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The Awareness of Computer-Mediated Communication's Social Presence for Virtual High School Students

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THE AWARENESS OF COMPUTER-MEDIATED COMMUNICATION'S SOCIAL PRESENCE FOR VIRTUAL HIGH SCHOOL STUDENTS

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By

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ABSTRACT

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Dissertation supervised by Mary Frances Grasinger, C.S.J., Ph.D. and Robert L. Furman, Ed.D.

This research investigated the perception of social presence that students in a virtual high school have of using computer-mediated communication (CMC): email, discussion board, tutoring sessions, and asynchronous classroom activities. The research analyzed data for social presence based on gender, years of experience in a cyber school, and self-proficiency ratings on each form of CMC. The purpose of this study was to identify if high school students in a virtual community perceive email, discussion board, tutoring sessions and asynchronous classroom activities as enhancing their social presence within the virtual community. The findings of the study are:

1. Students perceived that email showed more social presence than the other forms of CMC and asynchronous classroom activities showed more social presence than discussion board and tutoring sessions.
2. There was no significant difference found between male and females social presence in any of the CMC studied.
3. Students who rate their own self proficiency as being above average or expert had higher social presence scores on email and asynchronous classroom activities than students who rate their proficiency average, below average or novice.
4. Students perceived that email showed more social interaction than discussion board, tutoring session and asynchronous classroom activities. Asynchronous classroom activities showed more social interaction than discussion board or tutoring sessions.
5. The number of years a student attends a cyber school has no relationship with the student's perceived social presence in any form of CMC studied.

Understanding students' perception of social presence based on the use of CMC will enable cyber schools to use the appropriate form of CMC to help students develop their social skills.

DEDICATION

This dissertation is dedicated to my family and friends that have supported me though this process. Without all your love and support I would not have been able to complete this.

To my Uncle Dick who's understanding of how important education is to one's growth as a person and professional have led me to complete a degree in higher education. His battle with Logic and completing his own degree inspired me to always strive to be the best that I can. Thank you for all your support throughout my life.

To my nieces and nephews, Emily, Collin, McKinley and Lukas, seeing you develop into maturing young adults leads me to look at how people socialize in our world today. Thanks for the inspiration, love and support you all have given me.

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To Andrew Oberg for his willingness to listen to my ideas and concepts as they relate to a whole new dimension of education. A special thank you to Andrew and his staff for helping me in the data collection process of my research. Without the help of the Instructional Supervisors listening and explaining my research to parents, I would not have been able to get the data for this research. I hope in the future this research can help educators make a virtual classroom as socially interactive as a traditional classroom can be.

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Chapter 1

Introduction

Since this study is concerned with assisting adolescents who are taking online courses with the socialization typical of high school, this chapter will provide a literature review in six sections: development of the Internet, online education, learning theories, adolescence, gender issues and social presence.

As society has developed, we have improved our means for communicating with each other. The technology for communicating started out simple and has become more complex over the years. The hope throughout history has been that the newer technology will become the utopia for communication. Eventually, each has found its own use within our culture. From the telegraph and telephone to a computer accessing the internet, we have become more attached to technology. In some cases technology replaces the face-to-face interactions of its users.

When we break down face-to-face communications, it is not just about the words that we hear but also the actions that coincide. During face-to-face communications we look at body language and proximities to others during the interactions. Our body language tells our acquaintances more about the topics and our beliefs than our words ever could. The internet seems to be a cold and impersonal arena. Freeman (2000) tells us "that it [communication on the internet] is a more difficult way to communicate" (Freeman, 2000, p.5). Joinson (2002) tells us that the opposite may be true. He compared the level of self discloser of participates during face-to-face interactions and email responses. He found that "people were four times more likely to disclose information through email interactions rather than in face-to-face interactions" (Joinson, 2002, p.288).

He believes that we over emphasize the importance of face-to-face communications. During face-to-face interaction the words are not coherent, but are only part of the picture. Much of what we say is implied through our speech and body language. When we communicate through email, we need to add more to our writing and really focus on the message. The benefits that Joinson shares about email, "great tool for brainstorming, decision-making and getting diverse groups organized" (Joinson, 2002, p. 288.) can be seen in any style of computer-mediated communication (CMC). To begin thinking about virtual communication, let us examine the development of the internet and implications for virtual education.

Internet

The internet came out of a desire to communicate. The internet is a network of computers which allows people to communicate and share knowledge with each other. History shows that the world is connected through a network that started one hundred and fifty years ago (Peter, 2004).Across our planet, we have wires that are inter-connected and allow people to communicate with each other. This infrastructure is what the internet was built on and relies on to this day.

The beginning of the internet was started out of a military program, ARPANET (Peter, 2004). ARPANET was a program that our military funded and developed for scientific research. The network was to allow a group of users to have access to more computer time or a time-sharing program. This program never really worked (Peter, 2004). Problems that hindered its development were that the computers involved had different operating systems and different versions of applications. Even with ARPANET failing ,the processes that came out of the research helped to create the internet.

Research on the internet revealed that five different theories to the development of the internet. Each theory may have led to the partial creation of the internet, but it does not seem as if only one is the sole origin. Peter (2004) found in 1969 that Kleinrock led a team of engineers that launched the first message sent from one computer to another. This marked the birth of a new method of communication. This event was important, but not the beginning of the internet. In 1965, Davies developed NPL Data Communication Network. Davis did not get funding, but he developed the concept of packet switching, the movement of bytes from one location to another. It was Davis' research which inspired the U.S. military to fund ARPANET. Kahn and Cerf are the developers of the transmission control protocol-internet protocol (TCP/IP), which is considered the backbone of the internet. TCP/IP was developed to solve problems with earlier attempts at communication between computers on the ARPANET network. This need came from the problems they had encountered with computers that were not identical. In 1969, AT&T and Bell labs developed the UNIX operating system, which was used behind the earliest version of the internet and supplied the first cross-country link between the University of California of Los Angeles (UCLA) and Bolt, Beranick and Newman (BBN) in Boston. The fourth theory centers on the development of communication applications. These applications included email, newsgroup and conferencing. The last theory was based on work done by Shoch and Metcalfe. They developed the Ethernet connection at Xerox Parc. Without these developments the internet could not function to the level of utilization possible today.

The internet originally was a way for people to communicate and socialize with each other. It was not long before education saw the benefit in the internet. The

development of the internet as a vehicle for online learning has launched a new platform for education. Although correspondence courses have been around for years, the internet has allowed educators to change the concept of a correspondence course from a more independent endeavor to a more interactive endeavor. The internet technology allowed educators to imagine virtual education and to design online courses.

Online Education

Online courses started out in higher education. One of the earliest programs to begin was at Penn State in 1998 when it offered its first online course online (Chute, 2007). In the Fall of 2005, nationwide 3.2 million higher education students took at least one course online (Chute, 2007). These online courses typically are fully online, but in some cases the courses are blended where some students' sessions are online and some are face-to-face.

Online education is an emerging field that lies at the junction of distance education, human-computer interaction, instructional technology and cognitive science. People have found that online education opens doors to interests that they were not able to explore before.

"Over the last 15years, the internet has facilitated the emergence of online interactions for groups of people with shared interest" (Wilson & Peterson, 2002). We have moved from neighborhood communities to worldwide groups who share a common interest. We have had chances in the past to study the effects of different technologies on our culture, but researchers viewed technology in general context, rather than a central part of cultural development. Technology has become more of a vehicle for cultural development due to the use of the internet and email (Wilson & Peterson, 2002).

Distance education has evolved into what we now consider online education. This evolution has brought both the advantages of distance education and the pitfalls. Distance education was for people who wanted to learn on their own or from remote locations who did not have access to traditional education. The internet has caused a change in how distance education is viewed. Distance education is no longer a solitary act.

The marketplace has taken to supporting online learning. There are now online textbooks, intelligent tutoring systems and course management systems. The market for online learning is changing and growing. Universities and colleges offer full programs through the internet with little or no time spent on campus (Chute, 2007). These programs are only a small part of uses of the internet. The internet has allowed new educational niches to develop such as in-house job training for employees and corporate training sessions done online.

With the success that the universities have had with online learning, the next step was to bring online learning to K-12. In order to allow this, most states had to change their charter school laws. Based on statistical information from the National Center for Education Statistics (2005) 10 states did not have laws allowing charter schools, 17 states amended their charter school law to include virtual schools, group of websites that are created for the specific area of gaining knowledge to meet educational requirements, and 23 states and the District of Columbia did not amend for virtual schools (State education reforms (SER)). 18 states have some form of cyber schools, internet area created to utilize computer or other electronic forms of communication designed for people to meet and gain knowledge with a mediator who acts as a guide. With the exception of Missouri all are charter schools. Missouri maintains and runs its own cyber school. Ohio has the

largest enrollment in cyber schools of any of the states. In 2010-11 the enrollment was over 29,000 students attending Ohio cyber schools (Education Sector, 2011).

National Center for Education Statistics surveyed public elementary or secondary school students enrolled in distance education programs in 2002-2003. Of the students responding, 36 percent of public school districts have students enrolled in at least one distance education course. Of the students enrolled in distance education courses 48 percent of the students were taking a course from a post-secondary institution, 34 percent were enrolled in another district's distance education courses, 18 percent had students taking courses from education services within their state, 18 percent took classes at a virtual school within their own state, 18 percent with independent vendors and 16 percent had students in the district's own online program. One of the major reasons that districts have distance learning was to supply students with a chance to take a course/s that otherwise would not be offered in the district (Distance education courses for public elementary and secondary school students: 2002-03).

In 1997, the state of Pennsylvania legalized charter schools. Charter schools were considered experimental and controversial, but now the state recognizes 146 charter schools. The State of Pennsylvania in 2011 has 12 charter cyber schools. The enrollment for all the schools was 27,902 students as reported by the Department of Education in the State of Pennsylvania (Kanuck, 2011). Once a family chooses a cyber school, the resident school no longer is responsible for that student. The charter school must meet all the state requirements including maintaining attendance records and state mandated exams. Overall, the programs have had very good success rates on the state required exams (Pennsylvania, 2005-06).

Given that virtual education is increasing, let us consider some learning theories that help us to understand social development especially that of high school students.

Learning Theories

Throughout history, educational practitioners and theorists have recognized that education is not only about a transfer or learning of knowledge, but also a social activity. Through these social activities, students make sense of the knowledge and can then internalize the material. With socialization being an integral part of education, how can an interface through the internet replicate this social activity?

Erickson developed Eight Stages of Social-Emotional Development. Everyone goes through these stages to develop socialization skills. "These stages are conceived in an almost architectural sense: satisfactory learning and resolution of each crisis is necessary if the child is to manage the next and subsequent stages satisfactorily." (Children Development Institute, LLC, 1998-2007, p. 1).

The Children Development Institute, LLC (CDI) (1998-2007) described Erikson's Stages of development beginning in infancy when the infant learns to trust and develop feelings of hope. The second stage occurs during early childhood where the young learn to be sure of themselves and learn to control their emotions, for instance, stubbornness. The third stage generally occurs in the preschool years or as the child begins school. Children at this stage use imagination frequently, learn to cooperate with others and learn to lead as well as follow. The fourth stage takes a little longer to complete. This stage occurs during lower grades and can continue into junior high. During stage four children learn to be more academically and socially competent. Skills include relating with peers according to rules and progress from free-play to structured-play (this includes

teamwork). Children have success in mastering skills relating to social studies, reading and arithmetic. Between the ages of 13 and 20, children are in stage five (Children Developement Institute, LLC , 1998-2007). High school students are in this stage, centered around identity, where socialization is key to helping form the identity. This stage helps students develop an answer to "Who am I?" (Identity). Stage six occurs as people move into adulthood where intimacy and isolation can be see. (Children Developement Institute, LLC , 1998-2007).

The last stages of Erikson, described by Carveth (2008), occur during adulthood; stage seven helps us learn a sense of efficiency and inspiration. This can show in the sense of working productively and creatively. Once people complete the first seven stages the last stage of wisdom can be completed (Carveth, 2008).

As students enter junior high and high school, they start to enter stage five of Erickson's Developmental Stages. (Children Developement Institute, LLC , 1998-2007). Students grow in the same basic patterns. They enter stage five around the age of 13, adolescence. Each student is different and parents, teachers and relatives are not trained in how to talk to adolescents. Adolescence is the last stage before students enter adulthood. Teenagers are trying to decide their futures. This is the time that children begin to make their own decisions. As children do this, they start to put a little distance between themselves and their parents. Parents still need to look after their teenagers, but they need to let their teenagers learn from their own actions (Borgen & Amundson, 1998-2007). Teenagers should be around other adults who can help guide them into the future.

Our environments have a big impact on our development. Early experiences can have a very lasting effect. Environmental forces tend to guide human development

throughout our lives. Humans are greatly affected by environmental influences. If these influences occur during a sensitive period, the influences have a greater impact. Persons, places, events, the media, opportunities, etc. help effect a high schooler's development (Carveth, 2008).

Influences cause either deprivation or enrichment. Different levels of deprivation can cause children to have lower IQ's, be fearful, hostile or aggressive. As children head towards adolescence, deprivation can be caused by lack of intellectual stimulation or from parents who are cold, neglectful or rejecting. Enrichment is one way to make an environment deliberately more complex, intellectually stimulating and emotionally supportive. By providing an intellectually stimulating environment, we could possibly create smarter children. The effects of deprivation and enrichment apply to all areas of development, not just intellectual (Coon, 2004).

All of our basic emotions seem to be inherent; they do not take time to develop. Our emotions appear in a consistent order. Some of the earliest emotions are joy, anger and sadness. Our emotions lead to the start of our social behaviors. By the age of 10 months, babies smile more frequently when another person is nearby (Coon, 2004). This is known as a social smile. By the time humans reach the age of three we have a unique personality.

CDI gives a description of social development that begins early in life. The first step for humans to develop social skills is our awareness of the self. Once aware of self, the person starts to express social emotions. Infants engage in social reference as well. Social reference occurs when we look at others for information or guidance. The real core

of social development is found in the emotional attachments that human babies form with caregiver. (Children Developement Institute, LLC , 1998-2007).

Children's play starts out in solitary play. As they grow, play turns more towards group activities where the children can explore the world and practice their social skills. Within the group interaction children play roles, follow rules and learn to handle cooperation and competition, conflicts, power and communication. Group play helps children take a step toward participating in social life (Children Developement Institute, LLC , 1998-2007).

Children at about the age of 11 change from dealing with concrete objects to thinking about abstract principles. At this point our children become less egocentric. At this age our children are able to consider suppositions, guesses or projections. This is the point in our cognitive development that allows us to start thinking as adults (Children Developement Institute, LLC , 1998-2007).

Wink and Putney (2002) describe sociocultural theory developed by Vygotsky. He explained that children not only gain knowledge individually but also from the people around them. He emphasized that many of our important discoveries are guided through interaction with more experienced people. Vygotsky believed that people learned through a scaffolding approach. With scaffolding you are not truly making choices on your own, but rather with the support of others. Through the scaffolding approach Vygotsky showed that other people play an important role in the development of our knowledge base. (Wink & Putney, A Vision of Vygotsky, 2002)

The internet can provide an intellectually simulating environment. Scaffolding is available from highly knowledgeable and experienced people. As the high school student

is developing intellectually, he/she is also maturing socially and morally. Adolescence is a time of intense socialization. If educators are to design virtual education courses that incorporate socialization, an understanding of the adolescent developmental period is useful.

