vaguely delineated, especially in a distance environment, given the number of students who do not take (or pass) the suggested number of courses per year. However, the vagueness exists between consecutive class ranks (i.e., freshman or sophomore, not freshmen and senior) so any ambiguity in this area should have little effect in the results. To further mitigate the problem of vagueness, the participants were asked for the number of years they have been enrolled in an undergraduate program.

The final variable, *learning environment*, is operationally defined as the student's description of his or her setting in which he or she interacts with the instructors and students. The possible values for this answer are (a) a traditional, face-to-face learning environment (less than 20% of content delivered online), (b) a distance learning environment (about 80% or more of content delivered online) or (c) a hybrid learning environment, which can be defined as a somewhat even mix of both a traditional and distance learning environment (between about 20% and 80% of content delivered online).

These categories were based on the operational definitions used by Allen and Seaman (2014), except that Allen and Seaman define "courses" rather than "learning environments," so their criteria for "traditional" is far too restrictive at 0% of content delivered distance. They also use a fourth category they call "web-facilitated," which for the purposes of this study is unnecessarily specific. For this study, students who select "hybrid" will be excluded from the sample. Other data that was collected include gender, socioeconomic data—specifically parent's total income and parents' highest level of education. Gender and socioeconomic status were not included as independent variables, nor were they be controlled for because (a) there is little evidential and theoretical reason to think they will have a strong effect on any of the subscales as measured by the TSIS and (b) based on the collection method, it is expected that an even mix of gender and socioeconomic data will be collected across conditions. However, if the conditions are unbalanced, these can be analyzed later.

Data Analysis Plan

I designed the solicitation of prospective participants on Facebook to reach primarily the target population (the first screening procedure), although I expected that it would also attract those who do not qualify as a participant. There was little available space on the Facebook advertisement to include any qualifiers; therefore, the second screening process takes place on the opening page of the survey (i.e., the consent page). A third screening procedure was added as the second page of the survey because I assumed that most participants would click through the consent page without reading it. This second page contains the same list of qualifiers as the consent page, but this page requires the

participant to interact with the questions, confirming or disconfirming their qualification for the study. For a list of the qualification questions and acceptable answers, see Table 6.

Table 6

Qualification Questions and Their Disqualifying Answer(s) on the Survey

Question	Disqualifying answer
I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By selecting "I Agree" below, I understand that I am agreeing to the terms described above.	I do not agree
Are you between the ages of 18 and 24 (18, 19, 20, 21, 22, 23, or 24)?	no
Is your permanent residence in the United States?	no
Are you currently enrolled in a U.S. based, 4-year, degree-granting undergraduate program?	no
Did you have one or more years of formal distance schooling or homeschooling as an alternative to a public or private high school?	yes

All the questions on the survey that are part of the TSIS were required, meaning that the submission of the form was not possible without completing all 21 questions on the social intelligence measure. Therefore, this study did not require procedures for handling partial data. Given that all 21 questions of the social intelligence measure were required and used a Likert scale (one of seven radio button could only have been and must have been selected for each question), typical survey checks such as range edits, ratio edits,

comparisons to historical data, balance edits, detection of implausible outliers, and

consistency edits were not necessary. Weighing of the data was not necessary due to the

ability to monitor and control the Facebook advertisements to attract roughly equal

number of distance and traditional students. Internal consistency of the data was analyzed

by Cronbach's alpha. SPSS version 21.0 for MAC was used to enter and analyze the data.

I used a two-way ANOVA to measure the main effect of each independent variable (class

rank and learning environment) and the interaction between the two independent

variables on the dependent variable (social intelligence). Before running the ANOVA, the

following assumptions were tested:

1.   There are no outliers in any group (or overall).

2.   There is normal distribution of each group's data (or residuals).

3.   There is homogeneity of variances.

I tested assumptions 1 and 2 by using a boxplot and a Shapiro-Wilk Test for Normality.

A visual inspection of the boxplot for values greater than 1.5 box-lengths from the edge

of the box would indicate an outlier. A p-value that is not significant ($p > .05$) would

indicate a normal distribution. Other options selected will include descriptive statistics,

estimates of effect size, and homogeneity tests (our third assumption). Assumption 3 will

be tested by Levene's Test of Equality of Error Variances. A p-value that is not

significant ($p > .05$) would indicate the assumption of homogeneity of variance has been

adequately met.

Threats to Validity

Silvera et al. (2001) did extensive validity testing when developing the TSIS instrument for a Norwegian University population using the Nynorsk language. However, they acknowledged that such validity might not carry over to other populations and languages. Grieve and Mahar (2013) aimed to (a) identify the factor structure of the English version in an English-speaking sample, (b) investigate the construct validity of the English version, and (c) examine the internal and temporal stability of the scale (using Cronbach's alpha and checking test-retest reliability), using a sample of Australian undergraduates. The researchers found that (a) the factor structure comprised the same items as the original TSIS; (b) political skill, emotional intelligence, and empathy were significantly related to each of the social intelligence subscales suggesting good convergent validity; (c) the divergent validity appeared to be sound given no evidence of multicollinearity or singularity. Grieve and Mahar (2013) ultimately concluded that the TSIS is stable in the English version and that the measure is successfully capturing the nature of social intelligence. Despite these and other repeated validations of validity, threats do exist for this study.

Hypothesis guessing. If participants guessed what the study was about, due to the social desirability bias, they might have answered the survey in a way that makes them look good at the expense of truth. To mitigate this possibility, the term "social intelligence" was not used to describe the study since "intelligence" has a strong positive connotation. Instead, the neutral term "social behavior" was used to inform participants as to the nature of the study. Also, there was no mention of "distance" versus "traditional" to

create a rivalry where the participants are persuaded to look as good as possible for the benefit of their chosen learning environment.

Self-selection bias. The participants for this study were self-selected insofar as those who received the targeted advertisement could choose to participate or not. To mitigate the possibility that only those prospective participants who believed themselves to be socially intelligent would respond to the advertisement, the advertisement had no information as to the nature of the survey, and the survey itself simply refered to generic "social behavior." There was no clear theoretical or conceptual indication that participants with more or less social intelligence would be attracted or deterred from participating.

Self-reported measure. The TSIS is a self-reported measure and subject to the associated biases common to this type of measure. Besides the social desirability bias already discussed, participants may exaggerate, be embarrassed to answer details about their own social behavior, or outright lie. They may not even read the questions and just make zig-zag patterns with the answers. These are problems inherent in virtually all self-reported measures and need to be taken into consideration. Mitigation of these potential problems were addressed by reminding the participant of the importance of the research on each page of the survey and their own integrity. For example, "Please take your time and read the questions carefully. Remember that this survey is anonymous, so your honest answers are not only important to this study, but help maintain the integrity of the scientific process. Thank you again for your participation." Grieve and Mahar, (2013) addressed this issue in their evaluation of the English version of the TSIS, concluding that much of the controversy surrounding intelligence and self-report measures has to do

with general intelligence, and given the nature of social intelligence, a self-report may be appropriate.

Ethical Procedures

This study is best described as a survey or assessment that is routinely collected by the site (specifically, SurveyMonkey). There is little risk to the participants in completing this distance survey including the minor discomforts that can be encountered in daily life, such as thinking about one's own social behaviors, assuming these kinds of thoughts will make one uncomfortable.

The data collected was not associated with any participant's identity (i.e., the participants will remain anonymous), and personal identity information (e.g., name, e-mail address, telephone, IP address) will not be collected for this study. Data was collected using the secure socket layer (SSL). SurveyMonkey will not use the information collected from the survey in any way, shape or form (for SurveyMonkey's complete privacy policy see https://www.surveymonkey.com/mp/policy/privacy-policy/). According to the IRB requirements, the data will be kept for a minimum of five years.

Informed consent was obtained using a distance form as the first page of the survey (see Appendix A). The prospective participant needed to agree digitally to the form by clicking the *I Agree* option and clicking the *Next* button to proceed to the survey. The consent form was developed using Walden's template consent form, and contains all the elements required by the IRB.

Summary

This was a quantitative study, with a non-experimental design using survey methodology comprising two independent variables: (a) learning environment (i.e. traditional and distance), and (b) class rank (i.e., freshman, sophomore, junior, and senior), and one dependent variable: social intelligence. These were be analyzed by a two-way ANOVA.

This study used a non-probability sample of adults ages 18–24 claiming residence in the United States, who were enrolled in either a distance or traditional 4-year, degree-granting educational institution at the time of the survey. Based on a power analysis using the software "G*Power," the suggested sample size of 179 was used for this study.

I created an advertisement for Facebook that serves as a lead generator for qualified participants designed to funnel prospective participants to a survey on Survey Monkey, where a qualifying page was displayed (page 1). The second page of the survey contained the same qualifying information but in an interactive form. The third page was the web adaptation, English version of the TSIS, using the seven-point Likert scale ranging from (1) *describes me extremely poorly* to (7) *describes me extremely well* (no other labels are given for values 2–6).

The TSIS is a 21-item, 3 factor structure, self-report measure that was used in this study, developed by Silvera et al. (2001). It is simple, conducive to rapid administration, and takes a little time to both administer and complete. The TSIS is widely used among English Speaking, American populations (e.g., Barber et al., 2010; Fassnacht, 2013; Kato, 2012; Zwolinski, 2011). The psychometric properties of the English version of the TSIS were investigated by Grieve and Mahar (2013) who concluded that the English

version of the scale is stable and that the scale is successfully capturing the nature of

social intelligence. Despite these and other repeated validations, threats do exist for this

study that were addressed in this chapter and will be noted in the study's "limitations"

section.

There was little risk to the participants in completing this distance survey including the

minor discomforts that can be encountered in daily life, such as thinking about one's own

social behaviors assuming these kinds of thoughts will make one uncomfortable. The

anonymous data collection will further minimize any possible risks to the participants.

Further, the consent form was developed using Walden's template consent form, and

contains all the elements required by the IRB.

Chapter 4: Results

In this quantitative study, I sought to compare social intelligence of undergraduates in a distance learning environment with social intelligence of undergraduates in a traditional learning environment at different class ranks (i.e., freshman, sophomore, junior, senior) while limiting the age of the respondents. Three research questions and hypotheses were evaluated:

RQ_1: Is learning environment (distance versus traditional) associated with the level of social intelligence as measured by the Tromsø Social Intelligence Scale among undergraduate college students?

H_0: There is no significant difference in the level of social intelligence between distance and traditional undergraduates.

H_1: There is a significant difference in the level of social intelligence between distance and traditional undergraduates.

RQ_2: Is college rank (freshman, sophomore, junior, senior) associated with the level of social intelligence as measured by the Tromsø Social Intelligence Scale among undergraduate college students?

H_0: There is no significant difference in the level of social intelligence among undergraduate college students based on college rank.

H_1: There is a significant difference in the level of social intelligence among undergraduate college students based on college rank.

RQ$_3$: Is the difference between learning environments in social intelligence different across levels of class rank?

H$_0$: The difference between learning environments in social intelligence is not significantly different across levels of class rank.

H$_1$: The difference between learning environments in social intelligence is significantly different across levels of class rank.

In this chapter, the actual data collection procedure will be described in detail including time frames, procedural changes, response rates, and other relevant information pertaining to the data collection. Basic demographic data of the sample used will be presented along with a discussion of external validity. Finally, detailed statistical results will be presented.

Data Collection

Data collection began on January 17, 2015 at 2:57 a.m. and intermittently ran until it commenced on February 2, 2015 at 12:00 p.m. As described in Chapter 3, the data collection began with a Facebook advertisement that solicited potential college students to participate in an online survey. This first draft of the ad ran continuously on January 17 for about 9 hours, at which time I stopped the campaign due to a very poor response rate. On January 21, I submitted a change of procedure form to my university's IRB and received approval for the change on January 28. The new advertisement was then run intermittently (for reasons explained in the following paragraph) until enough responses were collected on February 2.

Recruitment and Response Rates

The original ad (Figure B1) was displayed to Facebook users ages 18–24, who were

currently enrolled in college in the United States. This ad had 163,328 views and resulted

in 454 clicks to the survey as well as 18 completed surveys at a cost of $34.20 per

completed survey. The second ad (Figure B2) that offered incentive for completing the

survey was displayed to the same audience initially, then further targeted to those

specifically enrolled in online universities in order to obtain close to an equal number of

students in each learning environment (see Table B1). This ad had 82,584 views, resulted

in 1019 clicks to the survey, and 224 completed responses at a cost of $2,105.26. In sum,

before any postcollection processing of the survey data, a total of 242 completed surveys

were collected at an average cost of $11.24[8] per survey response. Out of the 242

completed responses, 52 were from students in a hybrid learning environment and were

excluded from the results, leaving a total of 190 responses.

Procedural Changes

I grossly overestimated the generosity of students willing to "do a good deed." After what

can best be described as a failed initial recruitment plan, I felt I needed to offer a fair

compensation for the respondent's time—a $5 Amazon gift card to be sent electronically

within 24 hours of completion of the survey. A new advertisement was designed (see

Figure B2), and a formal request for change in procedure was filed with my university's

IRB, which was approved.

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[8] This average cost include the $5 Amazon gift card incentive.

I conducted a brief literature review on the pros and cons of offering incentives for surveys and concluded that the $5 gift card is both appropriate and something that will have little, if any, effect on the quality of the responses. Singer and Ye (2013) conducted a systematic review on the use and effects of incentives in surveys and concluded that most studies that have evaluated this information have found no effects, although the research on this has been limited.