Adolescence

Stage five of Erickson's Stages of Development centers around the concept of "Who am I?" Children face unique maturation problems at this point in their lives. Children began to mature in the full sense of the word (Carveth, 2008). Their bodies are changing and their minds are developing new views. At this point children are building a consistent framework out of which an identity will form. Their identity will be linked to their talents, values, history, relationships and their cultures. If a child cannot develop his/her own identity they can suffer from role confusion. This confusion can lead to uncertainty about who they are and where they are going (Carveth, 2008).

Adolescence is a time for change. Children begin to explore and search for what is next in life. Adolescence is defined culturally as "the period between childhood and adulthood" (Coon, 2004, p. 147). This in-between stage leads a teenager to look for a place in society. These children are not yet ready for adulthood, but they are beyond the development of childhood, so they are looking at how to get to the next level. People are considered adults by different criteria depending on the cultures. In North America, the three primary criteria are "1) taking responsibility for oneself, 2) making independent decisions and 3) becoming financially independent" (Coon, 2004, p. 148). Adolescence is a time to develop the skills needed to be an adult.

During adolescence children's bodies begin to mature with the onset of puberty (The Royal College of Psychiatrists).This can be a very confusing time for children. They are not sure what their bodies are doing and are concerned with appearance. They are also concerned about their friends and group relationships, popularity and what will be their place in the world. Bodies develop faster than minds. Physically, teenagers are more adult than child, mentally they are still children (Coon, 2004). This unequal development leads teenagers to make tough decisions without all the knowledge needed to make the choices. Teenagers are at risk of having serious problems caused by making poor choices. They are more susceptible to outside influences than any other group. (Children Developement Institute, LLC , 1998-2007). Some choices may lead to serious problems such as delinquency, drug and alcohol abuse, sexually transmitted diseases and school failure. (The Royal College of Psychiatrists). This is not the norm, but rather risks accompanying certain choices. Society does not intend to rush our teenagers to adulthood, but all the influences of the culture may have done just that. This push is not done just at the adolescent stage, but rather from infancy. The need of parents to give children more seems to be behind the push (The Royal College of Psychiatrists).With such pushing children are reaching adolescence at an earlier age. This rush leads to higher stress levels and without proper guidance, directions or support, teens are at risk of not becoming healthy adults. This rush has been caused by the American culture, as parents have become too busy dealing with workplace demands that they are at home less frequently, allowing teenagers to take care of themselves. This is what we want overall, but without guidance teenagers may choose a riskier path than parents prefer (Coon, 2004). Our culture seems to have removed all social markers from teenagers.

We never stop developing our identities. From the moment we arrive in the world we begin to create our identity. Erickson tells us identity is tied to sense of oneself (Carveth, 2008). How people present their identity is truly up to the person. Through interactions with others, including those occurring in the classroom, students can develop their own identity. This identity becomes imperative in the process of learning (Carveth, 2008). Computer-mediated communication does not provide visual cues about the users. In education this is a vital benefit because when starting a community everyone starts fresh. No stereotypes based on looks, needs, age or gender will influence the students' role in the classroom.

High schools tend to have groups of students linked by their interests. These groups form a type of community; membership comes from acceptance of the other group members. These peer groups are quite common during adolescence. Membership gives teenagers a sense of security and a sense of their own identity beyond their family (Coon, 2004). This membership provides teenagers with a chance to belong to a social network. These social networks become very important in the change from child to adult. As children have a role in the family or in a small group of friends, they never link that role to society as a whole. With peer groups teenagers can see a link to society (Coon, 2004).

Teenagers tend to conform to peers values early in adolescence and the conformity remains for most of high school. Membership in a peer group leads to group isolation where peer groups do not socialize with other peer groups. Teenagers tend to only socialize with members of his/her group. Due to peer group influences, adolescents may not explore other interests sufficiently that are outside of the ones that lead to the

peer group. Adolescents have a chance to expand their identity after high school through their choice of college or job placement (Coon, 2004).

Well-designed virtual education can provide the opportunity for social interaction within the group. Does virtual communication assist the students in social and moral development? How we look at moral dilemmas will vary depending on our stage of development. Moral development starts out in childhood and continues into adulthood. Moral development allows people to acquire values, beliefs and the ability to think about actions prior to taking them. Moral values come more into focus during adolescence (Coon, 2004). In adolescence, teenagers learn about self-control and abstract thinking. Without these two things, teenagers' moral development can be slowed. Moral development relies on the ability of people to apply knowledge and to reason out a solution to a problem. Problem solving and abstract thinking is used in virtual education as well as in traditional classrooms. At this stage of development, teenagers can link consequences to actions. Virtual education must assist students in developing socially and morally so they can become good citizens functioning well in society.

Cultural Influences on Gender

Are gender issues relevant concerns of instructional technologists? In the world in which we live, sexism is still a part of everyone's lives. Sarah D. Jerome, President of the American Association of School Administrators, tells us that woman in…"broad-based democracies are faced with more cultural prejudices to overcome" (Jerome, 2008, p. 44). The American culture does not accept a woman who self promotes, but this is an acceptable behavior for men. When Jerome spoke at the AASA National Conference on Education in 2008 about embracing diversity and making schools more inclusive of the

world's cultures and languages, she soon realized that the only references were from white male researchers. Although this was not her intention, it did show how pervasive sexism is within the American society.

Males have typically been encouraged to be strong, fast, aggressive, dominant and achieving, while females are expected to be sensitive, intuitive, passive, emotional and interested in child-rearing. These are stereotypes that American culture has developed over decades. Other cultures have different roles for male and females. Studying these relationships allows us to look at the roles that females and males take on in society. The roles are not defined by any genetic code, but by the roles they take on within their own cultures. There is no biological basis for the unequal treatment of women within the workforce or schools. These differences are created due to opportunities that have been given to men throughout the years (Coon, 2004).

Cultures have created gender roles within different societies. In the American culture, the males' behavior has been to be dominant. American females have been expected to be more passive. When viewing other cultures, it is apparent that these roles are different. In Russia, the majority of medical doctors are female and females make up a large portion of the workforce. Mead's observations of people in Tchambuli, New Guinea showed that within their culture the roles were reversed from American gender roles (Coon, 2004). The females do the fishing and manufacturing, allowing them to control the power and economic life of their community, while the males take on the role of being dependent, flirtatious and concerned with their appearances. Roles are subject to change based upon individuals' personalities. People are not locked into a role, but rather will choose a role based on who they are.

Male and female roles begin to form when we are babies. The way a baby is treated starts the development of his or her role in the American culture. Girls are treated gently, while boys are treated rougher. From the time they are young, American children are pushed toward the stereotypical roles of our culture. Toys are brought that are "appropriate" for each gender, leading them to the culturally typical roles that are expected of our children (Coon, 2004).

As children develop, the roles are further reinforced by the encouragement of boys to be goal-directed and girls to be emotionally oriented. When children reach the age of three or four, they begin to engage in segregated play. Boys' play centers around role-playing where they are hero figures. The boys prefer to play outside and are into rough and tumble play. Girls tend to play inside and closer to supervision. The girls tend to play games that initiate female mannerisms. They play co-operatively by playing house and other games that require lots of verbal give-and-take (Coon, 2004). How our children play helps prepare them for their integration into American society. The history of our culture has shown that men are conquering, controlling, unemotional and independent, while women are expressive, emotional, passive and dependent. These are the traditional roles we see in the American culture; most people accept these stereotypes and are comfortable with them (Coon, 2004).

Has the American culture changed the way students socialize? As more women take on more traditionally masculine roles in society, does the American culture become more androgynous? Beam (1998) tells us that the more complex society becomes, the more flexible male and female roles need to be. People who can express both male and female traits are more flexible when it comes to dealing with difficult situations. Other

benefits of being androgynous are that these people tend to be more satisfied with their lives. This concept of leading a more androgynous life is starting to cross cultural lines. Men from an Asian-American background are creating a more flexible masculinity free from male dominance. These men are not afraid of doing the cooking or cleaning, while they show their capacity for caring (Beam, 1998).

Virtual education opens global communities to students in which gender roles and class distinctions differ widely. When we consider that the internet has enabled educators to provide virtual education in a stimulating, interactive environment, do male and female high school students differ in social presence within varies forms of CMC?

Social Presence

Social presence is the interaction of members based on the social structure of the community. "In 1972, Champness conducted a study to distinguish differences in the social presence factors among various telecommunication mediums" (Tu, 2002, p. 36). Champness looked at audio, video and face-to-face communications using ninety government workers. Champness found that there were different degrees of social presence and these related to the nature of the medium used. Christie (1974) reviewed business letters and had participants complete a 58 item semantic difference questionnaire. He was able to clearly define social presence by four factors, personal-impersonal, hot-cold, humanizing-dehumanizing and sensitive-insensitivity. Since the beginning of its use as a communication medium, technology was studied for its ability to aid social presence.

One of the benefits of virtual education is the ability of instructors to individualize each student's learning objectives. This creates more of a one-on-one interaction with

students and faculty members. The instructors facilitate the learning of each individual student, as time is a variable that is not held constant as seen in a regular classroom.

Since the internet has opened up the world to our students, in the education process we have opened our students to other peoples' morality. We need to watch student's interactions and teach them about the power of a word. Traditional education allows student's real-time, face-to-face interaction where the effects of their actions can be directly linked to a consequence. In a virtual classroom, the consequence may not be seen until a later date. Users need to be taught that the internet is a symbolic environment where words have many meanings. Others may interpret words differently than intended causing hurt feelings. Part of any online curriculum needs to strengthen students' self discipline, moral judgment and empathy while still having them reach the goals of the curriculum. Virtual schools need to help students develop human capacities and social presence.

One of the concerns raised by educators was that these students would become sequestered in their own homes. To address this concern virtual schools suggest to parents that they keep their children involved in activities within their communities. One benefit of virtual schools is that they open up the world to students. These students are able to develop a wider sense of the world by taking part in student-only discussions. They are able to link to other students on different continents with similar interests.

Coles (2004), Director for the Center for Communication Policy at the University of California in Los Angeles, found that people who use the internet tend to have healthier social lives, spending about 30 minutes more time in face-to-face interaction than those studied who did not use the internet. The use of the internet seems to help

people expand their views and interact more with people in their surroundings. Internet users reported lower levels of depression, alienation and loneliness than the non-users in his study. These benefits may indicate positive benefits for students from interactions with technology in a classroom.

Significance of the Problem

Education has embraced technology and grown with it. As of May 2011, the state of Pennsylvania has twelve cyber charter schools. In these schools there were more than 27,000 students enrolled as of the 2010-2011 school year throughout the state (Kanuck, 2011). Of the 12 schools, seven listed enrolling students as young as kindergartners and going up to at least eighth grade if not through 12th grade.

Children tend to acquire and practice social skills through play, whether structured or unstructured. This seems to be essential to developing social competences. "Through these interactions at school, children begin to develop their social skills; how to resolve disputes, persuade peers to interact and engage in role-play" (Hadley & Schuele, 1995). All three activities serve as a way for students to become members of the learning community. As society moves forward with offering more distance learning programs for younger and younger students, how do students continue developing social skills? How do students integrate themselves into roles within their online communities? For high school students gaining their education through a virtual environment, what opportunities can be provided to enable students to further develop their social skills? Some instructional methods widely used in early virtual education are email, discussion boards, tutoring sessions and asynchronous classroom activities.

The purpose of this study was to identify if high school students in a virtual community perceive email, discussion boards, tutoring sessions and asynchronous classroom activities enhancing the social presences within the virtual community.

Research Questions

1. Which types of social communication: email, discussion board, tutoring session and asynchronous classrooms do high school students perceive as having the most positive influence on the social environment as measured through the social presence of each within their virtual learning community?

2. Do male and female high school students differ in their perception of social presence within email, discussion board, tutoring session and asynchronous classroom activities?

3. Does a student's self-rated proficiency in use of email, discussion board, tutoring sessions and asynchronous classroom activities correspond with the students rating on the social presence of CMC?

4. What form of CMC do high school students perceive as making social connections?

5. Will students who attend a cyber school for a longer period of time show a positive relationship in their social perception of the different forms of CMC?

Definitions

Asynchronous Communications – Communication between members of a community that are not physically linked to a timeframe. Digital communications, as between two

computers in which there is no timing requirement for transmission and in which the start of each character is individually signaled by the transmitting device.

Asynchronous Classroom Activities – Classroom activities that do not rely on participates interacting at the same time.

Course Management System – A software designed to support teaching and learning in an educational setting.

Culture – The integrated pattern of human knowledge and the capacity to classify, codify and communicate different theoretical bases for understanding, or criteria for evaluating, human activity.

Email – Short for electronic mail. Email is an electronic communication system that makes use of the internet to send messages from one person to a other person or group of people.

Learning Community – Groups of people who engage in a common interest of gaining knowledge that will enhance their personal growth as well as the knowledge of the full group.

Online Communication – "attributes, applications, and perceptions of the language used online" (Tu, 2004, p. 121).

Social Context – term used to refer to how the communication media is used or interpreted by the user. **"…**constructed from the CMC user's personal characteristics and their perception of the CMC environment." (Tu, 2004, p. 121)

Social Expression – The body language, speech pattern and their interpretation during interaction between community members.

Social Interactivity – Interactions that occur between members of a community.

Social Network – Social structure of a community which is generally made up of individuals with specific roles within community. Social networks indicate the ways in which individuals are interconnected through various social familiarities ranging from casual acquaintance to close familial bonds as well as hierarchical positions of leadership.

Social Presence – "…degree of person-to-person awarness, which occurs in the computer enviroment" (Tu, 2002, p. 34). "…the degree of salience of another person in an interaction and the consequent salience of an interpersonal relationship" (Tu, 2002, p. 38).

Synchronous Communications – Communication between members of a community that are physically linked to a time frame, occur in real-time.

Tutoring Session – Real-time online tutoring that occurs five days a week. Tutoring sessions are completed through the use of a course management system.

Virtual Classroom – A nonspecific area created to utilize computer or other electronic forms of communication designed for people to meet and gain knowledge with a mediator who acts as a guide, leading members towards specific objectives. Generally educational institutions organize these areas.

Virtual Community – Groups of people who share a common interest, but are not limited to a regional location. Virtual communities contain members from the world at large.

Chapter 2

Introduction

Education is a social activity. We saw in chapter one that socialization is a large part of adolescent development. With the popularity of online education, one important question is how do we make the environment social and still meet academic state requirements? The desire is to identify activities that would enhance the social presence of high school students using a virtual classroom. A review of the literature reveals research in six categories: development of social skills in school children, gender issues with technology, cultural influences on internet users, online communities, online education and classroom community. Although these studies use populations other than high school i.e., kindergarten, undergraduate and graduate students, they provide corresponding information to this study. A brief overview of the studies is followed by a review of the research in the six categories.