The change required a slight modification to the consent form to reflect the gift card (see Appendix A). The changed text in the introduction: "To be eligible to participate in this survey and to receive the $5 Amazon gift card, you must meet all of the above criteria as well as complete the survey." As well as under the "Payment" section that now reads, "Students who meet the above eligibility criteria and complete the survey will receive a $5 Amazon gift card. To protect your anonymity, you do not need to enter your e-mail or contact information. When you complete the survey, you will be given the e-mail address of the researcher, Bo Bennett, to send the request to, and he will send you the $5 Amazon gift card electronically, within 24 hours of your request." The "thank you" page of the survey was modified. The text added was "*** To receive your $5 Amazon gift card, send an e-mail to xxxx@xxxxxxx.com with the subject 'survey completed: code BHS978' This way, your survey response remains anonymous. ***" The code is designed to look unique for the respondent, to deter respondents requesting multiple gift cards or passing along the e-mail to their friends. The survey's limitation of one response per IP address also deters fraudulent submissions.

Post-Collection Processing of Survey Data

I followed the procedures outlined by Groves et al. (2009) as a guideline for the post-collection processing of the survey data. The survey form was designed to restrict the choices using a multiple choice format, with the exception of one question (the number of years the student has been an undergraduate) that was checked for range consistency. Although all the responses were within an acceptable range, a handful of respondents spelled out the number of years (e.g., two), entered their graduation year (e.g., 2017), which were translated into numeric values. Four of the responses did not round to the nearest year (e.g., they entered .5) so these values were rounded up to the nearest whole number.

Consistency checks were done on the data using the responses to the TSIS. Ten of the 21 items on the scale were reverse scored (see Appendix D for reverse scored items), so a heuristic was employed that found any responses with all the same high or low value (7, 6, 1, or 2) highly suggestive of invalid data. Based on this heuristic, six responses were removed. The 10 reverse scored items in the survey were then transformed.

The TSIS comprises three subscales: social information processing, social skills, and social awareness. In this analysis, I will look at social intelligence as a whole, but also look at the three subscales. To prepare the data, four new variables were created from the collected data. The first was the average value of all 21 TSIS responses (SI_mean), and the other three were the average responses of the seven questions in each subscale (SP_mean, SS_mean, and SA_mean).

Baseline Descriptive Statistics and Demographic Characteristics

In Table 7, the frequency and percentage of the categorical data are reported that describes the demographic characteristics of the sample. The sample includes a significantly higher percentage of females (67.9%) to males (32.1%). One of the independent variables, learning environment, has roughly an equal number of respondents in each group (50.5% traditional and 49.5% online) due to the ability Facebook provides to tailor the advertisement demographic to students at particular universities. The other independent variable, class rank, has much greater variance (27.2% freshman, 31.0% sophomore, 25.0% junior, 16.8% senior).

Table 7

Demographic Makeup of Respondents

	Frequency	Percent
Age of Respondent		
18	17	9.2
19	27	14.7
20	34	18.5
21	28	15.2
22	21	11.4
23	29	15.8
24	28	15.2
Gender of Respondent		
male	59	33.1
female	125	67.9
Parent's Total Income Before Taxes During the Past 12 Months		
Less than $25,000	54	29.5
$25,000 to $34,999	26	14.2
$35,000 to $49,999	19	10.4
$50,000 to $74,999	20	10.9
$75,000 to $99,999	9	4.9
$100,000 to $149,999	14	7.7
$150,000 or More	11	6.0
Don't Know	30	16.4

(table continues)

	Frequency	Percent
Parents' Highest Level of Education		
Some High School	16	8.7
Completed High School	65	35.3
Associate Degree	35	19.0
Bachelor's Degree	36	19.6
Master's Degree	23	12.5
PhD	3	1.6
Don't Know	6	3.3
Learning Environment		
Traditional	93	50.5
Online	91	49.5
Class Rank		
Freshman	50	27.2
Sophomore	57	31.0
Junior	46	25.0
Senior	31	16.8
Years Spent as Undergraduate		
0	2	1.1
1	57	31.0
2	53	28.8
3	42	22.8
4	20	10.9
5	7	3.8
6	3	1.6

According to the United States Census Bureau, the median household income for 2009-2013 was $53,046 ("USA QuickFacts from the US Census Bureau," n.d.). The survey used in this study asked specifically for the student's parents' income, which doesn't include other family members. The sample's median is around $35,000 which, given the exclusion of non-parental family members, could be close to being representative of the population. The respondents were asked about their parents' highest educational achievement.

To compare this to national averages, I looked at historic data provided by the U.S. Census Bureau for the year 1980, which was an estimate of when the respondent's parents would have completed their schooling. In 1980, roughly 60% over the age of 25 have completed high school, and roughly 15% have complete a bachelor's degree or higher (Ryan & Siebens, 2012). In the sample, 33.5% of the respondents reported that their parents' earned a bachelor's degree or higher. From this, the respondent's parents' appear to be significantly more educated than the general population, however, this is expected given that children of parents who attended college are more likely to attend college (Brownstein, 2014). Table 8 shows the means and standard deviations of the interval demographic data.

There were some demographic differences between the traditional and online groups. A larger percentage of females were found in the online learning environment (76.1%) compared to the traditional learning environment (60.2%). Students in the traditional learning environment reported having wealthier parents, with 60% reporting their parents'htotal income before taxes being $50,000 or more compared to only 31.5%

of the students in the online learning environment reporting their parents'ototal income before taxes being $50,000 or more. As for the students'oparents'ahighest level of education, 63.4% of the students in the traditional learning environment reported having college educated parents whereas only 41.3% of online students reported having college educated parents.

Table 8

Means and Standard Deviations

	N	Min	Max	Mean	Std. Deviation
Age of Respondent	184	18	24	21.13	1.92
Years as Undergraduate	184	0	6	2.29	1.24

Study Results: Social Intelligence as a Single Construct

I applied Z tests for normality using skewness and kurtosis. According to Kim (2013), for medium-sized samples ($50 < n < 300$), any absolute z-values over 3.29, which corresponds with an alpha level 0.05, would indicate that the distribution of the sample is non-normal. The variable containing the mean scores for the complete social intelligence score (SI_mean) showed a skewness of -.139 (absolute z value of .78) and kurtosis of .552 (absolute z value of 1.55), indicating a normal distribution and a flat to intermediate kurtosis and z scores within acceptable limits. The skewness for learning environment was .011 (absolute z value of .05) and a kurtosis of -2.022 (absolute z value of 3.17). The

skewness for class rank was .236 (absolute *z* value of 1.31) and a kurtosis of -1.143

(absolute *z* value of 3.20). The *z* scores for both independent variables are within

acceptable limits.

I ran descriptive statistics on the variable containing the mean scores for the complete

social intelligence score (SI_mean). A visual inspection of the boxplot indicated three

outliers. The survey responses of the respondents with the outlier scores were checked for

signs of invalid data. Two of the outliers were slightly outside of the 1.5 standard

deviation on both the positive and negative side, and one was far outside on the negative

side. The far outside outlier (traditional learning environment, freshman) was removed

from the data.

Statistical Assumptions

The dependent variable (social intelligence) is measured at the continuous level. It is the

mean of the 21 questions all answered on a 7-point Likert scale, with values ranging from

1 to 7, representing the strength of the respondent's agreement to each question. The two

independent variables (learning environment and class rank) each consist of two or more

categorical, independent groups. This survey was conducted with independence of

observations. There were four outliers in the data, as assessed by inspection of a boxplot

for values greater than 1.5 box-lengths from the edge of the box. Upon examination of

the responses containing the outliers, the outliers were consistent with the respondent's

other responses, so the was data kept. The outliers should not materially affect the results.

Normality was tested using the Shapiro-Wilk test and was not violated in any of the

conditions. There was homogeneity of variances, as assessed by Levene's Test of Homogeneity of Variance ($p = .930$).

Research Questions and Hypotheses

In the first test, I looked at social intelligence as a single construct established by including all 21 items on the TSIS (see Figure 3). The difference in mean levels of social intelligence between traditional and online students is greatest in their senior year, with online students ($M = 5.19$, $SD = .67$) rating higher than traditional students ($M = 4.90$, $SD = .67$; see Table 9). This gap is not as pronounced in the other years. As expected, there is a general trend of increasing social intelligence in both learning environments with higher class rank (see Figure 4), with the exception of traditional student's senior year where there is a slight decrease in mean social intelligence (see Chapter 5 for a possible explanation for this finding). The mean level of social intelligence for online students is slightly higher than for traditional students (see Figure 5).

I used a two-way ANOVA to measure the main effect of each independent variable (class rank and learning environment) and the interaction between the two independent variables on the dependent variable (social intelligence). It was hypothesized that there is a significant difference in the mean level of social intelligence between distance and traditional undergraduates (H_1). This hypothesis was not supported by the results. There was no statistically significant difference in the mean level of social intelligence between distance and traditional undergraduates, $F(1, 185) = 1.44$, $p = .231$, partial $\eta2 = .008$. The second hypothesis that there is a significant difference in the mean level of social intelligence among undergraduate college students based on college rank was supported.

There was a statistically significant difference in the mean level of social intelligence among undergraduate college students based on college rank, $F(3, 185) = 3.91, p < .05$, partial η2 = .063. The Tukey post hoc test indicated that a significant difference in class rank is found only between the freshman ($M = 4.59, SD = .65$) and junior ($M = 4.99 SD = .73$) class ranks and represents a medium effect size ($d = .58$; see Table 10).

The third hypothesis that the difference between learning environments in social intelligence is significantly different across levels of class rank was not supported. There was no statistically significant difference between learning environments in social intelligence across levels of class rank, $F(3, 185) = .30, p = .829$, partial η2 = .005.

Table 9

Mean Level of Social Intelligence by Learning Environment and Class Rank

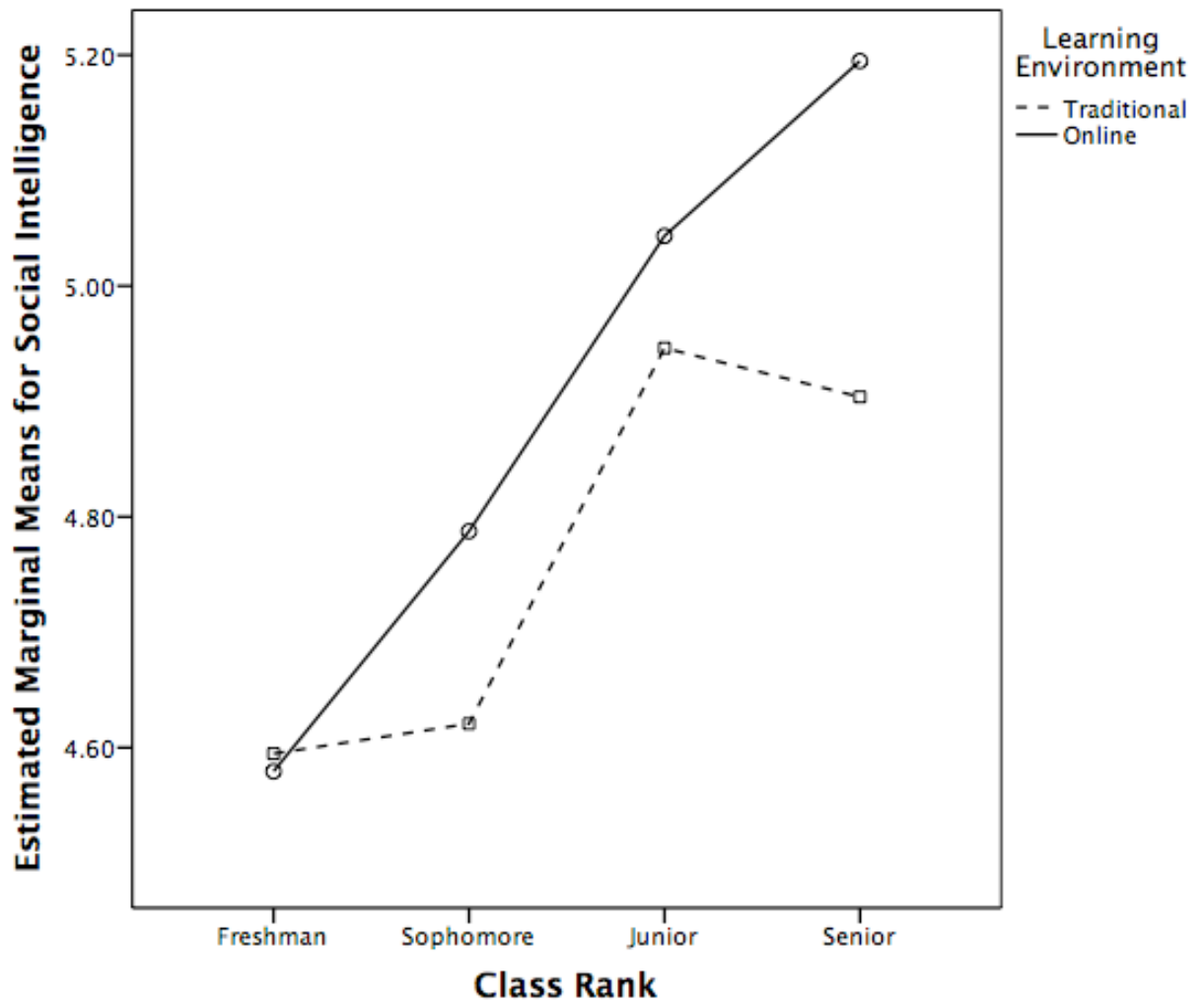|		Freshman	Sophomore	Junior	Senior	Overall
Traditional	Mean	4.59	4.62	4.95	4.90	4.77
	Std Dev	.61	.73	.70	.67	.68
Online	Mean	4.58	4.79	5.04	5.19	4.90
	Std Dev	.68	.84	.78	.74	.76