Craig-Unkefer and Kaiser (2002), Beilinson and Olswang (2003), Olswang, Coggins and Timler (2001) and Thiemann and Goldstein (2004) did research into the development of social skills and how different treatments helped children reduce behaviors that could lead to weaker social skills. Review of articles from Allen (2008), Spears (2008), Baker, Krause, Yasar, Roberts and Robinson-Kurpius (2007) and Cecen (2008) allow us to look at how males and females react differently to classroom situations and coping. Articles from Kersten, Koeszegi and Vetschera (2003) and Zahir, Dobing and Hunter (2002) evaluated the effects that the internet could have on cultures. Curtis (2006), Bowman (1999), Franz (2002), Garton, Haythornthwaite and Wellman (1997), Affonso (1999), Park (2003) and Wilson and Peterson (2002) discussed ways to make

online communities that are helpful to the members who belong to that community. Rourke and Anderson (2002) explored how the notion of a social community can be developed through text-based asynchronous forms of communication. They pointed out how important social communication is to education. Their findings suggest that we need a better instrument for measuring social perception. Wegerif looked at learning networks and their need for social interactions. From this research we are reminded of how important socialization is in education. Wegerif (1998) concludes that when building learning networks, extra care needs to be given to mechanisms for building social interactions. From communities and networks the discussion moves into online education. Picciano (2002) found an interesting connection between perceived social perception and the students' overall achievement in the course. Picciano suggested further research needs to be completed in two areas, what interactions affect learning outcomes and are these interactions a complex pedagogical phenomenon? Richardson and Swan (2003) looked at the students' overall satisfaction with the course as it related to their social presence in the course. Muirhead (2000), Doolittle (1999), Vonderwell (2002) and Kim and Lee (2002) investigated social presence within an online classroom. Matus and Allen (2004), Tu (2002), Gunawardena (1995), Conrad (2002), Mykota and Duncan (2007) and Campos, Leferrier and Harasim (2001) studied ways in which communities were built within a classroom.

Development of Social Skills in School Children

Craig-Unkefer and Kaiser (2002) looked at the development of social skills as they related to preschool children who were at risk for language development delays and behavior problems. They examined three aspects of social skill development including

the abilities to: resolve disputes, persuade peers to change play activities and engage in role-play. They designed an intervention that contains three components: plan of their play, use of conversational social interaction strategy and self-evaluation of their play.

The study centered on the effects of a multi-component intervention to promote language learning and to support communication, social interaction and play for children who are at risk for language development delay and behavior problems. They were able to work with children and organize their play sessions including themes and strategies for social communication that could be used during playtime.

A play session included a pair of children engaged in socio-dramatic play. There was adult supervision present, but their interaction was limited. After the session, the children described their play, as well as any conversations that took place. Craig-Unkefer and Kaiser (2002) emphasized the teaching of specific language that would lead to social initiation during play. Their interventions increased the amount of talk between children during their play sessions. "The exchanges between students became more complex and diverse when measured by MLU [Mean Length of Utterance] and the number of different words used increased" (Craig-Unkefer & Kaiser, 2002, p. 8). Their overall goal was to teach skills that would enhance social competency and lead to the development of better social skills during play. These researchers believe that their methods were successful, but still recommend that further research be done to evaluate the frequency and complexity of language exchanges between playmates.

Beilinson and Olswang (2003) researched the effect of a three-component intervention plan with kindergarten-aged children who showed signs of impairments within social communications. Their plan contained three components: "The child was

assigned a role within the group that they were to establish, the child was prompted by an adult to initiate interaction, the child was given a valued prop for the purpose of integrating him/her into the group" (Beilinson & Olswang, 2003, p. 155). The research was developed to answer three questions.

> Will the intervention increase the children's use of high-risk behaviors [initiate interaction with peers, talking with peers during play] and decrease their use of low-risk behavior [low level of peer-directed play, high levels of adult-directed play, low rates of talking among peers]? Will the intervention increase the children's use of props during peer group entry? Will the intervention increase the children's amount of time in cooperative play and decrease the amount of solitary play? (Beilinson & Olswang, 2003, p.155)

The intervention was used with three children who ranged in age from five years six months to six years three months. All three children were described by teachers as having difficulties in the area of peer interaction, none had been diagnosed with behavior disorders and none had hearing or vision problems. The children in this study were all enrolled in a full-day kindergarten program with a class size of 17 students. The children who took part in the study were free to choose among the other members of the class to initiate play during their 45 minute free-choice period which occurred four afternoons a week.

The study had two types of sessions. The treatment session was about 30 minutes in length and occurred approximately three times a week. The second type, probe sessions, lasted 10 minutes but only occurred once a week. The first treatment sessions were conducted by a second-year master student studying speech-language pathology.

After the first treatment the sessions were conducted by all three teachers equally. The probe session was recorded online by a researcher or trained coder and occurred once a week. The research was designed to be unobtrusive and as natural as possible. The teachers were not given any special instructions to follow during their probe sessions.

The recorded data was coded using taxonomy designed by Dodge et al. (1985) and was done by either the researcher or a trained coder. From the collected data, the researchers found that the treatment did reduce the low-risk behavior within the three children who went through the treatment sessions. The addition of props to the play sessions only slightly increased the low-risk behavior during play. The children that went through the treatment showed fewer tendencies for solitary play. The implications from this study were positive and showed that students who went through the treatment sessions did show more integration into peer-group play.

Olswang, Coggins and Timler (2001) researched how treatments could help students who show difficulty in managing social situations. This difficulty was linked to the students not having the ability to use language to communicate appropriately, in social communication situations. The overall goal of their research was to "…observe the breadth and depth of the behavior change and linking the change to the treatment" (Olswang et al. 2001, p.51). The basic components of the language are syntax, semantics, phonology and pragmatics. If a student is deficient in one or more of these areas they tend to have poor social skills. The most noticeable areas are in "…negotiations of conflicts with peers, understanding jokes or sarcasm, use of polite forms, ability to explain thoughts and behavior" (Olswang et al. 2001, p. 53). These areas are critical in helping children establish and maintain friendships as they progress through school.

Children that show insufficient social communication skills have "genuine difficulty using language to handle the higher-order demands associated with real-time social interactions" (Olswang et al. 2001, p. 54). Children need to develop social-cognitive skills because these skills allow them to successfully enter peer groups, cooperatively work with others or effectively negotiate and resolve conflicts (Olswang et al. 2001). The development of these abilities enables a child to appraise a social situation and decide what to do and act on that decision. Olswang et al. used Crick and Dodge's (1985) social presence model to help create their treatment.

The model contains five social cognitive capabilities:

1. encoding and interpreting cues
2. identifying and selecting goals
3. considering and selecting possible strategies or responses to meet the goals
4. evaluating the possible consequences associated with the goals and strategies
5. evaluating the effectiveness of the strategies based upon feedback from others (Olswang et al. 2001, p. 54).

Any breakdown in one of these areas could compromise a child's ability to perform in a socially competent manner.

For school-age children, the ability to use language to communicate becomes the primary means to establish and maintain relationships. Children need to learn about pragmatics, which allows them to act appropriately for each given situation. These researchers examined children in "…four discrete tasks (hypothetical task, narrative task, analog task and direct observation)" (Olswang et al. 2001, p. 56). Each task had different

goals for the researchers. From each task, the researcher was able to see a different perspective of how a child interacted in different situations.

The researchers used mixed methods to collect data. They first decided what behaviors to examine or what actions they were looking for. Once this was identified it was easy to count the wanted behaviors. By using quantitative measures, the researchers were able to quickly determine if the measures had worked and document these changes. They used qualitative data collection to identify if the behavioral change meshed with the situation. "Social communication is a multi-faceted complex and dynamic use of language that depends upon moment-to-moment processing and person-to-person interactions in the environment" (Olswang et al. 2001, p. 61). Olswang et al (2001) concluded that monitoring communications between subjects is a very important part of the treatment. Children may seem to have appropriate skills for their current situation, but as they develop and situations change, will their skills develop and change with them? This research was intended not to give us solutions or treatment protocol, but to develop models to sample a variety of social situations that can give knowledge in how people handle themselves in these different contexts.

Thiemann and Goldstein (2004) studied the effects of two commonly used treatments with elementary students who had been diagnosed with pervasive developmental disorder (PDD). They used interventions that included peer training and written text treatment (WTT). Five students with PDD were chosen along with ten other students who did not have PDD to create five triads. The non-PDD members of the triad were taught to use five facilitative social skills over five days. This treatment did help four of the five students "…to increase or use more stable rates of initiations and

contingent response overall" (Thiemann & Goldstein, 2004, p. 126). As the researchers applied intervention two, they observed all five participants exhibited "…increased use of three different communications skills" (Thiemann & Goldstein, 2004, p.139).

Through the years, it has been well documented that if we can improve students' social competencies, this will lead to a higher level of peer acceptance, which may provide a foundation for relationships and friendships later. As the treatments continued, four of the five test students continued to use components from past treatments even as they were developing the next components. "The results of this study extended to intervention research that has focused on measuring changes in overall social interaction rates by providing an analysis of improvements in different verbal communication skills" (Thiemann & Goldstein, 2004, p. 139). The researchers believed that the combination of the two treatments led to a greater success rate with these students enabling them to utilize a greater variety of social communication skills.

In summary these studies showed how different treatments helped students develop social skills to increase their interaction with peers.

Gender Issues in Technology

When looking at how education is affected by the use of technology, we also need to see how gender is affected by the use of technology in students' education. In prior decades, most of the research focused on women and their role in education, both receiving and guiding students. Within the last few years, researchers have changed their focus to look at issues that surround both males and females in relation to their educational experiences. For instance, Allen (2008) reviewed a pilot program in the Fort Mills South Carolina School District that have separated boys and girls into single gender

elementary classrooms. He found that boys tend to learn better with a lot of motion while girls do better with more emotions and are distracted by movement. (Allen, 2008)

Spears (2008), an associate professor of secondary education at Kansas State University, wanted teachers to understand instruction that was sextets. She "…made two particular observations while teaching an education course on nonsexist teaching. First, the course did not have a lot of math and science teachers. Second, students reacted defensively during classroom discussions" (Spears, 2008, p. 136). Spears began her research in the 1960's when women's roles in science were undervalued. She was urged to create a course on gender bias that was specific to students that were from science, technology, engineering and mathematics (STEM). The course she designed led to an interactive program entitled "Seeing Gender." This program helps teachers who would teach subjects involving technology to see behavior that may cause students to dislike the subject. One observation was how teachers tend to talk male students through a problem while they take over the task for a female student. Spears tells us that "It is important for teachers to recognize gender differences so that they can employ teaching methods that create equal opportunities for boys and girls to succeed in the classroom" (Spears, 2008 p. 136).

Baker, Krause, Yasar, Roberts and Robinson-Kurpius (2007) used an interpretive analysis method to analyze qualitative data from focus groups, weekly reflections on classes and readings of pre-, post- and delayed-post course questions from a graduate course on design engineering and technology that was based on Bandura's theory of self-efficacy. The researchers looked at three factors that were relevant to engineering. First factor

> "…refers to the positive relationship between engineering products and services and how they can improve individual lives and benefit society and environment…The second factor is tinkering self-efficacy which refers to women engineers' experience, competence, and comfort with manual activities…The third factor is technical self-efficacy, which refers to individuals confidence and belief in their competence to learn, regulate, master and apply technical academic subject matter" (Baker, et al. 2007, p. 213).

The goal of this course was to teach the engineering design process. The students were to use the design process to create a real-world artifact that could lead to a prototype lesson plan for possible K-12 classroom activities. The students were to identify and address gender issues in science and engineering classrooms. The researchers addressed four research questions:

1. What is the effect of a course in design, engineering and technology (DET) on students' tinkering self-efficacy?
2. What is the effect of a course in DET on students' technical self-efficacy?
3. What is the effect of a course in DET on students' understanding of the societal relevance of engineering?
4. Are there gender differences in the effect of a course in DET on students' tinkering self-efficacy, technical self-efficacy and understanding of the societal relevance of engineering? (Baker et al. 2007, p. 219)

The study centered on the DET graduate level course being offered for the first time, which had a limited number of students. There were nine students, of which five were females and four were males. "All Participants had experience teaching science in a

K-12 system and/or at the university as teaching assistants. All were taking the course to learn more about DET with the intent of infusing engineering design into their science curricula" (Baker et al. 2007, p. 219). The data was collected from 78 reflection papers, a self-efficacy assessment, informal unstructured classroom observations and three focus group transcripts. An interpretational analysis approach was used to analyze data, which involved a systematic set of procedures to code and classify data. "The qualitative data in the reflection papers, self-efficacy assessments and focus group transcripts were analyzed by using a rubric that was closely linked to their research questions and goals of the course. The rubric had four categories: 1. Societal relevance of engineering 2. Technical self-efficacy 3. Tinkering self-efficacy and 4. Gender and diversity" (Baker et al. 2007 p. 219). After the data was coded, it was analyzed for differences in statements made by males and females.

The researchers gathered evidence that the course had a positive impact on self-efficacy for the female students. "Two of the females started the course with high tinkering self-efficacy and their experiences did not have a negative impact on their self-efficacy, which remained high throughout the course" (Baker et al. 2007 p. 220). When the data was examined for technical self-efficacy, the researcher found evidence that all of the "…female students expressed less technical self-efficacy than they did tinkering self-efficacy" (Baker et al. 2007 p. 220). The comments made by students seemed to indicate that technical self-efficacy is strongly related to multiple opportunities to gain mastery experiences with technical tasks and that these experiences should not be competitive. The male students taking part in this study "…had a good understanding of the relationship between science and technology" (Baker et al. 2007 p. 221). The female

students' initial understanding varied from incorrect or simple to quite good. As the course progressed the female students' understanding become more complex with a greater emphasis on the societal impact, the reciprocal nature of science and technology and the commonalities between the two fields. "There were some gender differences evidenced in the reflection responses. All women noted that there were both positive and negative societal effects of technology (Baker et al. 2007 p. 221). "Men focused on the relationship of science and technology instrumentally with science as the more important partner" (Baker et al. 2007 p. 222). They focused on using technology as a vehicle for understanding science and the effect of science on society.

This course was designed to have team member interaction and improve self-efficacy. The teams were self-selected with a mixing of genders. After the first focus group, the students chose to disband and reform. Of the new groups, only one mixed genders. The students now had to take on roles that they were not comfortable with. "…the increased awareness on the part of the students in this course on the effects of gender on team-member interactions suggests that reading, discussions and self-reflection can change behavior. Both female and male students become aware of how their roles in teams contributed to or detracted from the team's success" (Baker et al. 2007 p. 222). "This research demonstrates that tinkering self-efficacy and technical self-efficacy are malleable and can be improved in women who are provided with the appropriate educational experiences" (Baker et al. 2007 p. 223). From this research, educators can see the importance of considering what kind of educational experiences are most likely to bring about changes in self-efficacy and understanding the subject matter at hand.

Cecen (2008) researched gender differences and levels of loneliness on ways of coping. He reviewed different models of coping strategies and found that most researchers agreed that there are two primary strategies for coping with loneliness: problem-focused coping and emotion-focused coping. Cecen centered his research on two hypotheses. The first hypothesis, centered around socialization, "suggested that because of sex role expectations men are socialized to use more active and instrumental coping behaviors, whereas women are socialized to use more passive and emotion-focused behaviors and to seek more social support" (Cecen, 2008 p. 510). Cecen's research reported that "…men and women did not differ in the use of emotion-focused coping, but that men used more problem-focused coping than women at work" (Cecen, 2008 p. 510).