Figure 3. Mean level of social intelligence by learning environment and class rank
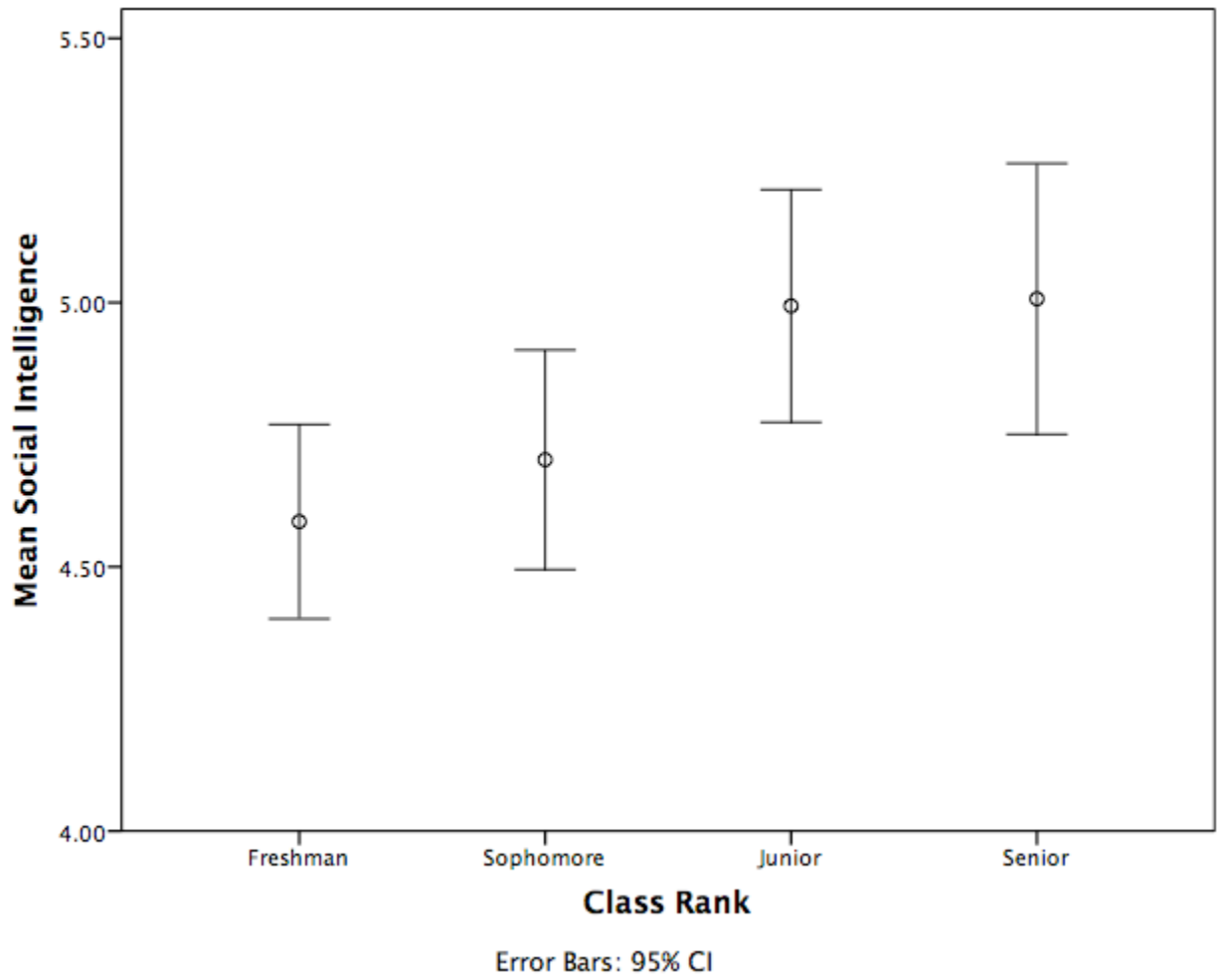
Figure 4. Mean level of social intelligence by class rank, with standard error bars
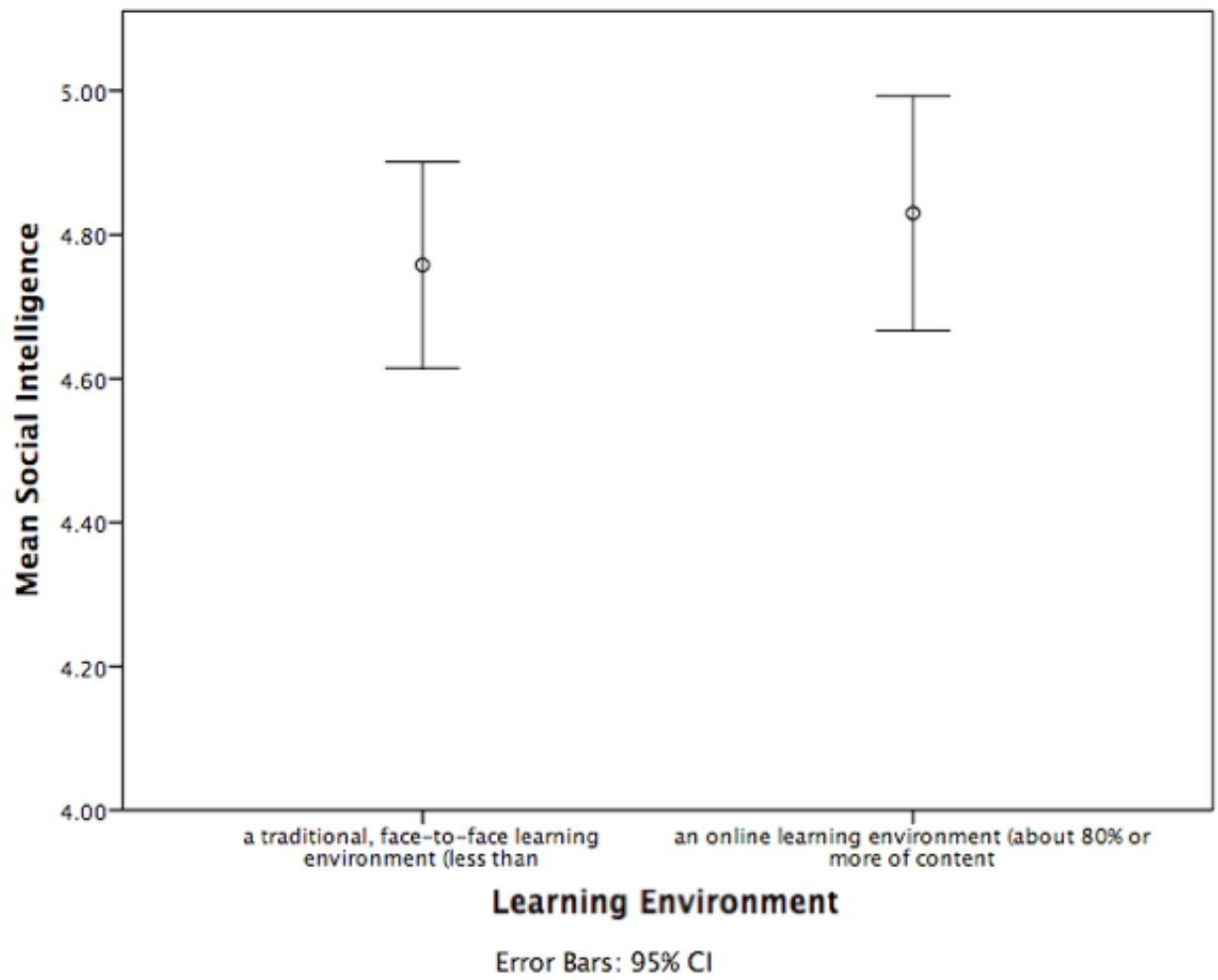
Figure 5. Mean level of social intelligence by learning environment, with standard error bars

Table 10

Comparisons of Mean Differences of Social Intelligence by Class Rank

Comparison	Mean Difference	SE	N	95% CI	Cohen's d
Freshman vs. Sophomore	0.09	0.05	50, 57	-.05, .23	0.15
Freshman vs. Junior	0.11*	0.06	50, 45	-.03, .26	0.58
Freshman vs. Senior	0.11	0.06	50, 31	-.06, .27	0.63
Sophomore vs. Junior	0.02	0.05	57, 45	-.12, .16	0.38
Sophomore vs. Senior	0.01	0.06	57, 31	-.14, .17	0.41
Junior vs. Senior	-0.01	0.06	45, 31	-.18, .16	0.03

Note: * p < .05

Study Results: Social Information Processing

For the second test, I ran descriptive statistics on the variable containing the mean scores

for the social information processing factor (SP_mean; see Appendix C), which showed a

skewness of -.128 (absolute z value of .71) and kurtosis of -.353 (absolute z value of .99),

indicating a normal distribution and an intermediate kurtosis. A visual inspection of the

boxplot indicated no outliers.

Statistical Assumptions

In testing the outlier and normality assumption for the two-way ANOVA, I found four

outliers, as assessed by inspection of a boxplot for values greater than 1.5 box-lengths

from the edge of the box, and the Shapiro-Wilk test showed that normality was violated

in the traditional learning environment/junior condition ($p < .05$). Upon examination of

the responses containing the outliers, the outliers were consistent with the respondent's

other responses, so the data was kept. The outliers should not materially affect the results.

A visual inspection of the histogram suggested that the normality violation would not

significantly impact the results. There was homogeneity of variances, as assessed by

Levene's Test of Homogeneity of Variance ($p = .429$). A two-way ANOVA was then run

on the data.

Research Questions and Hypotheses

A pattern emerges of greater mean levels of social information processing with online

students than traditional students. However, the differences are non-significant and

relatively minor (see Figure 6). Social information processing increase for students in

both learning environments, while they are undergraduates, but decreases for traditional

students in their senior year (see Table 11).

There is a trend of increasing social information processing in with higher class rank (see

Figure 7), with the exception of a slight dip in the senior class rank. The mean level of

social information processing for online students is slightly higher than for traditional

students (see Figure 8).

Revisiting the research questions and replacing the social intelligence dependent variable

with the social information processing subscale, we do not yield any significant results.

There was no statistically significant difference in the mean level of social information

processing between distance and traditional undergraduates, $F(1, 183) = 1.72, p = .192$,

partial $\eta2 = .010$. There was no statistically significant difference in the mean level of

social information processing among undergraduate college students based on college

rank, $F(3, 183) = 2.08$, $p = .105$, partial $\eta^2 = .034$. There was no statistically significant difference between learning environments in social information processing across levels of class rank, $F(3, 183) = .36$, $p = .779$, partial $\eta^2 = .006$.

Table 11

Mean Level of Social Information Processing by Learning Environment and Class Rank

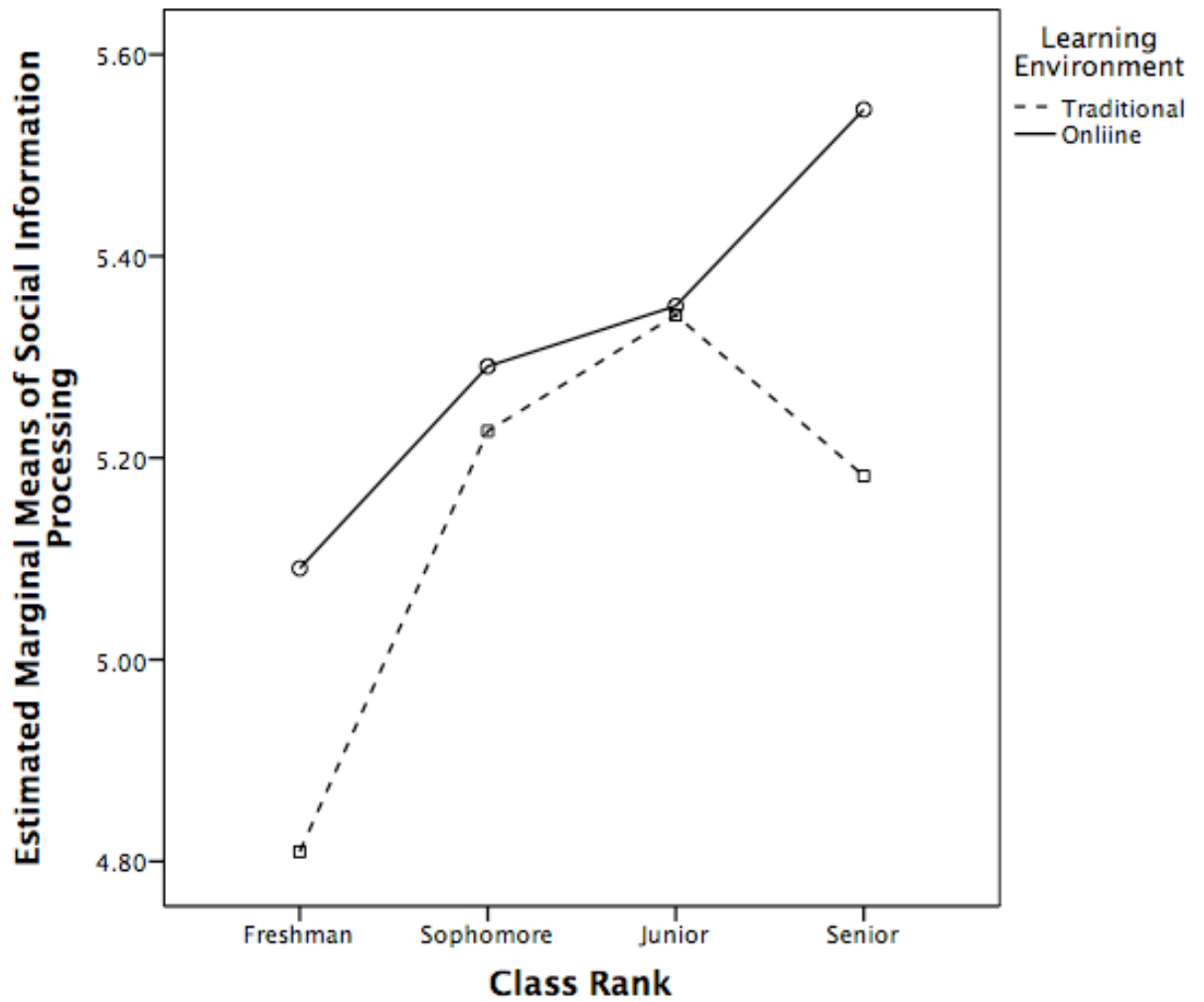|		Freshman	Sophomore	Junior	Senior	Overall
Traditional	Mean	4.81	5.23	5.34	5.18	5.14
	Std Dev	.59	.83	.83	.88	.78
Online	Mean	5.09	5.30	5.35	5.55	5.32
	Std Dev	.94	1.02	.98	.85	.95

Figure 6. Mean level of social information processing by learning environment and class rank
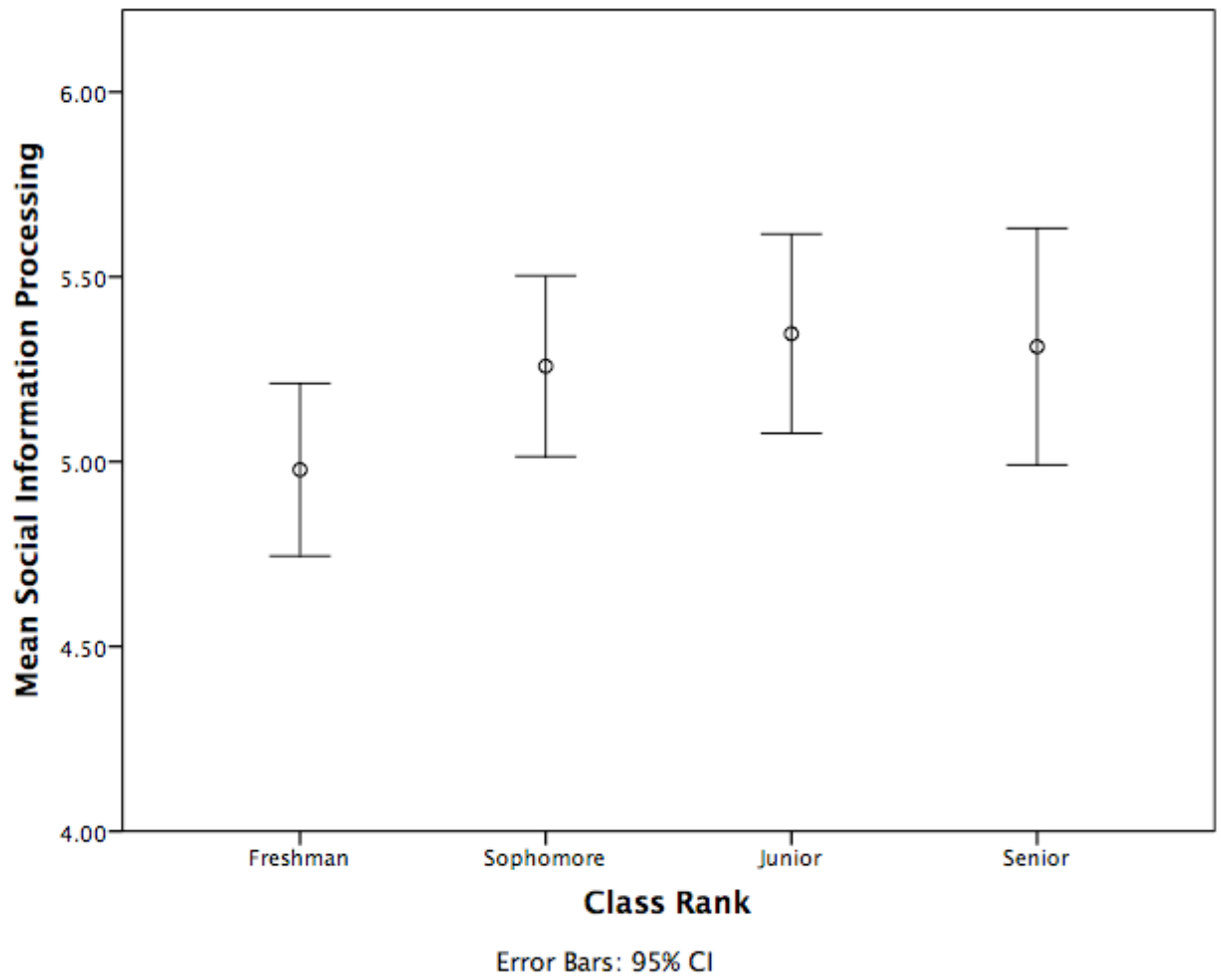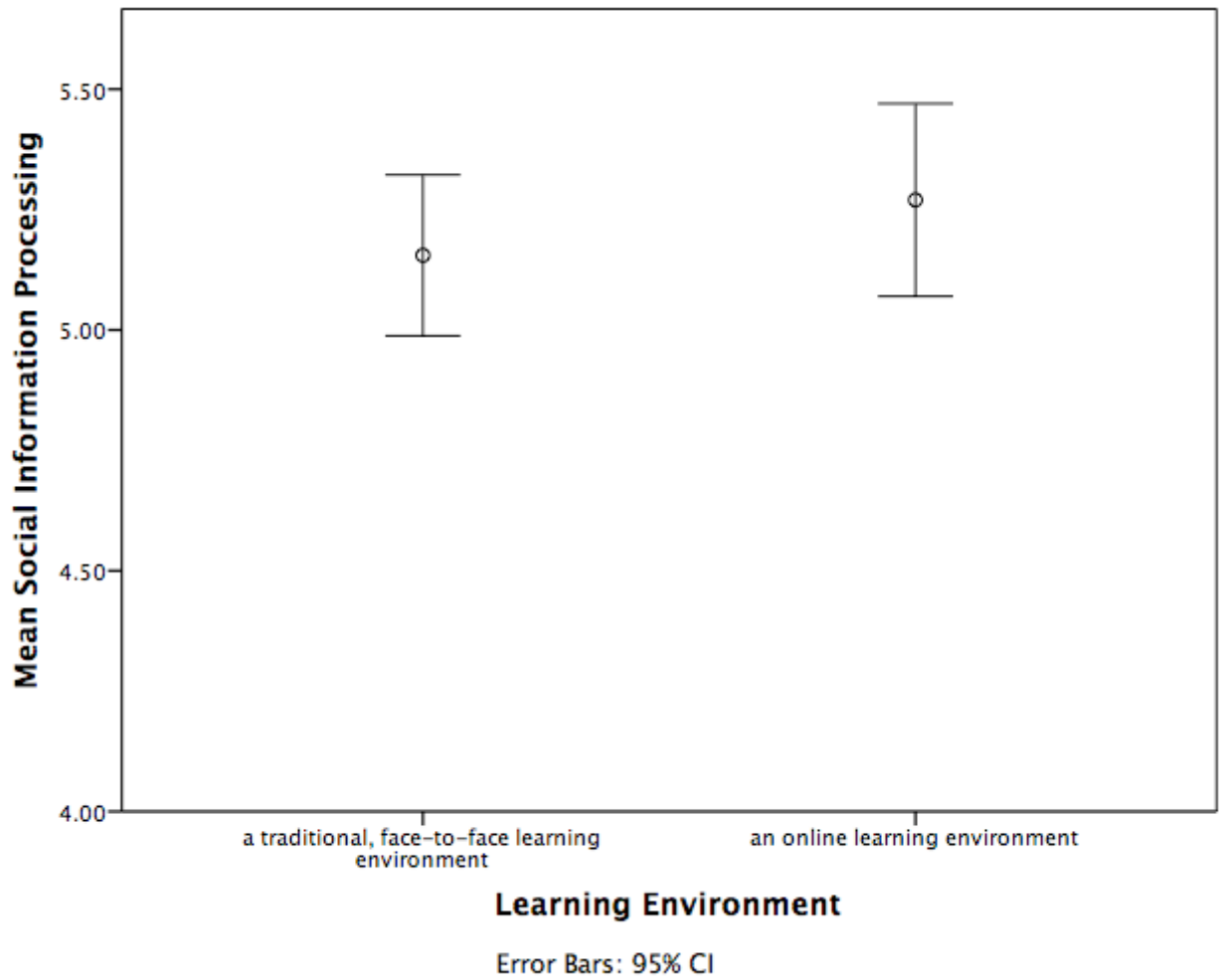
Figure 7. Mean level of social information processing by class rank, with standard error bars

Figure 8. Mean level of social information processing by learning environment, with standard error bars

Study Results: Social Skills

For the third test, I ran descriptive statistics on the variable containing the mean scores

for the social skills factor (SS_mean; see Appendix C), which showed a skewness of .016

(absolute *z* value of .09) and kurtosis of -.460 (absolute *z* value of 1.29), indicating a

normal distribution and an intermediate kurtosis. A visual inspection of the boxplot

indicated no outliers.

Statistical Assumptions

In testing the outlier and normality assumption for the two-way ANOVA, I found eleven

outliers, as assessed by inspection of a boxplot for values greater than 1.5 box-lengths

from the edge of the box, and the Shapiro-Wilk test showed that normality was not

violated. Upon examination of the responses containing the outliers, the outliers were

consistent with the respondent's other responses, so the data was kept. The outliers

should not materially affect the results. There was homogeneity of variances, as assessed

by Levene's Test of Homogeneity of Variance (*p* = .797). A two-way ANOVA was then

run on the data.

Research Questions and Hypotheses

The results for this test closely resemble the results of the first test, where social

intelligence as a complete construct was used (compare Figures 3 and 9). The difference

in mean levels of social skills between traditional and online students is greatest in their

sophomore year, with online students (*M* = 4.56, *SD* = 1.15) rating higher than traditional

students (*M* = 4.31, *SD* = 1.14; see Table 12). This gap is not as pronounced in the other

years. As expected, there is a general trend of increasing social skills in both learning

environments with higher class rank (see Figure 10), with the exception of both

traditional and online student's senior year where there is a slight decrease in mean social

skills. The mean level of social skills for online students is slightly higher for online

students than traditional students (see Figure 11).

Revisiting the research questions and replacing the social intelligence dependent variable

with the social skills subscale, we get the same significant result as in our first test with

the class rank main effect. There was no statistically significant difference in the mean

level of social skills between distance and traditional undergraduates, $F(1, 183) = .25, p =$

.615, partial $\eta2 = .941$. There was a statistically significant difference in the mean level

of social skills among undergraduate college students based on college rank, $F(3, 183) =$

$3.60, p < .05$, partial $\eta2 = .058$. The Turkey post hoc test indicated that a significant

difference in class rank is found only between the freshman ($M = 4.21, SD = 1.09$) and

junior ($M = 4.92, SD = 1.06$) class ranks and represents a medium to large effect size ($d =$

.65; see Table 13). There was no statistically significant difference between learning

environments in social skills across levels of class rank, $F(3, 183) = .14, p = .935$, partial

$\eta2 = .002$.

Table 12

Mean Level of Social Information Processing by Learning Environment and Class Rank

		Freshman	Sophomore	Junior	Senior	Overall
Traditional	Mean	4.19	4.31	4.93	4.71	4.54
	Std Dev	1.26	1.14	1.06	1.27	1.18
Online	Mean	4.22	4.56	4.91	4.79	4.62
	Std Dev	.98	1.15	1.09	.94	1.04

Table 13

Comparisons of Mean Differences of Social Skills by Class Rank

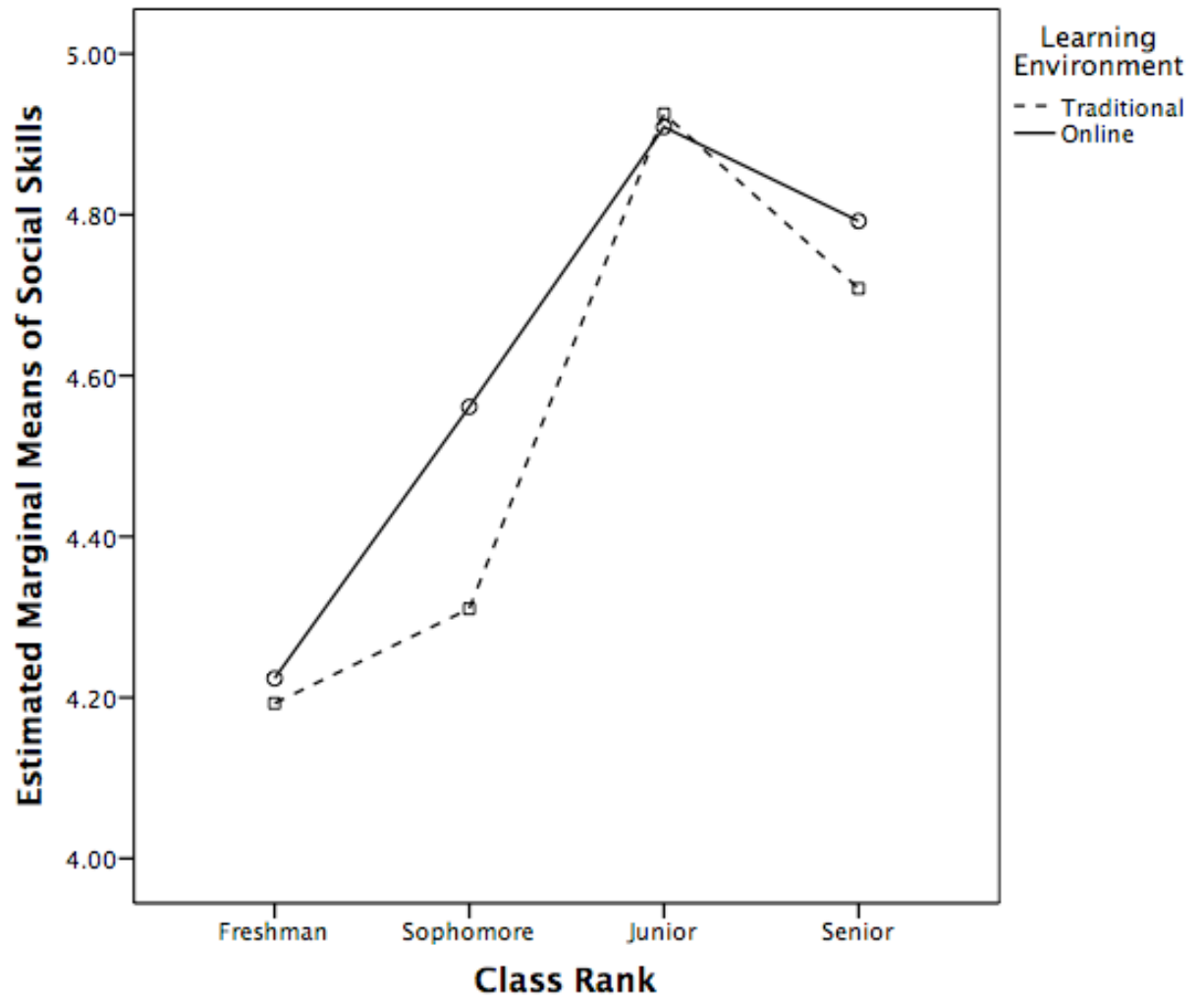| Comparison	Mean Difference	SE	N	95% CI	Cohen's d
Freshman vs. Sophomore	-0.22	0.22	50, 57	-.79, .34	0.20
Freshman vs. Junior	-0.71*	0.23	50, 45	-1.30, -.11	0.65
Freshman vs. Senior	-0.53	0.26	50, 31	-1.19, .14	0.48
Sophomore vs. Junior	-0.48	0.22	57, 45	-1.06, .10	0.43
Sophomore vs. Senior	-0.30	0.25	57, 31	-.95, .34	0.27
Junior vs. Senior	-0.18	0.26	45, 31	-.86, .50	0.16