Cecen's research consisted of 462 undergraduate students. These students were enrolled at Chkurova University in Adana, Turkey. These students ranged in age from 17 to 26. Of the 462 students, 217 were females and 245 were males. They were asked to voluntarily participate in the research. The researchers went into different educational classrooms within the university and explained the purpose and the process to the students. The researcher used a MANOVA to determine the "…effects of gender and loneliness levels difference on the students' coping style with stress on dependent variables" (Cecen, 2008 Page 511). Cecen's findings "specifically indicated that when comparing men and women, men use self-confident, optimistic and hopeful coping styles and women use social support seeking and submissive coping styles" (Cecen, 2008 p. 512). With this research we see that there are differences with how women and men deal

with loneliness. Can these differences be linked to background or some genetic disposition between males and females?

These studies on gender show differences between males and females in learning situations and in coping with loneliness. They show that teachers must be aware of sexism in the classroom and that opportunities with technology increase capabilities. It would be interesting to see if there are gender differences in how high school students perceive social presence within CMC in the virtual classroom.

Cultural Influences on Internet Users

Zahir, Dobing and Hunter (2002) conducted research on whether national websites would cause cultures to converge or diverge based on information and a small view of cultures found in each country. At the time the research was conducted, two hypotheses were being researched relating to the effects of globalization on cultures. The first "…suggest[s] that as cultures become more modernized they will become more similar" (Zahir et al. 2002, p. 211). They believe that the internet will play a big role in the process of social convergence. The opposite school of thought is divergence. This theory suggests that "…cultures will resist assimilation and adapt technologies in culturally distinct ways" (Zahir et al. 2002, p. 211). In the past, the majority of research has taken a divergence approach looking to point out cultural differences and problems that may occur because of this tendency. Zahir et al. used Hofstede's dimensions, "individualism-collectivism, power-distance, uncertainty-avoidance, masculinity-femininity and long-term-short term orientation" (Zahir et al. 2002, p. 212), to evaluate whether cultures are evolving and converging.

Zahir et al. (2002) began their research by identifying 26 national portals that were chosen by somewhat arbitrary ways. Yahoo's format was chosen as the standard and other sites were compared to their format. The idea of a national website was to target individuals within the same cultural groups. Zahir et al. (2002) saw the internet as an emerging "…equalizer in respect of global information access, access to global markets and gender equality" (Zahir et al. 2002, p. 215). By analyzing colors on a website, researchers were able to identify different religious backgrounds. Colors can be linked to Hofstede's uncertainty-avoidance dimension, an attempt to control uncertainty by strict rules and codes of behavior or not as strictly controlled and deviation is more acceptable (Zahir et al. 2002). They found out that politics and religion are not profiled in all websites. Women's issues take a backseat to other issues, such as immigration to the west, which shows the process of social mobility. (Zahir et al. 2002)

Zahir et al. (2002) came to the conclusion that by studying national websites they could better understand each culture. They saw that both convergence and divergence forces applied. Since the internet and national websites are relatively new, continuing data collection as it relates to culture will allow the researchers to see whether convergence or divergence is occurring (Zahir et al. 2002).

Kersten, Koeszegi and Vetschera (2003) studied negotiations that took place anonymously through a technical medium to determine if a cultural influence could be detected. They used many cases from various backgrounds including laboratory and classroom experiments, remote groups and real-life negotiations. Real-life negotiations allowed the researchers to look at complex negotiations that reached across negotiation problems and cultures, while classroom settings allowed for more of a controlled

environment. The research team used a different approach to study cross-cultural negotiations than was typical of this type of research. "Most research studied face-to-face negotiations. This could lead to bias based on knowing the culture of your opponents and this could lead to participants changing their behavior to relate better to their counterparts. (Kersten et al. 2003).

Kersten et al., (2003) had to design a way to gather knowledge about cross-cultural negotiations. The system they designed involved "…detailed logging of the negotiation process and administering questionnaires to participants before and after the negotiations" (Kersten et al., 2003). This research utilized a web-based negotiation support system (NSS) Inspire. When negotiations are carried out in Inspire, several different aspects, such as timeframe, support and anonymity of negotiations are canceled out, resulting in a more controlled environment for the negotiations. Their results were based on data collected from 1,102 negotiations that had been carried out between the years 1996 and 2000. These negotiations took place between 2,204 users that were from 55 countries. Their data was partially collected from information that was automatically collected within the logs in Inspire and the rest came from questionnaires that the users filled out before and after their negotiations took place. Kersten et al. (2003) only chose participants whose country of birth and residence were the same. This did limit their data collection significantly.

They tried to identify effects that cultures had on anonymous negotiations within technical medium. They found that cultural differences do exist and they start from the beginning of the negotiations with their approaches. People are affected by their culture in the expectations that they have for negotiations. Researchers concluded that although

cultural differences could be seen early on in the process, once the process began, they could not say that a lot of the culture came through during the actual negotiations. The researchers could not conclude whether this was a limitation of the system they chose to study or an effect of the system. This study of businessmen did not focus on students interacting with students of other cultures. But educators are interested in learning about effects that cultures could have on communication within the virtual classroom. As virtual classes can attract students from different countries, cultural differences may affect students learning and social interaction within the class.

Online Communities

When we talk about online learning communities, teachers have different views/definitions of what constitutes an online learning community. Curtis (2006) looked at the different approaches some teachers have taken on this new trend in education. There are common features that all teachers see as part of an online learning community. "These common features include student-to-student feedback, collaboration between students, an audience that is beyond just a teacher and lack of dependence on time and space" (Curtis, 2006, p. 23). As we continue to expand our use of the internet, Curtis's (2006) study takes a look at how learning communities have been developed. We have better technology that allows us to create personal networks that can include concepts such as blogs and podcasts, while more structured communities have been built using course management software such as Blackboard and Moodle learning systems. Most learning communities have a common practice of delivering their message through the conversations that take place daily. Learning communities allow students to develop skills that will enable them to learn and develop new skills quickly. Students learn to self-

direct their learning and are better at expressing themselves to each other. Curtis (2006) discovered that students think out problems more thoroughly and are more careful about polishing their end-product. The students edit their responses prior to posting the message, leading to a clearer understanding of the questions or answers they are presenting. Learning communities are actually helping students develop better punctuation, grammar and spelling skills (Curtis, 2006, p. 25). Curtis (2006) learned that with the addition of an online community, the sense of community is stronger. Parents seem to take a more active role with their child's education when there is an online community where the parents can see what is going on daily in the classroom.

With the increased use of the internet, people now have the ability to reach other people with similar interests around the world. We are no longer tied to a regional area; instead the world becomes our playing field. Bowman (1999) did a case study on the online community found at Teachers.net. Teachers.net is a network setup by Bott, Reap and Carpenter that enables teachers to communicate with other educators from around the world. Bowman's (1999) research centered on whether or not Teachers.net was an online community.

One of the first areas Bowman needed to cover was what makes a community a community. It does not matter whether it was a face-to-face community or a virtual one; the traits are the same. "When a group of people have similar interest, congregate regularly in one place and get to know each other well…" (Bowman, 1999, p. 5), this is the beginning of a community.

A community is more than just a place to share ideas; it is also a place where everyone has a common purpose. For an online community to develop there are several

factors that must be present; "…sustained minimum level of interactivity and membership and a virtual meeting place where interactivity can occur" (Bowman, 1999, p. 7). Teachers.net is a place where educators can meet and exchange ideas and gain a sense of belonging. It is designed in a way to encourage interaction since there are areas for both professional exchanges as well as personal exchanges. "Teachers.net is a community with a culture all of its own that encompasses smaller cultural groups within the whole, all of which serve to attract new members and also sustain a solid core membership" (Bowman, 1999, p. 20).

A virtual class could be an online community since students share common subject goals and are expected to maintain a level of interactivity. Virtual meeting places could be the discussion board and asynchronous classroom activities that are viewed by all members.

The other problem researchers have come across when attempting to conduct research on internet communities involves the facelessness. As technology developed different ways for people to interact, an individual's own strengths and weaknesses can disappear. Franz directs our attention to the world of gamers, specifically the community that has developed around Sims Online. The Sims Online game allows individuals to interact both verbally and through graphic movements such as hugging, dancing, laughing, kissing and even fighting. Sims Online, which stereotypes people into specific areas, brings a whole new dimension to the world of gaming. Franz found out that the gaming community often limits the choosing of traits to "…North American upper class and upper middle class, primarily white male population" (Franz, 2002, p. 11). Although the internet is able to allow people to interact more freely, the gaming community limits

your ability to present yourself as you. Creating yourself realistically online becomes a hard task because of the limitations of the game.

Most "…studies show that the internet is gender and race-free" (Franz, 2002, p. 12), but that is not the truth. The default setting is merely a white male. What we need to see is that the internet hides gender and race. We lose our bias thanks in part to this default setting that allows freedom to express oneself within the parameters of its development. The virtual world has given participants the freedom to interact with each other without bias or stereotypes getting in the way. Online communications can be pure interaction where friendships and relationships are built on what participants talk about and not about how they look or act.

As the world has become linked through the use of computers, the concept of social networks was an area to be studied. Garton, Haythornthwaite and Wellman (1997) defined a "…social network as a set of people (or organization or other social entity) connected by a set of social relationships, such as friendship, co-workers or information exchange" (Garton et al., 1997, p. 2). Research prior to this study dealt mainly with the use of computer communication and how the individual user used the technology. In this study, they looked at the interaction between members of a community. Their goal was "…to understand the interplay between computer networks, computer-mediated communication (CMC) and the social process" (Garton et al., 1997, p. 2). Their analysis "…focused on patterns of relationships among people, organizations, states,…" (Garton et al., 1997, p. 2).

Garton et al. (1997) defined the unit of analysis "…as kinship, relations among persons, communication links among officers of an organization and friendships within a

small group" (Garton et al., 1997, p. 4). These units have a unique factor that they do not show "age, sex, religion, income nor attitudes" (Garton et al., 1997, p. 4). Data about social networks were gathered through questionnaires, interviews, diaries, observations and computer monitoring. By looking at who interacts with whom, we can tell much about individual networks. Some important questions to ask when studying social networks are the following:

1. Who talks to whom?
2. About what do they talk?
3. Which media do they use to talk a) to whom and b) about what?
4. How do ties and relations maintained by CMC change over time?
5. How do interpersonal relationships such as friendship, work role and organization position affect CMC?
6. How does CMC differ from face-to-face communications in terms of a) who uses them and b) what people communicate about?
7. Do CMCs describe different social networks than face-to-face communications? (Garton et al. 1997, p. 14).

By using sociograms the researchers saw how CMC changed the flow of communication within a company. The data was drawn from an electronic log of all the interactions on the CMC network by all members of the organization over an 18 month period. They found that the President and Vice President were directly connected through their use of CMC. "When the parties involved were interviewed they reported that CMC was helpful in supporting collaboration and decision-making" (Garton et al., 1997, pp. 18-19). After the 18 months, a new sociogram was put together showing that the

President and Vice President were no longer solely connected to each other through the CMC. Each had built new connections within the company itself.

Looking at the use of social network in the world today, one thing to keep in mind is the effect it can have on our social and emotional psyche. According to Affonso (1999) at Carnegie Mellon University, researchers studied 169 people in the Pittsburgh area who were either first-year or second-year users of the internet. They reported keeping up with friends as being the primary reason for their use of the internet, but when they reviewed their actual time spent on the internet, they found that they were spending less time talking with friends and family members and experiencing more stress and feeling lonely or depressed (Affonso, 1999, p. 1). This seemed to be the trend with most users, but parents have similar fears when their children access the internet. Parents believe in the benefits of allowing their children to use the internet, but also understand the drawbacks.

One of the most prominent problems recognized is that people are showing signs of addiction to the internet. Although there is not an actual disorder for addiction to the internet, heavy users do exhibit the same characteristics as other addiction disorders which, may include "using the computer for pleasure, gratification or relief from stress; feeling irritable and out of control or depressed when not using it; spending increasing amounts of time and money on hardware, software, magazines, and computer-related activities; and neglecting work, school or family obligations. (Affonso, 1999, p. 2).

The question remains, what effect will the internet have on our students? Weinstein at the University of Purdue believes that "…internet users will lose the savvy, skills and patience of social conduct related to the corporeal world" (Affonso, 1999, p. 3). We have identified a problem and know that awareness is the key to solving it.

There are some ways in which the internet can help children learn more about social skills that are positive and educational. Children have the chance to interact through the internet in forums and magazines which allow children to read, think, analyze and respond to others who have similar interests and ideas. The internet can play a positive role in the education of our children through its interactive world. Keeping the computer in a public area of the home and being there as your children interact on the internet becomes important supervision for safety.

Park (2003) also conducted research on social networks created through the internet. He reviewed hyperlink network analysis (HNA) by examining past research and how data was collected. Park saw a difference between social networks and communication networks. A social network is composed of people, groups and organizations that are connected by a set of common interests or relationships. A communication network is primarily composed of individuals who are linked by a pattern of information flow. An example might be communication between departments in an organization. Early research was generally conducted on communications within business networks. They found that the closeness of workers helped determine the amount of usage on the network. Workers who had closer personal relationships tended to use the network more to communicate with others than those who did not have a close relationship. Researchers looked at "…CMC networks to examine the structural relationship between people and how their positions in the network affect their behavior and attitudes" (Park, 2003, p. 53). This helped determine the social or communication structure among participants in the network.

The research can be conducted in two ways: direct observation or a computer-assisted measurement. Direct observation has usually been the primary means of collecting this data, but it has drawbacks. The first is that it is very time-consuming to review websites and their links. The other problem is the inconsistency from reviewer to reviewer. Using computer-aided software has become another method of gathering information, but the programs available generally do not gather the type of data a researcher needs. Most researchers would prefer to have their own program created for gathering information. Most of the new creations have a limited range of material collected and access is limited to specially designed programs, which create problems for researchers trying to replicate results. Park focused on "…HNA as a new methodological tool and provided some techniques for collecting hyperlink data"(Park, 2003, p. 57). Park suggested additional areas that need to be researched. "Do these networks affect social networks in the physical world?" (Park, 2003, p. 58) Will cultural differences influence the networks' structures?

Social networks have allowed dispersed groups of people with a shared interest to meet and discuss related topics. Wilson and Peterson (2002) have looked at this phenomenon and have come up with several questions. "How do scholars approach online communities and online communications in general? Is the concept of community itself misleading? How are issues of power and access manifested in this arena? And given the internet and the communication technologies based upon it, as well as all the texts and other media that exist that are themselves cultural products, will an anthropological approach to these phenomena necessarily differ from other types of anthropological investigation?"(Wilson and Peterson, 2002, p. 449). Throughout history,

technology/media has been perceived as a peripheral facet of a culture, but now we need to address it as being a central part of the culture. With the creation of individual communities where identities are negotiated within the community itself and sub-groups become defined, the internet has taken a more active role in the development of culture. These communities may have members from around the world who share a common interest. Within each community, many different forms of communication exist. There will be groups where people openly discuss issues or conduct person-to-person talks.