Note: * $p < .05$

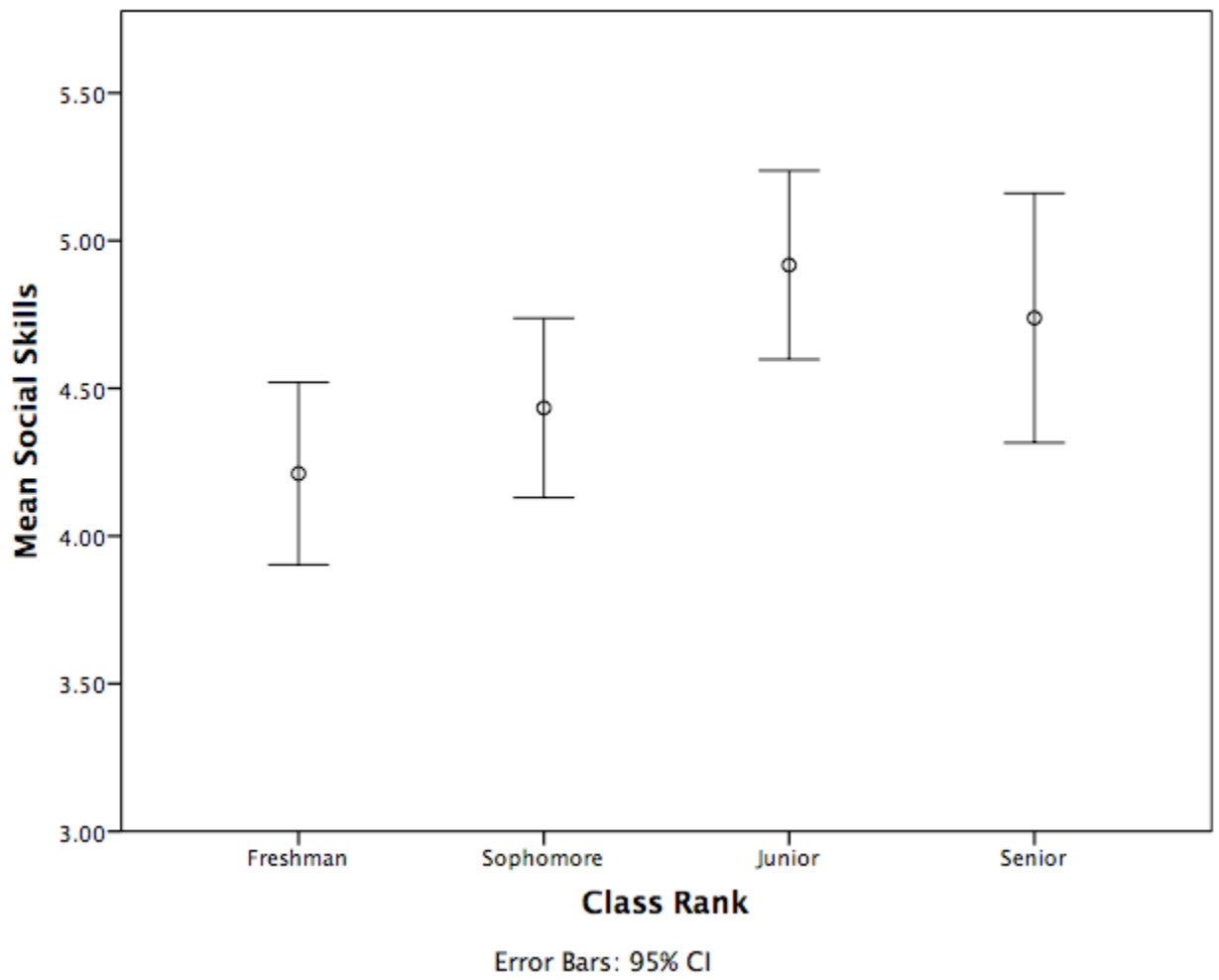*Figure 9.* Mean level of social skills by learning environment and class rank

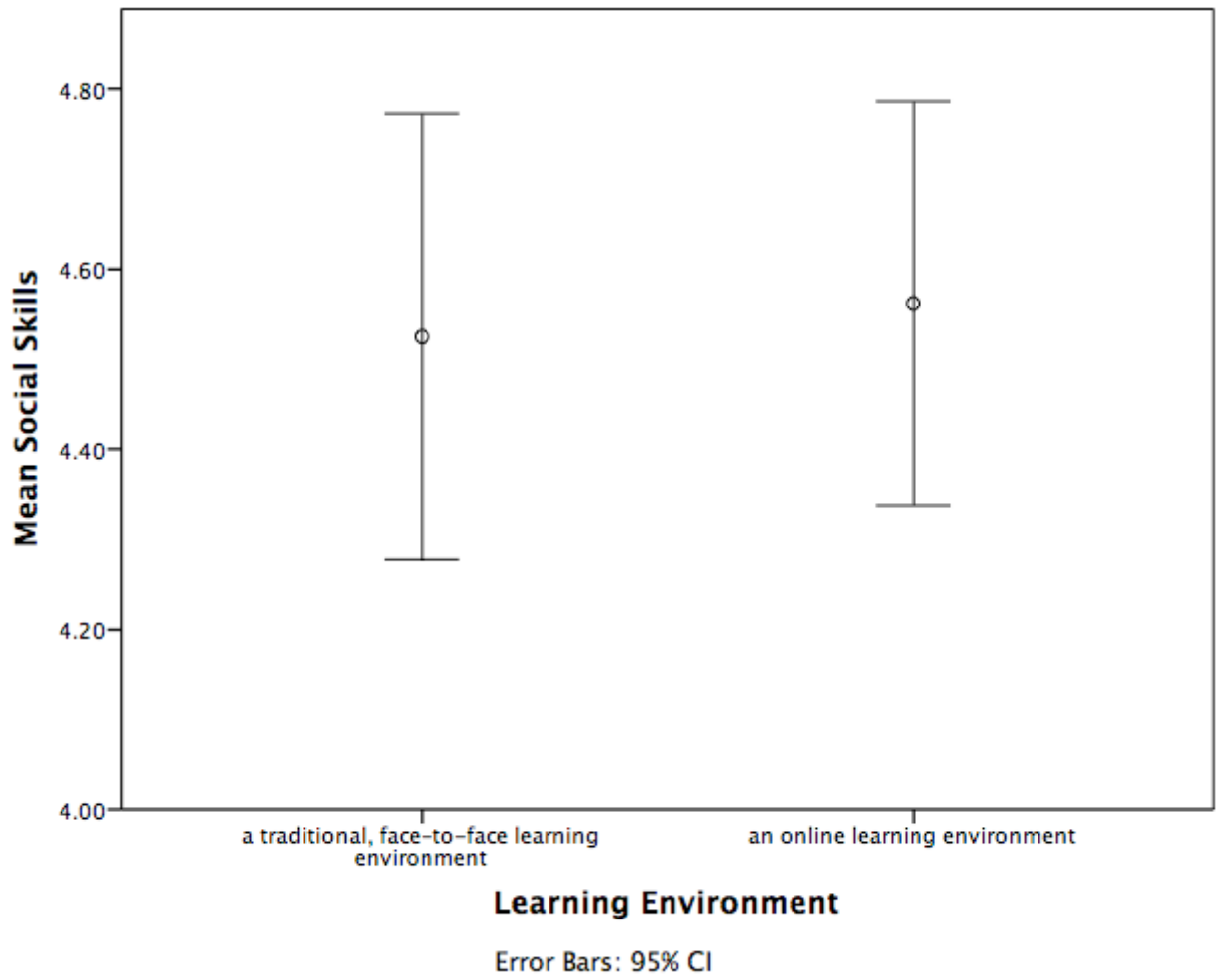*Figure 10.* Mean level of social skills by class rank, with standard error bars

Figure 11. Mean level of social skills by learning environment, with standard error bars

Study Results: Social Awareness

For the fourth test, I ran descriptive statistics on the variable containing the mean scores

for the social awareness factor (SA_mean; see Appendix C), which showed a skewness of

-.095 (absolute *z* value of .53) and kurtosis of -.169 (absolute *z* value of .47), indicating a

normal distribution and an intermediate kurtosis. A visual inspection of the boxplot

indicated one outlier. Upon examination of the responses containing the outlier, the

outlier was consistent with the respondent's other responses, so the data was kept. The

outliers should not materially affect the results.

Statistical Assumptions

In testing the outlier and normality assumption for the two-way ANOVA, I found two

outliers, as assessed by inspection of a boxplot for values greater than 1.5 box-lengths

from the edge of the box, and the Shapiro-Wilk test showed that normality was not

violated. Upon examination of the responses containing the outliers, the outliers were

consistent with the respondent's other responses, so the data was kept. The outliers

should not materially affect the results. There was homogeneity of variances, as assessed

by Levene's Test of Homogeneity of Variance (*p* = .708). A two-way ANOVA was then

run on the data.

Research Questions and Hypotheses

The overall pattern is an increasing mean level of social awareness from freshman to

senior years (see Figure 12). In the freshman class rank, the mean level of social

awareness is greater for traditional students (*M* = 4.78, *SD* = .80) than for online students

(*M* = 4.42, *SD* = .85) but this is reversed in subsequent years (see Table 14). From

sophomore to senior years, we see the mean level of social awareness increasing at a consistent rate in both learning environments. The overall mean level of social awareness has a general upward trend, with a dip at the sophomore class rank (see Figure 13). The overall mean level of social awareness is slightly greater for online students (see Figure 14).

Revisiting the research questions and replacing the social intelligence dependent variable with the social awareness subscale, we get the same significant result as in our first test with the class rank main effect. There was no statistically significant difference in the mean level of social awareness between distance and traditional undergraduates, $F(1, 183) = .78, p = .311$, partial $\eta2 = .006$. There was a statistically significant difference in the mean level of social awareness among undergraduate college students based on college rank, $F(3, 183) = 2.56, p < .05$, partial $\eta2 = .055$. The Turkey post hoc test indicated that a significant difference in class rank is found only between the sophomore ($M = 4.43, SD = 1.14$) and senior ($M = 4.74, SD = 1.15$) class ranks and represents a small effect size ($d = .27$; see Table 15). There was no statistically significant difference between learning environments in social awareness across levels of class rank, $F(3, 183) = 1.65, p = .179$, partial $\eta2 = .028$.