It raises interesting questions related to how newcomers get welcomed to the group. "How are gender and ethnic identities negotiated, reproduced and indexed in online interactions? How can the internet and computing practices become more normalized or institutionalized in a variety of contexts." (Wilson and Peterson, 2002, p. 452). We are seeing that people can take on more identities within online communities. People can engage in fantasy play that allows them to intentionally disconnect from their real-world identities or continue their professional identities. "Scholars also have viewed online identities as directly tied to the notion of credibility, content and frame in the exploration of real vs. virtual identities." (Wilson and Peterson, 2002, p. 452).

Rourke and Anderson (2002) began exploring relationships in text-based asynchronous social communications and student's perceptions of social community associated with computer conferencing. A 32 item questionnaire was completed by 74 students from four different departments within the University of Alberta. Rourke and Anderson (2002) used a definition of "…social presence taken from an article by Garrison, Anderson and Archer as the ability of learners to project themselves socially and emotionally as real people into a community of learners" (Rourke & Anderson, 2002,

p. 262). They used two questions to guide them through their research. "1. What are student's perceptions of the social environment of the conference? 2. Which types of social communication are positively related to the students' perceptions of the social environment of the conference?" (Rourke & Anderson, 2002, p. 264). For this study, the term social expression was used to "…refer to the localized elements of the students' messages that serve social rather than informative functions" (Rourke & Anderson, 2002, p. 264). The study found that "students overwhelmingly felt the social environment of the computer conferencing as friendly, warm and trusting and a majority of students perceived the environment as personal and disinhibiting" (Rourke & Anderson, 2002, p. 269).

Their second question dealt with frequency of social expressions and the student perception of the social environment. The results "…showed that there are two groups of students taking part in computer conferences. The first group of students selected distance education because traditionally it was an independent study where students progressed at their own pace and reached their own goals" (Rourke & Anderson, 2002, p. 270). For this group of students, social expression would impede students reaching their individual goals. "The second group of students may find themselves in an independent study course longing for social interaction that they are accustomed to in a face-to-face setting" (Rourke & Anderson, 2002, p. 270). These students see social expressions as having a positive effect on the learning environment. Social expression places them into a comfort zone to which they are more accustomed. Rourke and Anderson (2002) suggested that research be conducted that would develop valid and reliable instruments for assessing social presence. They also thought it was important to

research the aspect of social communication and learning as it related to students' overall goals in their courses.

Wegerif (1998) found that an important part of any asynchronous learning network was its need for a social dimension. He found, through an ethnographic study that was conducted on a Teaching and Learning Online (TLO) course through the Institute of Education at the Open University, that this argument was supported. Wegerif found that many studies centered on the two different aspects of learning, learning outcomes or educational quality, but few looked at the social dimensions which underlie most class activities. Wegerif set out to support this idea that social interaction needs to be taken into account when designing computer-mediated courses. Wegerif described three key factors which help develop a community. These factors involve:

> 1. Openness to newcomers [Do new members of the community feel welcome to join in discussions?]
>
> 2. Allowing newcomers to participate in its practice [Do members feel free to communicate in all discussions?]
>
> 3. Allowing them to move from peripheral to central status as rapidly and smoothly as possible [How long does it take for participants to feel comfortable creating and leading discussions?] (Wegerif, 1998, p. 34).

Wegerif (1998) found that students agreed with the concept that asynchronous learning networks supported collaborative learning more effectively than other teaching mediums. The second item of interest was looking at how important social factors were to this collaborative learning course. The "…findings of the study point to several factors which can influence the movement of students from being outsiders to becoming insiders,

including features of the course design, the role of the moderator, the interaction styles of course participants and features of the technological medium used" (Wegerif, 1998, p. 48).

Online communities can be referred to as social networks. Online communities like virtual classrooms develop around a common interest, allow the sharing of information and often participants develop social relationships. In virtual classrooms with high school students, educators hope that students develop social skills in addition to knowledge. Members of the class interact in an online environment using discussion boards to post their ideas. Students also communicate with each other using email. Depending upon the purpose of the lesson students' work in asynchronous classroom activities may also be shared with other class members. It is useful to examine some studies in which educators discuss pedagogy that can assist students in developing social presence.

Online Education

The relationship between student perceptions of their interaction, actual interaction and how well the student did in the course was examined by Picciano (2002) and used a course from Hunter College in New York City that was part of the Education Administration and Supervision Program. The particular class that was chosen was Issues in Contemporary Education. This course was an elective that was designed to provide future administrators with an appreciation of different points of view on current education issues. The overall conclusion of the researcher was that a relationship existed among students who interacted extensively on a discussion board and who were required to respond to similar situations such as a presentation involving a case study. The researcher

further "…concluded that the result of this study indicated that the relationship of actual interactions and performance is mixed and inconsistent depending upon the assessment measures that were used by their course instructors" (Picciano, 2002, p. 33). The study also suggests that such interaction affects learning outcomes and that these relationships are complex pedagogical phenomena that are in need of further study.

Richardson and Swan (2003) researched how students' social presence in an undergraduate online course is related to the perceived learning and satisfaction within the course. The purpose of the research was to examine relationships among students, perception of social presence in an online course, student's perceived learning and their satisfaction with the instructor. Richardson and Swan came up with four hypotheses to be tested.

1. Students' perception of social presence in online courses is related to their perceived learning and satisfaction with their instructor.
2. Students' perception of social presence in online courses is a predictor of their perceived learning.
3. Course activities perceived by students as having the highest level of social presence also have high levels of students' perceived learning.
4. Gender, age and number of college credits earned are related to students' perception of social presence in online courses (Richardson & Swan, 2003, p. 71).

There were several implications that came out of this research. First, students who reported higher perceived social presence also perceived that they learned more from the course than students with a low presence score indicating a relationship between social presence and perceived learning. They also found a relationship between students' social

presence and their overall satisfaction with the instructor. This implied that students' perceptions of social presence were related to the perception of their instructors as having a satisfactory online presence in terms of the amount of interaction and the quality of that interaction. Richardson and Swan (2003) found that their sample was not truly randomized but rather included mainly nontraditional students returning to school rather than the traditional undergraduate population.

This study showed that instructors need to be aware of the immediacy of behaviors and social presence, not only for themselves, but also for their students. They found that students who perceived themselves as having high social presence in the course also perceived their learning as being higher than those who did not have a high social presence and these students thought the teacher was outstanding when compared to students who had lower social presence. Richardson and Swan felt that their research was timely and added to an area of research that needed more empirical research.

Muirhead (2000) was moderator and summarizer for a discussion that took place during the week of August 28 and September 6, 2000 on "Enhancing Social Interaction in Computer-Mediated Distance Education" (Muirhead, p. 4) The discussion came out of the controversy over the quality of online courses and the concept of creating more interactivity within an online classroom. Most educators feel this interaction is vital to the learning process. There are seven distinct areas where students see an advantage with online education: "…increased interaction, access to group knowledge and support, democratic environment, convenience of access, user control over the learning interaction, motivational aspect and text-based communication" (Muirhead, 2000, p. 1).

With online education, the role of the instructor has been changing. The role of an instructor is to encourage discussion by introducing new topics, sharing more material and redirecting conversation patterns. With these changes, students are finding that the more interaction between students, instructor and the group, the more insight students are gaining. There were concerns that this style of learning did not promote critical thinking of the serious themes found in the courses. The members of the discussion stressed how important it is to have more research on the human dimension of distance learning as it affects the overall outcome of the learning process.

Students saw benefits with online education due to the ability to really think about a concept prior to responding to questions. They did find out that responses within a certain period of time were really relevant to the discussion. Students who fell behind sensed that they were missing an opportunity to interact with classmates. Students taking online courses have shown a real need to connect with other members of the group. This becomes an important part of their learning process. As the term progressed, instructors saw that students' participation seemed to slack off as they neared the end. The online classroom tends to be a more self-directed form of study and students need to become more aware of their own needs. This means they need to develop different communication skills, understand their own roles in the classroom and become more autonomous in their studies.

As more and more schooling is being done online, we need to ask ourselves how traditional pedagogy will fare within a virtual classroom. Constructivism is best described as a theory of knowledge acquisition. Doolittle (1999) looked at constructivism as it applies to the virtual classroom.

Constructivism posits that knowledge acquisition occurs amid four assumptions:

1. Learning involves active cognitive processing.
2. Learning is adaptive.
3. Learning is subjective, not objective.
4. Learning involves both social/cultural and individual processes. (Doolittle, 1999, p. 8).

These four assumptions have led to the eight pedagogical recommendations. Doolittle looked at each recommendation and how it would be met within a virtual classroom.

1. Learning should take place in authentic and real-world environments. – Online education is potentially quite effective in providing virtual environments in which one can simulate real-world events. Online environments must provide complex, culturally relevant, ill-structured domains within which the user can operate and live.

2. Learning should involve social negotiation and mediation. – The use of both asynchronous and synchronous online communications allows for social negotiation and mediation to occur across both time and distance.

3. Content and skills should be made relevant to the learners. – Online education is quite capable of providing relevance as long as the learner is able to self-select a relevant topic, process, or skill.

4. Content and skills should be understood within the framework of the learner's prior knowledge. – In a synchronous environment mediated by an instructor, a student's prior knowledge may be probed at the beginning of instruction and instruction may then be adjusted based on the feedback from the

students. In an asynchronous environment, this type of probing and responding is less fluid and flexible.

5. Students should be assessed formatively, serving to inform future learning experiences. – Instructors will often provide students with self-check quizzes that assess students during various parts of instruction. The use of quizzes is usually marginal, providing feedback to students so that students have a better understanding of their learning.

6. Students should be encouraged to become self-regulatory, self-mediated and self-aware. – Online education typically requires students to be more involved and more persistent relative to the educational environment.

7. Teachers serve primarily as guides and facilitators of learning, not instructors. – There is less instruction going on in an online classroom and more guiding and facilitating. Online education can be effectively constructed to emphasize a facilitating role for instructors while students engage in simulations, web-based data collection and ill-structured problem solving.

8. Teachers should provide for and encourage multiple perspectives and representations of content. – Online education has easy access to international and culturally diverse resources, including diverse populations. (Doolittle, 1999, pp. 7-9).

Vonderwell (2002) addressed two questions; "1. What are the implications of asynchronous communication on student learning? 2. To what extent does asynchronous communication and interaction enhance student learning." (Vonderwell, 2002, p.78). Vonderwell decided on a qualitative case study to research these two questions. The

course the researcher chose is one from a large Midwest university in the school of education. The course, Technology Applications in Education, is taught each term to undergraduate students. Generally there are six or seven sections. During their spring term of 2001, Vonderwell taught one section as an online course. There were 22 students, 17 females and five males, enrolled in the course and only two students had taken an online course prior to taking this course. This course was set up within Blackboard and mainly used small group discussions within the classroom. The instructor set up two additional areas within the classroom to help students with access to the course: Frequently Asked Questions and Help and Tips. In addition to these, the instructor also set up an area labeled as the Coffee House. Students could use the Coffee House for interaction with other students that could be either course-related or personal.

Data was collected from students using multiple sources that included interviews, student and instructor email transcripts, discussion board transcripts and two independent peer reviewer's observations. Vonderwell (2002) found the students "…online environment gave them more of an opportunity to ask questions of the instructor" (Vonderwell, 2002, p. 82). Some of the students were frustrated when other class members were slow in responding or never responded to messages posted within the collaboration area. The students felt that this was a drawback to an online classroom which is not seen within a face-to-face classroom. Students do not just ignore you when you ask them a direct question within a face-to-face classroom.

Students did not feel a personal connection to their instructor in this setting. "One-third of the students expressed that the main form of communication between them and the instructor was in the form of back and forth emailing" (Vonderwell, 2002, p. 83). "All

the students felt that the communication in an online environment is less personal" (Vonderwell, 2002, p. 82). This feeling could be biased by the fact that students did not get immediate feedback or communication from their instructor. In a face-to-face classroom you get a response directly back from the instructor when a question is posed. In the online classroom, it is not immediate and may take a day or more to get a response. As the term progressed, the students saw a decline in response time from their instructors.

The course relied heavily on group collaboration and, for two groups, this caused them to "…experience some frustration due to team members not cooperating" (Vonderwell, 2002, p. 85). "The other four groups indicated that their learning experience was good and that they had effective communication and learned from each other" (Vonderwell, 2002, p. 85).

Some drawbacks that instructors need to deal with in an online classroom are moral issues, isolation and delay factors. Instructors can overcome these issues by "…becoming aware of the barriers that can create a communication gap in learning environments" (Vonderwell, 2002, p. 87). By effectively planning the course and each exercise, most barriers can be avoided. Instructors need to be careful that they do not answer too quickly and not encourage inquiry and collaboration that can build learning. "Creating a community of learners can improve student motivation and help facilitate interpersonal/social interaction sought in an online classroom" (Vonderwell, 2002, p. 88). The researcher also suggested that it is important for the instructors to "…rethink their practices in terms of communicating with their students and providing effective instructional strategies for improved communication and collaboration among students" (Vonderwell, 2002, p. 88).

Students need to realize the differences between a face-to-face classroom and an online classroom. They need to look at their own expectations and see that there are limitations in both environments that they may not be able to overcome. Students will need to adapt their own learning to get the most out of both settings. They need to understand the autonomy that is in an online classroom, but also the need to collaborate with others in the classroom. Students need to take control of their environment and seek out what they require to be successful within this environment.

Kim and Lee (2002) reviewed environments where learning was done through collaboration with others (e-Project-Based Learning or PBL). These networks have limited functions which allow the system to be optimized for success. With learning networks, the learners have a reflection activity that allows for the facilitator and learners to view the learning outcomes as they progress through the program. The learners have time to review and reflect on their knowledge as it is being developed.

"Situated learning theory defines learning as the outcomes of social interaction with other members of the community" (Kim & Lee, 2002, p. 380). Learning is thought to develop out of the "…exchange of information and opinions which learners observe and a variety of thinking patterns or performance of other learners" (Kim & Lee, 2002, p. 380). These interactions allow the learner to analyze and reconstruct the learning process. PBL environments can be characterized in the following way. "Collaborative reflection promotes learners' options to articulate ways of thinking and develop divergent thinking styles" (Kim & Lee, 2002, p. 383). Within these systems there is a need for social context and interactions.

Classroom Community

Not all online education results in a community of learners. Building a classroom community in an online class through student interaction, person-to-person awareness (social presence), and instructional effectiveness is the focus of several studies.

Matus and Allen (2004) researched the effects of using peer-assisted learning as an aid in the development of an online learning community. They worked from a definition supplied by Shrivastava (1999) and Brower (2003) that built a learning community around the fact that students needed to interact. The course they used for their study was from Australian University entitled Australian Labor Relations (ALR). This course was the first from the university to be put into an online format and used learning portfolios as part of their assessment. This course had 22 students, of which 11 chose to take part in the study. Matus and Allen (2004) used both personal interviews and surveys to collect data.

Since the information technology (IT) skills of the students in this course were low or poor, it was decided that the primary course material would be delivered through print resources. The students all received printed copies of key readings along with a CD-ROM containing essay writing instruction and other material deemed important by the instructor. Several of the students could not open the material due to older computers. With such poor or low IT literacy among the students, it was decided that the course would not run on Blackboard, but through email communications.

This course had three main assessment tools that it used: learning portfolios, an essay and an exam. The learning portfolio, the main focus of the research, went through many revisions and feedback sessions. The process was as follows; " 1) submit draft 2)

receive feedback from peer/partner 3) receive feedback from tutor (instructor) 4) revise information based on feedback and resubmit 5) receive feedback from tutor (instructor)" (Matas & Allan, 2004, p. 4). The major drawback in this process came with step two. When students were asked to give feedback to classmates the feedback generally was given in a negative tone. The student become offended by the feedback and turned students away from forming formal peer relationship that the tutor was trying to develop. Without this peer to peer relationship the community did not grow as intended. When students turned away from the formal development of a community they created an informal one.

Surveys were completed several times throughout the semester to gauge baseline information, compare and contrast data as well as to see development of skills. One notable comment made by students was that this mode of instruction was not their preferred option for getting an education. As Matus and Allen (2004) gathered information, this point was made clear by their choice of communication with their instructor.

The design of the course did not lend itself to creating an online learning community, but students did find a way to develop the community. One drawback to this study was the choice to not use a course-management system. This course did not have the ability to be more interactive without a common place for students to discuss issues. Problems with students accessing the library online could have been located in a discussion thread where students could offer solutions to each other. This study was hindered by the choice made at an administrative level, rather than a classroom level.

From Tu (2002), we are given a definition for social presence that can be applied to the virtual classroom. Social presence can be described as "the degree of person-to-person awareness which occurs in the computer environment" (Tu, 2002, p. 34). Tu referenced research from Short, Williams and Christie (1976) that showed social presence is an important part of enhancing and improving effective instruction within both traditional and technology-based classrooms. Tu (2002) found that most studies adopted Short et al.'s four items to measure social presence: personal-impersonal, sensitive-insensitive, warm-cold and sociable-unsociable. Gunawardena and Zittle (1997) found that these four items were too general for application in the world of computer-mediated communication (CMC). Social presence in a virtual world relies more on the human perception and becomes too complicated for just four items. Gunawardena and Zittle created a new instrument to measure social presence within an online community, but this instrument still did not completely capture the essence of social presence within a virtual classroom.

Social presence has been significantly linked to instructional effectiveness; therefore it becomes an important factor when designing distance-education classrooms. Studies of social presence began on a small scale, looking at how college students interacted with professors. Original studies showed that students used email more when they felt an interpersonal presence. Problems arose when students felt that classroom work was not private therefore not personal or confidential. According to Tu (2002), "There are significant correlations within the three stages of social presence theory development:

1. Emergence

2. Application in CMC

3. Application in Education using CMC" (Tu, 2002, p. 36).

Tu defined social presence as "…the degree of salience of another person in an interaction and the consequent salience of an interpersonal relationship" (Tu, 2002, p. 38). Tu wanted to create a clearer definition through investigation and developed two components that were to be studied through this research. First was to define the components of social presence. Then Tu wanted to see if these affected the degree to which social presence was found in CMC. Tu developed a questionnaire that was used to study social presence as well as privacy based upon two different instruments. Tu "combined Steinfield's survey that was developed for examining business user's attitudes toward CMC and Witmer's instrument which was developed specifically for an online news group concerning the topic of sex" (Tu, 2002, p. 39). Eight objectives were identified in the study:

1. Social presence – degree of salience of another person in an interaction and the consequent salience of an interpersonal relationship.

2. Privacy – private, safe, security, confidentiality and reliability.

3. Utility – CMC general use

4. Ease of use

5. Interactivity – Two-way exchange, immediacy

6. Language – online language and cues used

7. CMC experience and competence – CMC experience and level of comfort

8. Demographics – gender, age and access to computers" (Tu, 2002, p. 39).

Tu's study centered on students between the ages of 18 and 45. Most of the students had access to a computer at home, while about one third had been using the internet for one to two years. Students believed that social context consists of both social and informal conversations with people. The students felt that email was a social form of communication that could deal with sensitive information. They did not feel comfortable posting sensitive information during real-time chat or on bulletin board postings. Tu came to the conclusion that of the three means studied bulletin boards, live chats and email, email showed the most social presence.

Tu's second factor reviewed how well these three forms of online communication conveyed feelings or emotions as well as the use of language. For the most part, students felt that all three means of communication were stimulating, meaningful and overall easy to understand. Tu's third factor reviewed was interactivity. Again, email received the highest rating for interactivity. Tu concluded that the nature of email, one-to-one communication causes it to require more interactivity.

Tu concluded that the questionnaire needed further development, as several items were discarded due to low response. Since Tu conducted his research in an educational setting, he suggested further research be done in the business community to see if these trends continued.

Gunawardena (1995) saw the development of the internet as a new community. With all communities, people will have roles and communicate with each other. With online communities the social presence became more of a perception. Gunawardena wanted to review social presence theory making a point to examine both traditional and distance educational settings. Gunawardena chose to "…compare two cases that

examined whether social presence is largely an attribute of the communication medium or the users' perception of the medium "(Gunawardena, 1995, p. 149).

Gunawardena (1995) first reviewed a case study that examined "…students' perceptions of Computer-Mediated Communication (CMC) after the end of the spring 1992 and fall 1993 GlobalED Computer Conferences" (Gunawardena, 1995, p. 149). This study focused on one question from a questionnaire that was administered to participants from a GlobalED Computer Conference that took into account their reaction to CMC.

The second case study involved graduate students from two different universities who were linked after a GlobalED Computer Conference. After an initial introductory period, students were integrated into a face-to-face classroom and asked to rate the CMC. These students rated CMC very positively. Some students continued with the online participation and agreed that they were able to move from a class designed to be task-orientated to a more social discussion toward the middle of the semester. Gunawardena concluded that both "…studies point toward social presence as a potentially significant factor in improving instructional effectiveness in both traditional and computer-mediated distance classes" (Gunawardena, 1995, p. 164). It was also noted that social presence could be developed through the attributes of the communication medium.

Conrad (2002) researched online learners' experiences through an interpretive process and attempted to make sense of those events through the reflective telling of their stories guided by the question, "…what influences members' contributions to and participation in, online learning activities?" (Conrad, 2002, p2) The research centered around seven students; all were adult learners that chose to pursue their undergraduate

degrees through an online program. Conrad collected data by conducting personal interviews, putting together field notes along with notes that students prepared for her prior to her interviews and data about their interaction. From the information gathered, Conrad made suggestions as to what could be done to better aid the development of an online learning community.

She defined community as a group of people going through the same things together at about the same time and place. The members of the community would have different perspectives entering the group that could lead to more networking opportunities. Students told her that it was important for them to have a face-to-face meeting in order to take a step toward building a community. Conrad's students "indicated that their experiences of building and maintaining community changed over time" (Conrad, 2002, p.13). She suggested that participation in online learning activities precede the formation of and contribute to community.

Mykota and Duncan (2007) researched what characteristics an online learner should have that would aid them in the development of social presence in an online class. Prior research focused on the building of the actual environment and the creation of a comfortable classroom that allows for easy communication. Mykota and Duncan (2007) used an online special education certification program at the University of Saskatchewan. All of the students had a Bachelor of Education and at least one year of teaching experience. The students for this study were taking one of the first four courses in the program. These courses are primarily text-based and use both synchronous and asynchronous tools. The students in these courses voluntarily completed the computer-mediated communication questionnaire (CMCQ) designed by Tu.

They used a one-way ANOVA to "…determine whether a significant difference occurred among students in online social presence based on age, teaching experience, number of online learning courses taken and readiness for online learning" (Mykota & Duncan, 2007, p. 164). The researchers saw "…social presence total score of the CMCQ was significantly lower for learners in their first online course" (Mykota & Duncan, 2007, p 164-165). They found that the number of online courses taken had significant effects on the total score for social presence. By supplying training sessions to help the students embrace computer-mediated communications and allowing these practices to carry over into the virtual classroom, the social presence total score of the students would increase (Mykota & Duncan, 2007).

One of the ways we can help students develop their social skills is through collaborative activities within a virtual classroom. Campos, Laferrièr and Harasim (2001) looked at the differences between individual and collaborative activities as they apply to integrating technology and conferences within a face-to-face classroom. By bringing into the classroom teleconferencing or web conferencing, we open up a whole new social aspect of a classroom. The researchers developed three-levels of classification of networked classrooms based on their research: "…the net-showroom, the net-meeting room and the net-workshop" (Campos et al., 2001, p. 46). These classifications are based on how educators set-up their virtual classrooms. The net-showrooms are the portion of the virtual classroom where materials are posted for students or other members of the classroom community to review them. Net-meeting rooms are a highly structured area used for cooperative activities. The final areas, the net-workshops, are the areas used for the collaborative activities and building knowledge and social learning.

The purpose of their study was to help support educators with their design and use of face-to-face interactions as well as those interactions that could be created in a networked classroom. They found that the "…degree of collaboration depends largely on the ability of the educators to respond to the requirements of the newborn knowledge in society that allows for the process of intertwining practice and pedagogical ideas through networking" (Campos et al. 2001, p 49). The research results showed that through the use of conferencing students renewed their social learning practices, writing practices and improved the quality of learning that takes place in a networked classroom.

Summary

Chapter 2 was divided into six sections. It started with how educators can help young students develop their social skills. Craig-Unkefer and Kiser (2002) worked with preschool children who showed delays in language development and behavior problems. Their treatment seemed to be successful, but they recommended that further research be done with their methods. Beilinson and Olswang worked with kindergartners who showed signs of impairments when placed in social groups. Their method of treatment involved three steps. The students who went through all three steps in the program showed more integration into peer group play. Olswang, Coggin and Timler (2001) researched how students handled different social situations. The students in this study had showed problems dealing with different social gatherings and were taught methods to handle the changes. Although the treatment seemed to work the question still remained as to whether the children were able to apply these strategies as they grew and became more involved. The fourth article in this section looked at treatment of elementary students who have Pervasive Development Disorder (PPD). Thiemann and Goldstein (2004)

researched the effect of a combination of two traditional treatments for PPD. By the combination of the two treatments, the researchers concluded that students receiving both treatments showed a greater success rate of using social communication skills.

The second section of the literature review concerns gender issues. Allen (2008) found that in elementary classrooms boys' learning is facilitated through active learning; girls learn better where emotion is involved and are distracted by movement. Spears (2008) felt that recognizing gender differences was an important step so that instructors could employ teaching methods that create equal learning opportunities for both sexes. Baker et al. (2007) found that students' comments seems to indicate that technical self-efficacy is strongly related to multiple opportunities to gain mastery experiences with technical tasks and that these experiences should not be competitive. Cecen (2008) researched gender differences in coping behaviors.

The third part of chapter two dealt with cultural influences on the internet. Kersten, Koeszegi and Vetschera (2003) used negotiations that took place through the web to determine if the medium could eliminate cultural influences that affect negotiations. They concluded that the cultural influences could be eliminated the longer the negotiations went on. They could not link this to the medium used, but instead thought it was a natural part of the negotiation itself. Zahir, Dobing and Hunter looked at national websites to see if the countries' cultures prevail and if these cultures would begin to converge or diverge. Their research was inconclusive, showing both convergence and divergence: however this study needs to continue, as the internet was fairly new at the time of their research.

Online communities have expanded our interactions with the outside world. We are no longer tied to a geographic area, but instead have the ability to interact with others around the world. Curtis (2006) began the section by looking at the strength an online community can bring to a classroom. Bowman (1999) shared information about Teacher.net and the community that built around that internet group. Franz (2002) researched the ability of the internet to allow us to create a new identity. The internet allows people to become somewhat anonymous. Through this research we see online identities are not anonymous, but rather take on the traits of your average person. Garton, Haythornthwaite and Wellman (1997) researched how CMC interaction between different members of a community aided by supporting collaboration that related to better decision making. Alfonso (1999) researched the effects that the internet can have on our social and emotional well-being. The results were positive in that children can learn about social interaction through the internet and the internet can have a positive role on how we educate our children. Wilson and Peterson (2002) looked at how the internet affected our culture from an anthropological view. From this research, we see that identities of people can change through their virtual interactions as they live out their fantasies and create new personas.

Online education can take on many forms. Muirhead (2000) looked at the controversy over the quality of the course and the creation of more interactivity within the virtual classroom. From his research, we see that virtual education puts more of the pressure on students to be self-directed and better communicators. Doolittle (1999) examined how virtual classrooms apply constructivism to the building of the community. Vonderwell explored how asynchronous communications affect student learning. He

concluded that teachers need to think about the messages they want to convey to their students that will help with collaboration and communication among students. Kim and Lee (2002) reviewed virtual classrooms where learning was done through collaboration. They found that collaboration allowed students to articulate ways of thinking and to develop divergent thinking styles. Kim and Lee suggested that for this to happen, teachers needed to play more attention to the social context of each interaction in their classroom.

Classrooms online develop their own communities. Matus and Allen (2004) reviewed the use of peer-assisted learning as an aid to the development of an online learning community. The course Matus and Allen used did not help them in their research. The design of the course was counter-productive to developing a community. Tu (2002) used college students to assess social presence within an online course. He had students complete a survey and evaluate CMC. Tu concluded that students perceived email as having the most social presence. He also concluded that his survey needed more development and suggested that further research be done within business settings. Gunawardena (1995) used case studies to review social presence within an online classroom. The comparison between traditional classrooms and virtual classrooms pointed toward the idea that social presence is a significant factor in improving instructional effectiveness in both traditional and computer-mediated distance learning classrooms. Conrad (2002) reviewed factors that influenced participation and contributions to the online course. In the end, she concluded that students thought it was important to have a face-to-face meeting prior to online sessions in order to build a community. Mykota and Duncan (2007) set out to find characteristics that aided students

in developing social presence in an online classroom. They did not find any one characteristic that affected the development of social presence, but they did suggest that students with better training on the use of CMC did show higher social presence in the classroom. Campos, Laferrier and Harasim (2001) studied how the design and the use of face-to-face meetings during or before courses helped develop social networks within their online classroom.

Previous research has studied various aspects of socialization with very young children or with undergraduate or graduate students. Socialization is very important at the high school level. This researcher will assess whether social presence is enhanced for high school students by the use of email communications, discussion boards, tutoring sessions and other asynchronous classroom activities in a virtual setting.

The method of research will be discussed more thoroughly in Chapter 3. This research will use the survey developed by Tu. The subjects of this study will be high school students from a cyber school in the state of Pennsylvania. These students will be asked to voluntarily complete the survey that will take approximately 20 to 30 minutes to complete.

The results will be reviewed in chapter four looking at connections between students' perception of their social presence using email, discussion board, tutoring session and asynchronous classrooms. The study will evaluate how these four forms of Computer-Mediated Communication are viewed by high school students at different educational levels and their own rated abilities using CMC.

The last chapter will allow the researcher to discuss the results as they relate to the five proposed research questions. It will give the researcher a chance to address any recommendations or suggestions for future studies.