Table 14

Mean Level of Social Awareness by Learning Environment and Class Rank

		Freshman	Sophomore	Junior	Senior	Overall
Traditional	Mean	4.78	4.33	4.57	4.83	4.63
	Std Dev	.80	.80	.79	.98	.84
Online	Mean	4.42	4.51	4.87	5.25	4.76
	Std Dev	.85	.97	.79	1.06	.92

Table 15

Comparisons of Mean Differences of Social Awareness by Class Rank

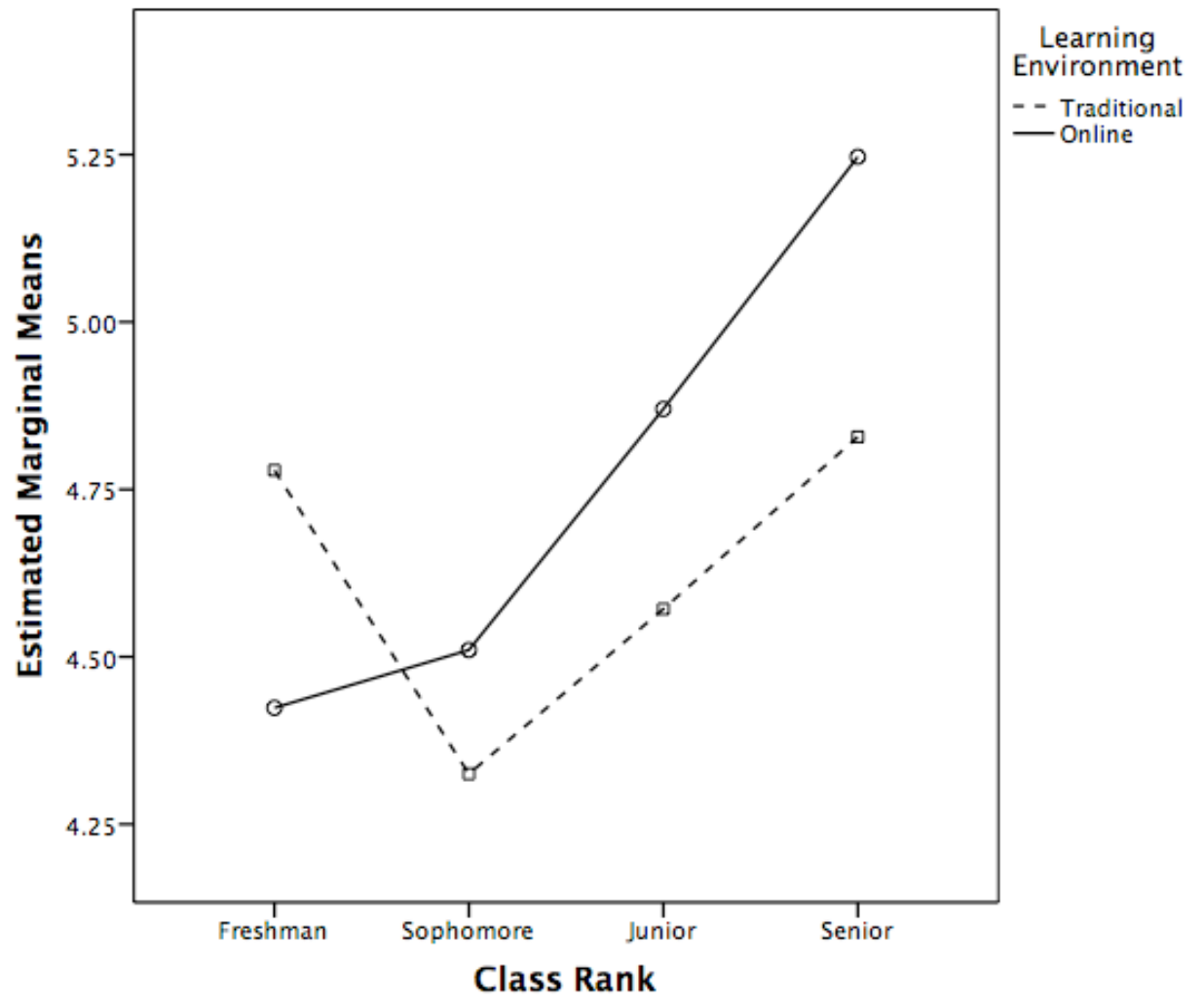| Comparison	Mean Difference	SE	N	95% CI	Cohen's d
Freshman vs. Sophomore	0.15	0.17	50, 57	-.29, .59	0.20
Freshman vs. Junior	-0.15	0.18	50, 45	-.62, .31	0.66
Freshman vs. Senior	-0.41	0.20	50, 31	-.93, .10	0.48
Sophomore vs. Junior	-0.30	0.17	57, 45	-.75, .15	0.44
Sophomore vs. Senior	-0.56*	0.19	57, 31	-1.06, -.06	0.27
Junior vs. Senior	-0.26	0.20	45, 31	-.78, .27	0.16

Note: * p < .05

Figure 12. Mean level of social awareness by learning environment and class rank
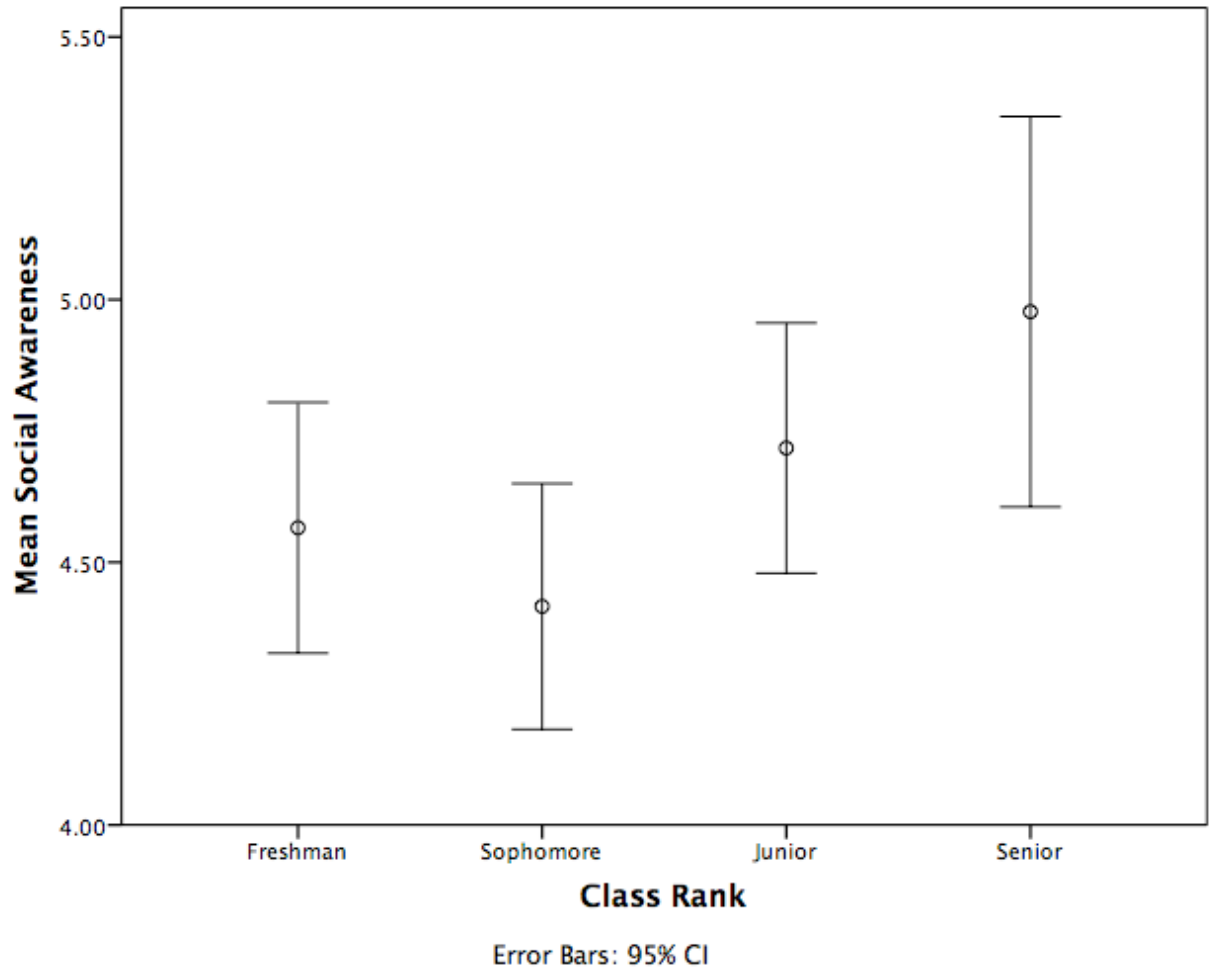
Figure 13. Mean level of social awareness by class rank, with standard error bars
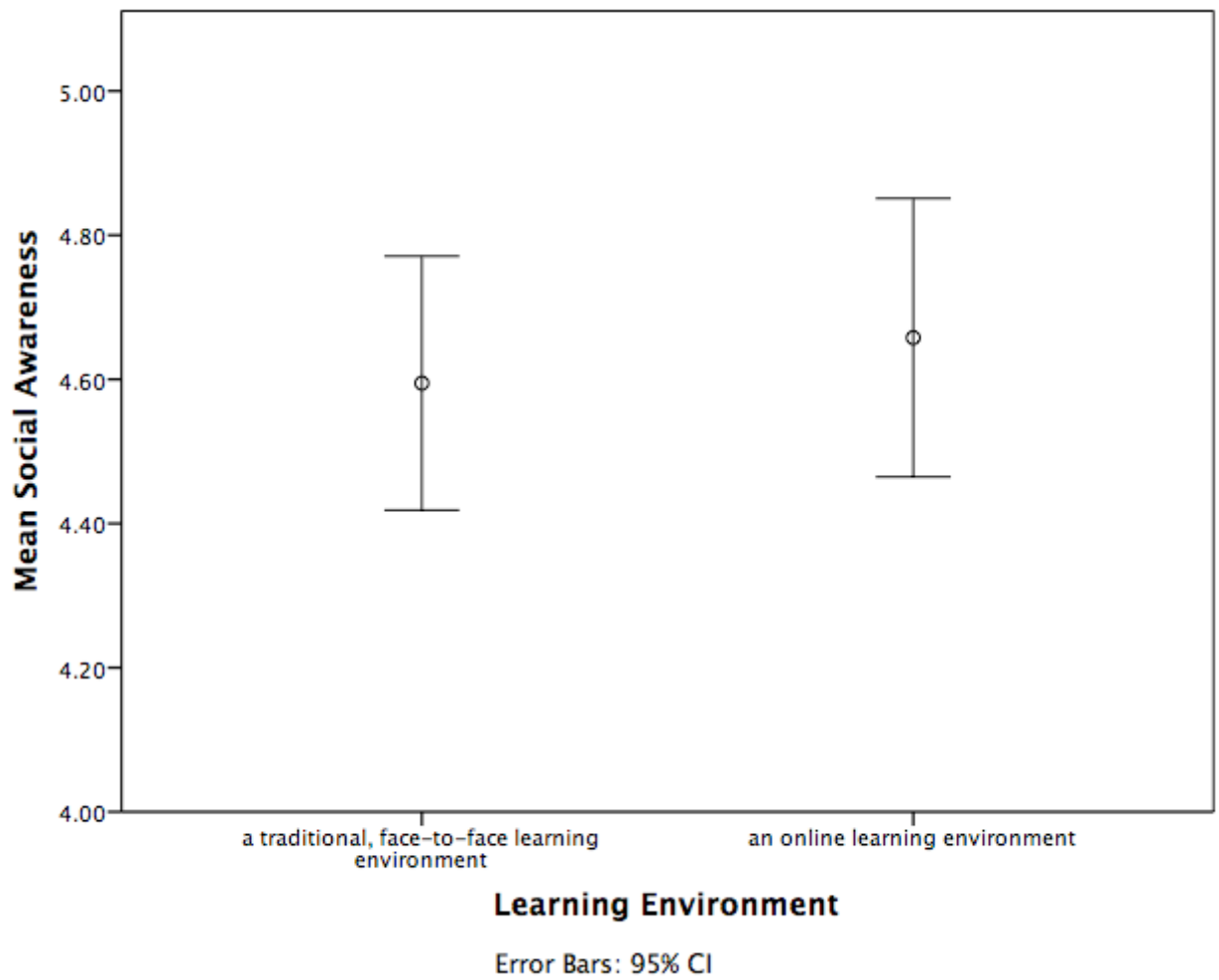
Figure 14. Mean level of social awareness by learning environment, with standard error bars

Summary

In this study, I hypothesized that some significant differences would be found in social intelligence between traditional students and online students, but in an exhaustive analysis of the data, the only significant differences that materialized were mean levels of social intelligence between class ranks. There was no significant difference in the mean level of social intelligence or any of the three factors of social intelligence, between distance and traditional undergraduates, and no significant interaction effects were found. In the final chapter, I will discuss how these findings are important to educators and the community as a whole, discuss limitations of the study, offer some recommendation, and discuss the potential social impact of this research.

Chapter 5: Discussion, Conclusion, and Recommendations

The purpose of this study was to empirically test the idea that learning environment can affect one's social intelligence. I explored this question by comparing social intelligence of distance undergraduates with social intelligence of traditional undergraduates at different class ranks while limiting the age of the participants. No researchers have previously looked at the possible effects of distance or online learning environment versus traditional learning environment on one's social intelligence development, which I did explore in this study.

I conducted Four analyses using 2 x 4, two-way ANOVAs. The first test measured the main effect of class rank and learning environment, as well as the interaction between the two on social intelligence. Social intelligence was measured using the full 21 questions on the TSIS (see Appendix D). For this test, there were no significant differences found in the mean level of social intelligence between distance and traditional undergraduates, nor were any significant differences found between learning environments in social intelligence across levels of class rank. However, a significant difference ($p < .05$) in the mean level of social intelligence among undergraduate college students based on college rank was found.

In addition to the main construct of social intelligence, in this study, I analyzed each of the subscales of the TSIS: social information processing (test 2), social skills (test 3), and social awareness (test 4). These tests also measured the main effect of class rank and learning environment, as well as the interaction between the two on the respective subscale of social intelligence. In all three tests, there were no significant differences

found in social information processing, social skills, or social awareness between distance and traditional undergraduates, nor were any significant differences found between learning environments in social information processing, social skills, or social awareness across levels of class rank. However, significant differences ($p < .05$) in social skills and social awareness were found among undergraduate college students based on college rank (see Table 16).

Table 16

Significant Differences Found

	Social Intelligence	Social Information Processing	Social Skills	Social Awareness
Main Effect for Learning Environment	no	no	no	no
Main Effect for Class Rank	yes	no	yes	yes
Interaction Effect	no	no	no	no

Interpretation of the Findings

There are several observations that can be made, and conclusions can be drawn based on the results of this study. First, the mean levels of social intelligence do not differ significantly for online and traditional learning environment students at any class rank. If the learning environment did have a significant effect on the student's social intelligence, we would expect to see a divergence in mean social intelligence that becomes more

pronounced in higher class ranks (see Figure 2 as a hypothetical illustration), but the data do not support that. This could be due to the fact that modern online learning environments are just as conducive to social intelligence development as traditional learning environments. However, due to the limitations of the methodology used for this study, causality cannot be assumed. Another possibility is that the nonacademic environments of full-time online undergraduates play a significant role in the student's social intelligence development and compensate for any differences in learning environment. As far as students beginning their time as an undergraduate with significantly different mean levels of social intelligence, this was not seen in this study. In fact, the mean social intelligence for freshmen in the online learning environment ($M = $ 4.58, $SD = .68$) and the freshmen in the traditional learning environment ($M = 4.59$, $SD = $ .61) were practically identical.