Chapter 3

Introduction

This researcher investigated the perception of social presence that students in a virtual high school have of using computer-mediated communication (CMC): email, discussion boards, tutoring sessions and asynchronous classroom activities. The researcher gathered data to review three different perspectives of social presence: gender, years of experience in a cyber school and self-proficiency rates on each form of CMC. The researcher gathered data that looks at the overall view of computer-mediated communication and which of the four forms seems to show more social presence.

Participants

Cyber Charter School X, a cyber charter school located in Pennsylvania, was chosen for this study due to the programs that it already has in place to aid students in developing their social skills. Cyber Charter School X looks to their Virtual Village program to create a community for students and families. Virtual Village is made up of five different components: online directory, parent discussion groups, classmate chats, organized activities and smaller groups functions.

Cyber Charter School X is a charter school that enrolls students from kindergarten to 12th grade. Students in Cyber Charter School X are from the state of Pennsylvania and number over 8,000 students. Of these students, 2,500 are high school students. All students have the option of doing self-paced learning or attending a virtual classroom. The virtual classroom has set meeting times and lectures that students attend several

times a week. Cyber Charter School X designs an education plan for each student that is monitored by parents and an instructional supervisor.

With every educational institution, a community develops around the school and Cyber Charter School X is no different. To help ensure that families and students have a way to connect and embrace this community, Virtual Village was created. Virtual Village is made up of five areas:

- *Online Directory:* An online directory of fellow members' names, grade levels, email addresses and geographic areas paves the way for open communication with other students in their grade or geographic area.

- *Parent Discussion Groups:* Parents can network with other parents from the comfort of their homes by participating in online chats. Ideas, tips and insights are shared daily through this forum.

- *Classmate Chats:* Many students become more engaged in their education when they build friendships with classmates online and on the phone.

- *Organized Activities:* Virtual Village regional coordinators plan events to bring families together for fun. Some of these activities include movie night, game night, picnics and park trips.

- *Smaller Groups:* As students and families become acquainted, they find common interests and often branch off into informal groups that plan activities or just "hang out." (Family link: connect, support, share, 2008)

Virtual Village was developed to help students and their families create a community around their education and overall to support the mission and goals of Cyber Charter School X. The mission of Virtual Village is to:

1. Support and provide encouragement to fellow Cyber Charter School X families within a regional geographic territory
2. Aid in the fulfillment of the Cyber Charter School X mission
3. Foster increased interest and satisfaction" (Family link: connect, support, share, 2008)

The overall objectives of the Virtual Village Program are the following:

1. Create a welcoming environment whereby students and families have the tools to gather as an united entity
2. Foster recruitment and retention efforts
3. Enable parents to network in order to establish and maintain a social and supportive organization for the betterment of the Cyber Charter School X
4. Increase the opportunities for the reinforcement of interest and satisfaction in the Cyber Charter School X (Family link: connect, support, share, 2008)

In addition to the Virtual Village programs, Cyber Charter School X has also developed a program known as Cyber Charter School X++. Cyber Charter School X++, is a hybrid learning experience where students can attend additional learning segments at a location in Western Pennsylvania. Students who participate choose to join small groups

or individual learning sessions. These sessions meet the needs of students who wish to have face-to-face meetings and gain extra knowledge/help.

Proposed Demographic of Research Subjects.

This research involved students from a Cyber Charter School in the state of Pennsylvania. The high school students from this Charter school were asked to take a survey through an online survey website. The survey took approximately 20 minutes to complete. The students taking this survey range from 14 to 19. The grade levels are those generally associated with high school: Seniors, Juniors, Sophomores and Freshmen.

Procedure

Parents of prospective research participants had the research explained to them by their Instructional Supervisor (IS). After the IS and parents have completed their discussion of the study, the IS emailed the consent form to the Parents. If the parents chose to give their consent to have their student take part in the research, they (the parents) signed the form and either scanned the signed document and emailed them to the researcher or they mailed the consent form to the researcher at her home address. The parental consent form solicited an email address that could be used to send out a link to the actual survey. The researcher collected the forms, creating a list of email addresses. The list only contained the email address and no other information. From this list, an email was sent to the participants from SurveyMonkey.com with a link to the survey. The students were then able to click on the link within the email and take the survey.

The solicitation of an email address was necessary due to the fact that these students do not meet in a face-to-face environment. If the subjects (students) were adults

(over the age of 18) then the student could sign and send in the consent form. The parents/guardians of any subjects under the age of 18 needed to sign a parental consent form. This form served as the consent form for the cyber students to take part in the research. The consent forms are stored in a locked file cabinet at the researcher's home. The researcher did not have direct contract with any subjects. The students did not receive any monetary compensation for participation in the survey. The students' assent form was acknowledged as part of the survey stating that, "By continuing and completing the survey, it will reflect your implicit assent to take part in the research study."

The survey was conducted through the SurveyMonkey website (SurveyMonkey.com). SurveyMonkey employs multiple layers of security to make sure that the participants' responses remain private and secure. SurveyMonkey employs a third-party firm to conduct daily audits of their security and their data resides behind the latest in firewall and intrusion prevention technology. SurveyMonkey.com is a licensee of the TRUSTe Privacy Program. TRUSTe is an independent, non-profit organization whose mission is to build user's trust and confidence in the Internet by promoting the use of fair information practices. The data was collected by this neutral outside source (surveymonkey.com). Data was only forwarded to the researcher once the timeframe of the research was complete. This data was forwarded to the researcher in an Excel spreadsheet. The Excel spreadsheet only contained responses to the questions asked in the survey.

The researcher ran a pilot of the survey prior to gathering research data. The pilot was run through the same website that housed the research survey. The pilot survey

involved 20 subjects, which included: parents/guardians, teachers and/or administrators from the cyber school. The goal of the pilot was to evaluate the wording of the questions, formatting of pages within the survey and ease of using the survey.

The researcher reviewed the material submitted by the subjects who took part in the pilot survey and considered their suggestions. It was recommended that the researcher limit the number of questions. The subjects of the pilot felt that the 25 questions with four forms of CMC were too extensive for high school students. The researcher considered removing questions from the survey, but did not feel any of the questions were not valuable to the data collection. The other suggestions that were made to the researcher from the pilot survey were to highlight certain words, such as "not" or "only", in the question so that it was easier to understand the difference between similarly worded questions. This suggestion was implemented by using all capital letters for the highlighted words.

Once the pilot was run and corrections made, the research data was collected in a 15 month time frame. This was longer than the researcher had intended, but was necessary due to the time limitation of receiving the parental consent forms prior to students completing the survey. The goal of the researcher was to have at least 50 students complete the survey. 31 students eventually completed the survey.

Measurement Instrument

In order to research how different types of Computer-Mediated Communication (email, discussion boards, tutoring sessions and asynchronous classroom activities) affect

high school students' perception of the social aspects in a virtual high school, a survey was created using Tu's Computer-Mediated Communication Questionnaire (Appendix A). This questionnaire was modified for high school terminology and placed on SurveyMonkey.com.

The original survey by Tu was made up of three parts; the first section was used to gauge the participator's perception of how social, secure and private the subject feels each forms of Computer-Mediated Communication is. Each question asked the subjects to consider how each area of Computer-Mediated Communication meets or does not meet the criteria given in the questions. The subjects used a Likert scale for their responses. Part two and part three were both used to gain demographic information about the subjects.

This survey has been used in numerous studies rating the social presence of undergraduate and graduate students from numerous colleges and universities. The survey is recommend in "The 2004 Pfeiffer Annual: Training" to assess the comfort level of employees using Email, Discussion Board and Chat Rooms along with other forms of Communication. The survey was designed to measure five social presence dimensions: Social Context, Online Communication, Interactivity, System Privacy and Feelings of Privacy.

Social context "…is constructed from the Computer-Mediated Communication user's personal characteristics and their perceptions of the Computer-Mediated Communication environment." (Tu, 2004, p. 121) Activities that can affect a person's perception associated with social context are discussion topics, recipient's social

relationship and task orientation. The longer a person is involved in the activities, the more comfortable they are with this form of communicating and the higher their social context becomes. The second dimension is online communication. "Online communication refers to attributes, application and perception of the language used online." (Tu, 2004, p. 121) People tend to be influenced through your use of language, paralanguage, expressiveness, emoticons and also your keyboarding skills. Interactivity "…is defined as the cooperative activities in which CMC users engage and the communication styles they use." (Tu, 2004, p. 121) This dimension is highly affected by the potential for feedback. An immediate response can be of positive or negative value depending on the perception of what kind of interaction the person is expecting. An activity where an immediate response is warranted and not received can diminish a person's level of social presence, whereas an immediate thought where a time delay is expected can lead people away from discussing the topic.

The last two dimensions relate to each other and how people perceived the issue of privacy for the Computer-Mediated Communication systems. "System privacy refers to the security of CMC technologies, the likelihood that someone may read, send or resend a message." (Tu, 2004, p. 122) The perception of how secure a system is depends on which form of CMC (email, discussion board, chat room/classroom activities) they are assessing. The feeling of privacy "…refers to the students' perception of how they felt while using the CMC media" (Tu, 2004, p. 122). When people believe a form of CMC to be more private, they tend to be more open and more expressive.

"A factor analysis was performed on the thirty items. Five factors (social context, online communication, Interactivity, system privacy and feelings of privacy) emerged with Cronbach's coefficient alpha ranging from .74 to .85 (.75, .85, .78, .84, and .79 respectively). These five factors accounted for 82.33 percent of the variance and were extracted using varimax rotation." (Tu, 2004, p. 123-124)

This researcher revised Tu's instrument (2004, Appendix A) to center on just the social aspect of the survey. This was done by deleting questions numbered 18 through 30 that centered on system privacy and feelings of privacy. Tu's survey with the corrections made can be found in Appendix B. The researcher created eight new questions that allowed her to further investigate the concept of social presence by looking at students' views on the use of online lingo. The researcher replaced the entire demographic question section with new questions to allow her to analyze the data based on her research questions. (Appendix C)

The new survey (Appendix C) was to gauge the students' perception of how social communication and interactivity are felt through the use of Computer-Mediated communication (email, discussion boards, tutoring sessions and asynchronous classroom activities). Each question asked the student to consider how each area of CMC meets, or does not meet, the criteria given in the questions. The students used a Likert scale for their responses. The scale was a five-point scale using 1 strongly disagree, 2 disagree, 3 uncertain (neutral), 4 agree, 5 strongly agree.

The survey was modified from its original design so it would only measure the concepts of social context, online communication and interactivity. The survey addressed

the perspectives that high school students have about the social aspects (context, communication and interactivity) of Computer-Mediated communication. The social context was addressed by looking at scores on questions 1, 2, 4, 5, 6, 13, 16 and 17. Question 4, 5 and 17 were negative questions and were modified to the correct corresponding positive scores as follows; ones were changed to fives, twos were changed to fours, threes remained threes, fours were changed to twos and fives were changed to ones. Online communication was assessed through questions 3, 10, 11, 12, 18, 19, 20, 21 and 22. Question 11 was a negative question and was correct by the same process used in the Social Context questions. Social interactivity was assessed through questions 7, 8, 9, 14, 15, 23, 24 and 25. Question 15 was a negative question and was adjusted for the corresponding positive response as in the previous sections. Following the scoring sequences described by Tu (2004) each group of scores were totaled for the individual student and divided by the total number of questions that represented each dimension for an average score for that dimension. (Appendix E)

From these scores, the researcher was able to interpret each person's perception of social presence for the different forms of CMC. The researcher then used this data to run Statistic Data (mean and mode), Pearson Correlation Test and T-tests to compare the overall average score for students within each subgroup that was addressed in the research questions.

Chapter 4

Summation of Data

This study involved thirty-one students from a cyber school in the state of Pennsylvania. Of the thirty-one students, nineteen were female and twelve were male. These students have attended a cyber school between one and nine years with an average of 3.4 years. The students have used the Internet between two and thirteen years with the average being 7.3 years.

For this study, the researcher adjusted Tu's survey to the reading level and terminology of high school students. (Appendix B) Questions 1 though 25 made up the survey questions for social presence. Questions 26 though 32 were demographic questions. The demographic questions were chosen to help the researcher answer the proposed questions. The students answered questions that gathered data about their gender, number of years using the internet, number of years in a cyber school, attendance in school sponsored events and self proficiency rating on each form of computer-mediated communication (CMC).

The survey adjusted for reading level and terminology of high schools was then given to a group of adults (pilot group). The researcher reviewed the pilot group's comments. The pilot group felt that the 25 questions with four forms of CMC were too extensive for high school students. The researcher considered removing questions from the survey, but did not feel any of the questions were not valuable to the data collection. The other suggestions that were made to the researcher from the pilot survey were to highlight certain words, such as "not" or "only", in the question so that it was easier to understand the difference between similarly worded questions. This suggestion was

implemented by using all capital letters for the highlighted words. The Instructional Supervisors explained the research to each student's parents. When the parents signed and submitted their consent form the students were then sent a link to the survey on SurveyMonkey.com.

The adjusted survey was administered to a group of high school students starting in December 2009. The survey was scored based on the scoring system that Tu designed with the survey (2002). The survey was designed to measure the perception of social presence that high school students showed with each form of CMC. The questions on the survey were divided into three areas of social presence: social context, online communication and social interactivity. Based on scoring by Tu, the survey questions 1, 2, 4, 5, 6, 13, 16 and 17 were judged to meet criteria for showing social context. Survey questions 3, 10, 11, 12, 18, 19, 20, 21 and 22 met the criteria for judging online communication. Survey questions 7, 8, 9, 14, 15, 23, 24 and 25 met the criteria for showing social interactivity. Students answered each question once for email, discussion board, tutoring session and asynchronous classroom activities (Appendix D). Each set was averaged together giving a score for the individual aspect of social presence. The individual section scores were combined and averaged to give a social presence score. Each segment could be used alone or as a combined score for social presence depending on the researchers needs.(Tu, 2002)

This study used both the combined score for social presence and the score for social interactivity in order to answer the proposed questions.

Table 1
General Statistics for students' Social Presence based on a five point scale

n=31	Mean	SD	Std. Error Mean
Email	3.58	0.53	0.09
Discussion Boards	3.16	0.51	0.09
Tutoring Sessions	3.20	0.46	0.08
Asynchronous Classroom Activities	3.33	0.43	0.08

Table 2
General Statistics for students' Social Interactivity based on a five point scale

n=31	Mean	SD	Std. Error Mean
Email	3.70	0.56	0.10
Discussion Boards	3.20	0.63	0.11
Tutoring Sessions	3.22	0.53	0.10
Asynchronous Classroom Activities	3.40	0.59	0.11

Data Analysis

Question 1.

Which types of social communication: email, discussion board, tutoring session and asynchronous classrooms do high school students perceive as having the most positive influence on the social environment as measured through the social presence of each within their virtual learning community?

Sets of six-paired t-test were run comparing each social presence score for the four different forms of CMC.

Email compared to discussion board.

When reviewing the data for email and discussion board, there seems to be a perfect positive correlation. There was a significant difference in the scores for email (M=3.58, SD=0.53) and discussion board (M=3.16, SD=0.51); t(30)=6.09, p = 0.00. These results suggest that an email does show more social presence than discussion board, but 38 percent of the variance can be explained by type one error.