Mean social intelligence was significantly higher between class ranks, specifically between the freshman and junior class ranks. The dip in mean social intelligence in the senior/traditional learning environment group is most likely due to the small sample size in that group ($n = 11$). Given a larger sample, I would expect that seniors would follow the general pattern of increased social intelligence. Hunt (1928) wrote that social intelligence "seems to increase somewhat regularly from early childhood until about age seventeen or eighteen; after which age makes very little difference" (p. 328). The results of this study indicate that social intelligence continues to develop throughout young adolescence.

Comparison to Previously Published Studies

According to Allen and Seaman (2013), 77% of academic leaders rated the learning

outcomes in distance environments as the same or superior to traditional learning

environments with face-to-face education. The question that I asked was alluding to

general learning outcomes and did not specify social intelligence or any kind of

intelligence for that matter. The findings of this study could reasonably be seen to

contribute to the confidence those skeptical about distance learning environments might

have, given the documented skepticism of many about online environments being able to

facilitate social development (Glader, 2009; Khalid, 2013; Sivin-Kachala & Bialo, 2009).

Several researchers have looked at the effectiveness of distance education versus

traditional face-to-face education (e.g., DiRienzo & Lilly, 2014; Dutton et al., 2001;

Hayward & Pjesky, 2012; Lemonde, 2013; Lundberg et al., 2008; Macon, 2011;

Mgutshini, 2013; Myers, 2002). There is insufficient support for the claim that either

group performs[9] consistently better than the other. The findings of this study suggest that

neither learning environment contributes more to the other in social intelligence

development, which would extend the understanding of performance to include social

intelligence, and be consistent with the overall findings regarding performance.

Khalid (2013) posited that the inter-personal and communication skills of students may

not develop or may not be at par in a distance environment when compared to traditional

on-campus students due to not interacting with students, faculty, and colleges in person

and to the lack of instant nonverbal feedback. Research had not been done at the time of

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[9] These studies refer to performance in terms of measurable results having to do with academic tasks.

Khalid's writing to provide evidence either for or against this speculation. This study does provide evidence that refutes Khalid's speculation.

Along the same lines as Khalid, Small and Vorgan (2009) discussed their research on younger generations who spend much time online, and found that young tech savvy *digital natives* experience poor development of social skills, have poor direct communication skills, and have poor abilities to read nonverbal cues. As a correlational study, the authors made no claims that online use caused what could be interpreted as deficiencies in social intelligence. While these authors' research might appear to contradict the findings of this study, there are too many variables that make the aforementioned research more different from this study than similar. Most importantly, Small and Vorgan's sample comprising many more groups than undergraduates and including younger groups with lower levels of general education and fewer life experiences.

As I discussed in Chapter 2, there were studies where researchers either explored, mentioned, or questioned the possible effect distance education might have on one or more aspects of social intelligence. Sivin-Kachala and Bialo (2009) conducted a study in response to expressed concerns that social skill development in young children in grades 2, 4, and 6 enrolled in full-time distance public schools may suffer as a result of decreased face-to-face interaction. The researchers concluded that the distance students' skills were either not significantly higher or not significantly different from the national norms of traditional students. They contributed the strong social skills of the distance students in part to the high level of engagement of the students in outside activities. This

study's findings are in line with the findings of Sivin-Kachala and Bialo (2009), and their reasoning can be applied to the undergraduate group in this study.

Caplan's (2005) model hypothesizes that a social skill deficit (which can reasonably be understood as lower social intelligence) predisposes an individual to develop a preference for distance rather than face-to-face interaction. In all four of the tests in this study, the data indicated that social intelligence levels and each of its factors are roughly the same and even slightly higher for online students in their freshman year. Possible reasons for this will be discussed in the next section.

Theoretical Framework

This research was based on the theoretical foundation of Bandura's social learning theory (1977) and Goleman's theory of social intelligence (2006), which provide support for the hypothesis that a distance higher education learning environment is likely to have a different effect on social intelligence development. However, as this study's results indicate, no significant difference was found.

Guided by Bandura's social learning theory (1977), Hill et al. (2009) concluded that social learning can take place in web-based learning environments, given the right conditions. The conditions that I mentioned (see Chapter 2) are ones that newer web-based technologies have been able to facilitate, such as building a sense of community through the use of real-time interaction. Social learning theory focuses on modeling as the primary source of learning. Research has demonstrated that given the right conditions, modeling can take place online, which would be consistent with this study's findings that show social intelligence increasing as a somewhat equal rate at each class rank.

Goleman (2007) suggested that the Internet is not conducive to social intelligence development since the Internet lacks the kind of feedback the orbital frontal cortex needs to help us stay on track socially (p. 74). Goleman has further argued that distance communication was unable to contribute to the development of social intelligence based on the findings from neuroscience, and stated that face-to-face communication was necessary. In Chapter 2, research that challenges Goleman's assertions is presented in detail, including the study by Meyer and Jones (2012) who provided evidence for college students expressing social intelligence online. The findings of this study do not support Goleman's conclusions about distance communication being unable to contribute to social intelligence. The mean social intelligence levels for online students at each class rank were found to be consistently higher (although not statistically significant) than the traditional learning environment students. In Goleman's defense, the online environment was very different in 2007 than it is in 2015 in terms of the available technology, the level of interaction, as well as the popularity of social media.

Limitations

Given that I chose survey methodology for this study, a strong causal claim that either learning environment (traditional or online) is more or less conducive to social intelligence development could not be made without a true experiment. However, given the lack of associations found in this study between learning environment and class rank, this can be seen as evidence in support of the claim that neither learning environment has a significant effect on social intelligence development.

I collected the data for this study using an online survey (a self-report measure), which is subject to responder bias. In reality, the survey was not measuring the respondent's true social intelligence, but their perception of their own social intelligence. While the survey was designed to mitigate biases through priming the respondents with honesty and being deliberately ambiguous about the nature of the survey, it is likely that some responses were affected by bias. Future studies can use other types of research methodology where this inherent bias might be less of a problem.

While the measurement tool that I used in this study (TSIS) is arguably the most valid and reliable tool for measuring social intelligence in an English-speaking, American, undergraduate population, it is still an imperfect tool to measure the highly complex and multifaceted psychological construct referred to as *social intelligence*. This tool was created in 2001, and is not likely to incorporate items that detect what might be considered social intelligence for the online world. This idea is discussed more in the next section.

While the sample that I collected was sufficiently large, the ratio of males (33.1%) to female (67.9%) respondents differ significantly. The differences found between males and females in the area of social intelligence are ambiguous, less consistent among studies and researchers, however gender differences are a more commonly found in studies that examine specific aspects of social intelligence (Saxena & Jain, 2013). In this study, I looked at both social intelligence as a single construct, as well as the three subscales. While a more even ratio of gender would not likely affect the results of this study's first test, it would be more likely to influence the results of the other three tests.

The procedural change in the data collection added the element of compensation for respondents. While previous research suggests that the use of incentives in surveys have little effect on the quality of the survey responses (Singer and Ye, 2013), research is limited, and these effects are difficult to measure. In our data, we did find six responses that were clearly invalid (all the same answer) indicating these respondents just wanted the incentive and were not concerned with contributing to the research. It is possible that other respondents randomly selected items on the survey, however, the overall survey results show increasing social intelligence scores with class rank, which is what would be expected from valid data.

Recommendations

A more in-depth study exploring the possible effect of learning environment on social intelligence development might use a mixed-method, longitudinal study that would follow the same group of online and traditional learning environment students from the beginning of their freshman year until their graduation. They can be tested for mean level of social intelligence as several intervals throughout their time as undergraduates. Qualitative interviews and more detailed quantitative survey questions can be used to gather information on a subset of the students from each learning environment that might indicate areas outside of academia where social intelligence development is taking place. For example, do full-time online students work more hours? Do online students have more overall personal interactions if online interaction is considered? A study that explored these issues would contribute greatly to the literature in this area.

Although the TSIS is a decent tool for measuring social intelligence, a new instrument is needed that takes into consideration online social interactions. Communication in the online world is different in many ways, and each communication technology has its own set of unwritten rules. For example, the style of e-mail communication may vary greatly depending on the quantity of e-mail one might receive. Curt responses are not necessarily indicative of rudeness or indifference, but rather efficiency. Assuming rudeness or indifference where none exists would be the online equivalent of question number 30 on our survey, "I often understand what others really mean through their expressions, body language, etc." as well as have an effect on question number 31, "It seems as though people are often angry or irritated with me when I say what I think."

Another example of one of the many other subtleties that are unique to online communication that are likely not measured by neither the TSIS nor other social intelligence instruments is the use and detecting of sarcasm and irony in written messages, given that written messages make up the vast majority of two-way online communication. Many arguments are a result of either a poor or an inappropriate attempt at irony or a failure to detect it. This could result in damaged relationships and reputations. This would be the online equivalent to question number 14 on our survey, "I know how my actions will make others feel" or "I can predict how others will react to my behavior."

One more example is the failure to distinguish Internet scams from legitimate ads or propositions. While very few people might no longer fall for the prince of Nigeria who wants to give them $20 million (all for just a small good faith deposit of $10,000), there

are many other scams that use a form of social engineering to exploit their victims. There are currently no items on the TSIS that might accurately reflect one's level of social intelligence needed to navigate this shady online environment of social manipulation. The creation and validation of such a tool would be a major step in the evolution of social intelligence research.

Implications

There appears to be some hesitancy among academics, leaders in education, and the general public to adopt and fully support online education, at least partly due to the possible negative effect on social intelligence development (Allen & Seaman, 2013; Glader 2009). In this study, I looked for evidence to support those concerns, but did not find any. It is my hope that the results of this study can be shared with educators, distance course designers, parents, and students who may be concerned with the social development of students in an online environment.

Educators

Educators should use the information in this study along with the body of research mentioned in Chapter 2 to inform the public about the lack of evidence in support of online education hindering social intelligence development. At this time, there is not enough evidence to support that claim that a distance learning environment has no impact on social intelligence development, but this is more of a methodological issue that prevents one from legitimately making such a claim. A legitimate claim is that there is no empirical evidence that suggests a traditional learning environment is more conducive to social intelligence development than an online one, and there is now empirical evidence

that does suggest there is no difference between the two environments when it comes to fostering social intelligence development.

Distance Course Designers

It is imperative to keep social intelligence development in mind when designing online courses. The strategies for fostering social intelligence development overlap with those in facilitating learning, such as student/instructor and student/peer interaction.

Parents and Students

When looking for an online university, parents and students should consider the course structure and the available opportunities to interact with the instructors and peers. Are instructors actively involved in the courses? Is there regular discussion about the topics presented in the course? Is discussion mandated or at least strongly encouraged? Can students contact each other outside of the learning environment? Also, parents and students should not neglect face-to-face interaction. It has been suggested that one of the reasons online students score so highly in social intelligence has to do with their non-academic activities. Until enough research is done to establish causally that online learning environments do foster social intelligence development, it is best not to neglect the face-to-face interactions that are presently known to foster social intelligence.

Conclusions

While the number of students taking at least one distance course has risen to a record 7.1 million, or 33.5% of all higher education students (Allen & Seaman, 2013), many academics, policy makers, and laypeople remain concerned that distance education can adversely affect one's social development. The purpose of this quantitative study was to

empirically test the idea that distance education can adversely affect one's social development. Surveys measuring social intelligence were completed by 190 full-time undergraduates from both traditional and online learning environments. The results were calculated using multiple two-way ANOVAs and there was no significant difference in social intelligence when factoring in both learning environment and class rank, suggesting the fear that distance education can adversely affect one's social development has no empirical basis.

The results of this study can provide meaningful insights to course architects, educators, parents, and students who all have an interest, even if just exploratory, in distance education and its social implications. Fears of the unknown can be diminished when repeated attempts to substantiate the fears fail. While this study was just one such attempt, it is my hope that other researchers will follow the recommendations made in the study and continue the research in this area that has, and will continue to, shape the way we learn.

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Appendix A: Consent Forms

CONSENT FORM (version 1)

You are invited to take part in a research study of social behavior among college students enrolled in 4-year, degree-granting programs. The researcher is inviting students (a) between the ages of 18–24 years, (b) with a permanent residence in the United States, (c) currently enrolled in a U.S. based, 4-year, degree-granting undergraduate program, and (d) who have not had one or more years of formal distance schooling or homeschooling as an alternative to a public or private high school. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Bo Bennett, who is doctoral student at Walden University.

Background Information:
The purpose of this study is to better understand the social behavior of college students.

Procedures:
If you agree to be in this study, you will be asked to complete a distance survey consisting of 23 closed-ended questions that should take no more than five minutes to complete.

Here are some sample questions (you would select answers from "Describes me extremely poorly" to "Describes me extremely well"):

- I find people predicable
- I frequently have problems finding good conversation topics
- People often surprise me with the things they do

Voluntary Nature of the Survey:
Participation in this survey is voluntary. If you decide to not complete the survey for any reason, you can simply close the survey window without submitting your answers.

Risks and Benefits of Being in the Study:
Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as thinking about your own social behaviors, assuming these kinds of thoughts make you uncomfortable. Being in this study would not pose risk to your safety or wellbeing.

Answering these questions can be entertaining and allow you to focus on aspects of your own social behavior to which you would usually not devote much attention. The results of this study can potentially help universities improve social aspects of their curriculums.

Payment:

While there is no payment for participation in this survey, you have the researcher's gratitude.

Privacy:
Any information you provide will be kept anonymous. **You will not be asked for your name or any contact information.** Data will be kept secure by distance storage, available only through encrypted access (https). Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via telephone at xxx-xxx-xxxx, or by e-mail at xx@xxx.xxx. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is xxx-xxx-xxxx. Walden University's approval number for this study is **IRB will enter approval number here** and it expires on **IRB will enter expiration date.**

Please print or save this consent form for your records.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By selecting "I Agree" below, I understand that I am agreeing to the terms described above.

CONSENT FORM (version 2)

You are invited to take part in a research study of social behavior among college students enrolled in 4-year, degree-granting programs. The researcher is inviting students (a) between the ages of 18–24 years, (b) with a permanent residence in the United States, (c) currently enrolled in a U.S. based, 4-year, degree-granting undergraduate program and (d) who have not had one or more years of formal online schooling or homeschooling as an alternative to a public or private high school.

To be eligible to participate in this survey and to receive the $5 Amazon gift card, you must meet all of the above criteria as well as complete the survey.

This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Bo Bennett, who is doctoral student at Walden University.

Background Information:
The purpose of this study is to better understand the social behavior of college students.

Procedures:
If you agree to be in this study, you will be asked to complete an online survey

consisting of 23 closed-ended questions that should take no more than five minutes to complete.

Here are some sample questions (you would select answers from "Describes me extremely poorly" to "Describes me extremely well"):

- I find people predicable
- I frequently have problems finding good conversation topics
- People often surprise me with the things they do

Voluntary Nature of the Survey:
Participation in this survey is voluntary. If you decide to not complete the survey for any reason, you can simply close the survey window without submitting your answers.

Risks and Benefits of Being in the Study:
Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as thinking about your own social behaviors—if these kinds of thoughts make you uncomfortable. Being in this study would not pose risk to your safety or wellbeing.

Answering these questions can be entertaining and allow you to focus on aspects of your own social behavior to which you would usually not devote much attention. The results of this study can potentially help universities improve social aspects of their curriculum.

Payment:
Students who meet the above eligibility criteria and complete the survey will receive a $5 Amazon gift card. To protect your anonymity, you do not need to enter your e-mail or contact information. When you complete the survey, you will be given the e-mail address of the researcher, Bo Bennett, to send the request to, and he will send you the $5 Amazon gift card electronically, within 24 hours of your request.

Privacy:
Any information you provide will be kept anonymous—**you will not be asked for your name or any contact information.** Data will be kept secure by online storage, available only through encrypted access (https). Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via telephone at xxx-xxx-xxxx, or by e-mail at xxxxx@xxxxxx.com. If you want to talk privately about your rights as a participant, you can call xxxxxxxx. She is the Walden University representative who can discuss this with you. Her phone number is xxx-xxx-xxxx. Walden University's approval number for this study is 01-13-15-0170571 and it expires on January 12, 2016. Please print or save this consent form for your records.

Statement of Consent:
I have read the above information and I feel I understand the study well enough

to make a decision about my involvement. By selecting "I Agree" below, I understand that I am agreeing to the terms described above.

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By selecting "I Agree" below, I understand that I am agreeing to the terms described above.

Appendix B: Advertising Information

Table B1

Ad Copy and Targeting Information

Variable	Ad#1: Both education environments	Ad#2: Both distance education only
Location	United States	United States
Age	18–24	18–24
Education Level	In college	In college
Language	English (UK) or English (US)	English (UK) or English (US)
Schools	(none specified)	Walden University, University of Phoenix, Capella University, University of Phoenix-Distance Campus, Ivy Tech Community College, American Military University, Miami Dade College, Lone Star College System, Liberty University or Kaplan University
Potential Audience	4,600,000	54,000
Headline (version#1)	Click To Do a Good Deed	Click To Do a Good Deed
Text (version#1)	Help advance science & help a fellow student earn a doctorate by completing a quick survey	Help advance science & help a fellow student earn a doctorate by completing a quick survey
Headline (version#2)	Survey: $5 for 5 Minutes	Survey: $5 for 5 Minutes
Text (version#2)	Earn a few bucks & help a fellow student graduate by completing a quick 5 minute survey	Earn a few bucks & help a fellow student graduate by completing a quick 5 minute survey

Figure B1. The Facebook advertisement as it appears for the participant solicitation. Clicking anywhere on the advertisement will take the participant to the survey on SurveyMonkey.

Figure B2. The second Facebook advertisement that replaced the first, as it appears for the participant solicitation. Clicking anywhere on the advertisement will take the participant to the survey on SurveyMonkey.

Appendix C: Survey Design and Questions

Social Behavior in Higher Education

Consent Form

You are invited to take part in a research study of social behavior among college students enrolled in 4-year, degree-granting programs. The researcher is inviting students (a) between the ages of 18–24 years, (b) with a permanent residence in the United States, (c) currently enrolled in a U.S. based, 4-year, degree-granting undergrad program and (d) who have not had one or more years of formal online schooling or homeschooling as an alternative to a public or private high school.

To receive the $5 Amazon gift card, you must meet all of the above criteria as well as complete the survey.

This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Bo Bennett, who is doctoral student at Walden University.

Background Information: The purpose of this study is to better understand the social behavior of college students.

Procedures: If you agree to be in this study, you will be asked to complete an online survey consisting of 23 closed-ended questions that should take no more than five minutes to complete.

Here are some sample questions (you would select answers from "Describes me extremely poorly" to "Describes me extremely well"): 1) I find people predicable 2) I frequently have problems finding good conversation topics 3) People often surprise me with the things they do.

Voluntary Nature of the Survey: Participation in this survey is voluntary. If you decide to not complete the survey for any reason, you can simply close the survey window without submitting your answers.

Risks and Benefits of Being in the Study: Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as thinking about your own social behaviors—if these kinds of thoughts make you uncomfortable. Being in this study would not pose risk to your safety or wellbeing.

Answering these questions can be entertaining and allow you to focus on aspects of your own social behavior to which you would usually not devote much attention. The results of this study can potentially help universities improve social aspects of their curriculum.

Payment: Students who meet the above eligibility criteria and complete the survey will receive a $5 Amazon gift card. To protect your anonymity, you do not need to enter your e-mail or contact information. When you complete the survey, you will be given the e-mail address of the researcher, Bo Bennett, to send the request to, and he will send you the $5 Amazon gift card electronically, within 24 hours of your request.

Privacy: Any information you provide will be kept anonymous—**you will not be asked for your name or any contact information.** Data will be kept secure by online storage, available only through encrypted access (https). Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions: You may ask any questions you have now. Or if you have questions later, you may contact the researcher via telephone at 978-460-2281, or by e-mail at smail@archieboy.com. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 612-312-1210. Walden University's approval number for this study is 01-13-15-0170571 and it expires on January 12, 2016. Please print or save this consent form for your records.

Statement of Consent: I have read the above information and I feel I understand the study well enough to make a

Social Behavior in Higher Education

decision about my involvement. By selecting "I Agree" below, I understand that I am agreeing to the terms described above.

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By selecting "I Agree" below, I understand that I am agreeing to the terms described above.

○ I agree

○ I do not agree

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General Information

Please take your time and read the questions carefully. Remember that this survey is anonymous, so your honest answers are not only important to this study, but helps maintain the integrity of the scientific process. Thank you again for your participation!

How old are you?

◯ under 18

◯ 18

◯ 19

◯ 20

◯ 21

◯ 22

◯ 23

◯ 24

◯ 25 or over

What is your gender?

◯ male

◯ female

What was your parent's total income before taxes during the past 12 months?

◯ Less than $25,000

◯ $25,000 to $34,999

◯ $35,000 to $49,999

◯ $50,000 to $74,999

◯ $75,000 to $99,999

◯ $100,000 to $149,999

◯ $150,000 or more

◯ don't know

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What is your parents' highest level of education?

- ○ some high school
- ○ completed high school
- ○ associate degree
- ○ bachelor's degree
- ○ master's degree
- ○ PhD
- ○ don't know

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Is your permanent residence in the United States?

○ yes

○ no

Are you currently enrolled in a U.S. based, 4-year, degree-granting undergraduate program?

○ yes

○ no

Did you have one or more years of formal online schooling or homeschooling as an alternative to a public or private *high school*?

○ yes

○ no

How would you most accurately describe the setting in which you interact with your college instructors and fellow students?

○ a traditional, face-to-face learning environment (less than 20% of content delivered online)

○ an online learning environment (about 80% or more of content delivered online)

○ a hybrid learning environment—a somewhat even mix of both a traditional and online learning environment (between about 20% and 80% of content delivered online)

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What class rank would most accurately represent where you are in your program?

◯ Freshman

◯ Sophomore

◯ Junior

◯ Senior

Rounding to the nearest year, how many years have you been an undergraduate?

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Social Behavior Questions

Please take your time and read the questions carefully. Remember that this survey is anonymous, so your honest answers are not only important to this study, but helps maintain the integrity of the scientific process. Thank you again for your participation!

I can predict other peoples' behavior.

Describes me extremely poorly ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ Describes me extremely well

I often feel that it is difficult to understand other's choices.

Describes me extremely poorly ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ Describes me extremely well

I know how my actions will make others feel.

Describes me extremely poorly ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ Describes me extremely well

I feel uncertain around new people who I don't know.

Describes me extremely poorly ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ Describes me extremely well

People often surprise me with the things they do.

Describes me extremely poorly ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ Describes me extremely well

I understand other people's feelings.

Describes me extremely poorly ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ Describes me extremely well

I fit in easily in social situations.

Describes me extremely poorly ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ Describes me extremely well

I have often hurt others without realizing it.

Describes me extremely poorly ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ Describes me extremely well

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I understand others' wishes.

Describes me extremely poorly ○ ○ ○ ○ ○ ○ ○ Describes me extremely well

I feel that other people become angry with me without being able to explain why.

Describes me extremely poorly ○ ○ ○ ○ ○ ○ ○ Describes me extremely well

I am good at entering new situations and meeting people for the first time.

Describes me extremely poorly ○ ○ ○ ○ ○ ○ ○ Describes me extremely well

I have a hard time getting along with other people.

Describes me extremely poorly ○ ○ ○ ○ ○ ○ ○ Describes me extremely well

It takes me a long time to get to know others well.

Describes me extremely poorly ○ ○ ○ ○ ○ ○ ○ Describes me extremely well

I can often understand what others are trying to accomplish without the need for them to say anything.

Describes me extremely poorly ○ ○ ○ ○ ○ ○ ○ Describes me extremely well

I am often surprised by other's reactions to what I do.

Describes me extremely poorly ○ ○ ○ ○ ○ ○ ○ Describes me extremely well

I find people predictable.

Describes me extremely poorly ○ ○ ○ ○ ○ ○ ○ Describes me extremely well

I can predict how others will react to my behavior.

Describes me extremely poorly ○ ○ ○ ○ ○ ○ ○ Describes me extremely well

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I am good at getting on good terms with new people.

Describes me
extremely poorly

Describes me
extremely well

○　　　○　　　○　　　○　　　○　　　○　　　○

I often understand what others really mean through their expressions, body language, etc.

Describes me
extremely poorly

Describes me
extremely well

○　　　○　　　○　　　○　　　○　　　○　　　○

I frequently have problems finding good conversation topics.

Describes me
extremely poorly

Describes me
extremely well

○　　　○　　　○　　　○　　　○　　　○　　　○

It seems as though people are often angry or irritated with me when I say what I think.

Describes me
extremely poorly

Describes me
extremely well

○　　　○　　　○　　　○　　　○　　　○　　　○

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Thank you!

*** To receive your $5 Amazon gift card, send an e-mail to tmail@archieboy.com with the subject "survey completed: confirmation code y0917" This way, your survey response remains anonymous but it is still verified to a unique survey response. ***

Thank you for your participation in today's study. Our interest is in the area of social intelligence and online education. The name of our study is "Social Intelligence of Undergraduates Enrolled in Traditional vs. Distance Higher Education Learning Programs."

There is little known about the effects of distance learning on one's social intelligence development. A traditional learning environment with face-to-face interaction with faculty and peers can reasonably be understood as an environment conducive to social intelligence development, but there is no known evidential support for how distance higher education compares to traditional higher education in social intelligence development. This study will fill this gap in understanding by measuring social intelligence of both traditional and distance undergraduates.

All the information we collected in today's study will be confidential, and there will be no way of identifying your responses in the data archive. We are not interested in any one individual's responses; we want to look at the general patterns that emerge when the data are aggregated together.

If you are interested in a summary of the results of this survey, please "like" the Facebook page https://www.facebook.com/highereducationresearch. The results will be posted within the next 60 days.

THANK YOU AGAIN FOR YOUR PARTICIPATION.

Appendix D: Tromsø Social Intelligence Scale Subscales

TSIS Item (English Version)

Social Information Processing Subscale

12. I can predict other peoples'2behavior.

14. I know how my actions will make others feel.

17. I understand other people's feelings.

20. I understand others'0wishes.

25. I can often understand what others are trying to accomplish without the need for them to say anything.

28. I can predict how others will react to my behavior.

30. I often understand what others really mean through their expressions, body language, etc.

Social Skills Subscale

15. I feel uncertain around new people who I don't know.*

18. I fit in easily in social situations.

22. I am good at entering new situations and meeting people for the first time.

23. I have a hard time getting along with other people.*

24. It takes me a long time to get to know others well.*

29. I am good at getting on good terms with new people.

31. I frequently have problems finding good conversation topics.*

(table continues)

TSIS Item (English Version)

Social Awareness Subscale

13. I often feel that it is difficult to understand other'3. I often*

16. People often surprise me with the things they do.*

19. I have often hurt others without realizing it.*

21. I feel that other people become angry with me without being able to explain why.*

26. I am often surprised by other's reactions to what I do.*

27. I find people predictable.

32. It seems as though people are often angry or irritated with me when I say what I think.*

Notes. Items marked with a "*" are reverse scored. The number of the items corresponds to their question number on the survey.