(Percent of variance is $r^2 = \frac{t^2}{t^2+df}$)

Email compared to tutoring session.

The relationship between email and tutoring session also seemed to show a perfect positive correlation. There was a significant difference in the scores for email (M=3.58, SD=0.53) and tutoring session (M=3.20, SD=0.46); t(30)=4.856, p = 0.00. These results suggest that an email shows more social presence than tutoring session, but 28 percent of the correlation could be explained by a type one error.

(**Percent of variance is** $\mathbf{r^2 = \frac{t^2}{t^2+df}}$)

Email compared to asynchronous classroom activities.

A paired-samples t-test was conducted to compare social presence in each form of CMC. There was a significant difference in the scores for email (M=3.58, SD=0.53) and asynchronous classroom activities (M=3.33, SD=0.43); t(30)=3.48, p = 0.01. These results suggest that email shows more social presence than asynchronous classroom activities.

Discussion board compared to tutoring sessions.

The remaining tests, comparing discussion boards and tutoring sessions did not show significance. There was not a significant difference in the scores for discussion board (M=3.16, SD=0.51) and tutoring session (M=3.20, SD=0.46); $|t(30)|=0.633$, $p = 0.532$. These results suggest that a discussion board does not show more social presence than tutoring session.

Discussion board compared to asynchronous classroom activities.

There was a significant difference in the scores for discussion board (M=3.16, SD=0.51) and asynchronous classroom activities (M=3.33, SD=0.43); $|t(30)|=2.80$, $p = 0.01$. These results suggest that an asynchronous classroom activity shows more social presence than discussion board.

Tutoring sessions compared to asynchronous classroom activities.

There was a significant difference in the scores for tutoring sessions (M=3.20, SD=0.46) and asynchronous classroom activities (M=3.33, SD=0.43); $|t(30)|=2.12$, $p = 0.05$. These results suggest that an asynchronous classroom activity shows more social presence than tutoring session.

CMC has come a long way in a short period of time. Students have been raised using computers, internet, cell phones, texting, instant messaging, etc. as part of their lives. These students see the four forms of CMC researched as all having some amount of social presence, but email shows the highest social presence when comparing their average scores.

Question 2.

Do male and female high school students differ in their perception of social presence within email, discussion board, tutoring session and asynchronous classroom activities?

There were nineteen female students who completed the survey and twelve males completed the survey. For each type of CMC, the results of social context, online communication and social interaction were averaged and combined to get the social presence score. The Social presence score was compared using a t-test after running Levene's test for equality of variance. The analysis showed that the variances were not equivalent.

Table 3
Social Presence for Male and Female Students based on five point scale

n=31	Gender				
Type of CMC	Female (n=19)	Male (n=12)	T	df	p
Email	3.51 (0.563)	3.69 (0.464)	-0.932	29	0.34
Discussion Board	3.04 (0.424)	3.35 (0.585)	3.04	29	0.13
Tutoring Session	3.20 (0.452)	3.20 (0.492)	0.014	29	0.99
Asynchronous Classroom Activities	3.26 (0.394)	3.44 (0.492)	-1.09	29	0.31

Standard Deviations appear in parentheses below the means.

Gender view of social presence in email.

There was a not a significant difference in the social presence scores for email of male students (M=3.69, SD=0.46) and female students (M=3.51, SD=0.56); $|t(29)|=0.93$, $p = 0.34$. These results indicate that there was not significant difference between male and female email scores for social presence.

Gender view of social presence in discussion board.

There was a not a significant difference in the social presence scores for discussion board of male students (M=3.35, SD=0.58) and female students (M=3.04, SD=0.42); t(29)=3.0, p = 0.13. These results suggest that there was not a significant difference in discussion board social presence scores between male and female students.

Gender view of social presence in tutoring session.

There was a not a significant difference in the social presence scores of tutoring session for male students (M=3.20, SD=0.49) and female students (M=3.20, SD=0.45); t(29)=0.01, p = 0.99.

Gender view of social presence in asynchronous classroom activities.

There was a not a significant difference in the social presence scores of asynchronous classroom activities for male students (M=3.44, SD=0.49) and female students (M=3.26, SD=0.39); |t(29)|=1.09, p = 0.31.

This research showed that female and male students did not show any difference in their perception of social presence in the different forms of CMC. The American culture has set the role for male and female students in a classroom. Female students are stereotyped in a passive and quiet role in the classroom, where males are seen as active and noisy (Coon, 2004). The style of the interaction that is needed in a virtual education would seem to lend itself to male students rather than female. When reviewing the data

collected, the results did not show any preference between male and female students for any form of CMC.

This can be seen as a positive development that comes out of virtual education. One may not be able to tell if a student is male or female. Not being able to tell male and female students from each other will allow teachers and students to treat each person the same. Whether these findings will have a bearing on the overall education of our students remains to be seen, but knowing that both male and female students have the same perception of the social presence with each form of CMC will allow educators to be confident to use any of the forms of CMC to communicate with their students.

Question 3.

Does a student's self-rated proficiency in use of email, discussion board, tutoring sessions and asynchronous classroom activities correspond with the students rating on the social presence of CMC?

Each student was asked to rate his or her own proficiency in his or her use of each form of CMC. They were to rate their proficiency as 5 expert, 4 above average, 3 average, 2 below average and 1 novice.

A Pearson's Correlation was conducted to assess the relationship between Students' self-rating of their use of CMC and their scores from the Social Presence Survey.

Correlation between self-rating of email use and social presence.

Table 4
Pearson Correlation of Students Self-rating of Email Use and their Social Presence

	Students Self-rating
Scores from the Social Presence Survey	0.353

A Pearson product-moment correlation coefficient was computed to assess the relationship between the students self-rating on their use of email and their score from the Social Presence Survey. There was a weak positive correlation between the two variables, $r = 0.353$, $n = 31$, $p = 0.0513$.

Correlation between self-rating of discussion board use and social presence.

Table 5
Pearson Correlation of Students Self-Rating of Discussion Board Use and their Social Presence

	Students' self-rating
Scores from the Social Presence Survey	0.225

A Pearson product-moment correlation coefficient was computed to assess the relationship between the students self-rating on their use of discussion boards and their score from the Social Presence Survey. The relationship was not significant between the two variables, $r = 0.225$, $n = 31$, $p = 0.2241$.

Correlation between self-rating of tutoring session use and social presence.

Table 6
Pearson Correlation of Students Self-Rating of Tutoring Sessions Use and their Social Presence

	Students Self-Rating
Scores from the Social Presence Survey	0.199

A Pearson product-moment correlation coefficient was computed to assess the relationship between the students' self-rating on their use of tutoring sessions and their score from the Social Presence Survey. There was not a significant correlation between the two variables, $r = 0.199$, $n = 31$, $p = 0.2839$.

Correlation between self-rating of asynchronous classroom activities use and social presence.

Table 7
Pearson Correlation of Students Self-rating of Use of Asynchronous Classroom Activities and their Social Presence

	Students' Self-Rating
Scores from the Social Perception Survey	0.334

A Pearson product-moment correlation coefficient was computed to assess the relationship between the students' self-rating on their use of asynchronous classroom activities and their score from the Social Presence Survey. There was a weak positive correlation between the two variables, $r = 0.334$, $n = 31$, $p = 0.0661$.

The researcher found that students did see some differences in the social presence based on their proficiency ratings on the use of CMC. There were significant differences

in the self-rating of email and asynchronous classroom activities. The ability of educators to make connections with their students becomes an important aspect of the students' own education. As educators move toward virtual education, understanding how to help students make social connections becomes a key component. Connections with students are a very important part of how educators perform their jobs. Educators will be able to aid students in making these social connections by recommending the use of a certain form of CMC based on the students own proficiency level at the beginning. If the student shows a high level of proficiency with each type of CMC then all forms could be used to connect with others in the community. Educators want to aid students in the use of all forms of CMC. It becomes important for educators to watch the skill level of students as the students move further with their education. They do not want to neglect the use of any of the forms of CMC but guide students to the proper integration of the CMC.

These results were not surprising, as the researcher expected that as students become more comfortable with the use of each form of CMC, they would rate that form as having more social presence. Educators could use this information as a way to make connections with students. Understanding students' comfort levels with the different forms of CMC could help teachers, staff, parents and students to connect and communicate with each other.

Question 4.

What form of CMC do high school students perceive as making social connections?

A set of six paired T-Test were run comparing each social interactivity score for the four different forms of CMC.

Email compared to discussion board.

A paired-samples t-test was conducted to compare social interactivity in each form of CMC. There was a significant difference in the scores for email (M=3.70, SD=0.56) and discussion board (M=3.20, SD=0.63); t(30)=5.002, p = 0.001. These results suggest that email does show more social interactivity than discussion board.

Email compared to tutoring session.

There was a significant difference in the scores for email (M=3.70, SD=0.56) and tutoring session (M=3.22, SD=0.53); t(30)=4.525, p = 0.05. These results suggest that email does show more social interactivity than tutoring session.

Email compared to asynchronous classroom activities.

There was a significant difference in the scores for email (M=3.70, SD=0.56) and asynchronous classroom activities (M=3.40, SD=0.59); t(30)=3.48, p = 0.01. These results suggest that email does show more social interactivity than asynchronous classroom activities.

Discussion board compared to tutoring session.

There was not a significant difference in the scores for discussion board (M=3.20, SD=0.63) and tutoring session tutoring session (M=3.22, SD=0.53); |t(30)|=0.26, p = 0.80. These results suggest that discussion board does not show more social interactivity than tutoring sessions.

Discussion board compared to asynchronous classroom activities.

There was a significant difference in the scores for discussion board (M=3.20, SD=0.63) and asynchronous classroom activities (M=3.40, SD=0.59); |t(30)|=2.587, p = 0.05. These results suggest that an asynchronous classroom activity does show more social interactivity than discussion board.

Tutoring session compared to asynchronous classroom activities.

There was a significant difference in the scores for tutoring session (M=3.22, SD=0.53) and asynchronous classroom activities (M=3.40, SD=0.59); t(30)=-2.077, p = 0.05. These results suggest that an asynchronous classroom activity does show more social interactivity than tutoring sessions.

The comparison using a paired T-test of the students Social Interaction Scores show that the students' see more social interaction in email than the other forms of CMC. This is not a surprise as it is the oldest from of CMC reviewed. What was surprising was that students rated asynchronous classroom activities as showing the second most social interaction. The researcher would have thought discussion board and asynchronous classroom activities would have been closer in their ratings as they are closely related activities.

Question 5.

Will students who attend a cyber school for a longer period of time show a positive relationship in their social perception of the different form of CMC?

Students were asked how long they have attended a cyber school. The range of years was between one and nine years with an average of 3.4 years. The most frequent responses were one, two, and four years.

Table 9
General Statistics for students' years in cyber school

	Mean	SD
Years in a Cyber school	3.42	2.05

Table 10
Frequency of number of years in a cyber school

Years	Frequencies	Percent
1	6	19.4
2	6	19.4
3	5	16.1
4	6	19.4
5	4	12.9
6	2	6.5
8	1	3.2
9	1	3.2

A Pearson's Correlation was conducted to assess the relationship between number of years in a cyber school and the student's score from the Social Presence Survey for each form of CMC.

Correlation between years in cyber school and social presence of email.

Table 11
Pearson Correlation of Years of Cyber School to Social Presence for Email

	Years in Cyber School
Scores from the Social Presence Survey	0.55

A Pearson product-moment correlation coefficient was computed to assess the relationship between the number of years in a cyber school and their email scores from the Social Presence Survey. There was not a significant correlation coefficient between the two variables, $r = 0.55$, $n = 31$, $p = 0.77$.

Correlation between years in cyber school and social presence of discussion board.

Table 12
Pearson Correlation of Years of Cyber School to Social Presence for Discussion Board

	Years in Cyber School
Scores from the Social Presence Survey	-0.023

A Pearson product-moment correlation coefficient was computed to assess the relationship between the number of years in a cyber school and their Discussion Board scores from the Social Presence Survey. There was not a significant correlation between the two variables, $r = -0.023$, $n = 31$, $p = 0.90$.

Correlation between years in cyber school and social presence of tutoring session.

Table 13
Pearson Correlation of Years of Cyber School to Social Presence for Tutoring Session

	Years in Cyber school
Scores from the Social Presence Survey	-0.015

A Pearson product-moment correlation coefficient was computed to assess the relationship between the number of years in a cyber school and their tutoring session scores from the Social Presence Survey. There was not a significant correlation between the two variables, r = -0.015, n= 31, p= 0.94.

Correlation between years in cyber school and social presence of asynchronous classroom activities.

Table 14
Pearson Correlation of Years of Cyber School to Social Presence for Asynchronous Classroom Activities

	Years in Cyber school
Scores from the Social Perception Survey	-0.103

A Pearson product-moment correlation coefficient was computed to assess the relationship between the number of years in a cyber school and their asynchronous classroom activities scores from the Social Presence Survey. There was not a significant correlation between the two variables, r = -0.103, n = 31, p = 0.58.

This research looked at years of attending cyber school to understand if students who have attended a cyber school for more years perceived any form of CMC as having more social presence. This research showed that the students who attend a cyber school for a longer period of time did not score social presence differently in any form of CMC.

Chapter 5

Introduction

Social presence can be defined as the interaction of members, the person-to-person awareness, based on the social structure of the community. Developing human capacities in face-to-face interaction defines people's roles in society. Virtual students learn these skills through their interactions online, and their interactions in society add to the concept of social presence that people perceive within their lives. The purpose of this study was to identify if high school students in a virtual community perceive email, discussion boards, tutoring sessions and asynchronous classroom activities enhancing the social presences within the virtual community.

This research assists educators in understanding the limitations and the abilities that these four forms of CMC have as each relates to the development of social presence for the virtual high school student.

This research set out to find a means to help students, who may never set foot in a mortar and brick school, develop their social skills. Social skills are a way for us to interact with others. With virtual education, the fear that our children will not develop the very basic social skills that allow us to interact with each other is a significant concern of society.

The most common application that people used to communicate through the internet was email (Olsen, 2007). Research by Wilson and Peterson (2002) showed that people prefer to communicate using social networks. Social networks have taken the idea of a discussion board one step further. With virtual education, there is a limit to how quickly schools can change to new forms of CMC. This research looked at the four most

common forms of CMC: email, discussion board, tutoring sessions and asynchronous classroom activities. Virtual education allows students to take an anonymous role while still having to be active in the classroom. Students know very little about each other, other than what they learn through one of these forms of CMC.

The actual measurement of students' social skills cannot be determined until years from now. Instead of waiting for that to happen, the researcher looked at the concept of social presence. Social presence can be examined in three parts: social context, online communication and social interactivity. The social context can be thought of in terms of activities that affect how and when the form of CMC is used. Online communication refers to attributes, applications and the perception of the language used online. The last piece, social interactivity, involves how cooperative and connected to others the acts are for the users. The survey was designed to measure these three areas.

The questions that the research addressed are questions that are important to virtual educators: students' perception of social presence, differences between male and female student's perception, years of experience in a cyber school, perceived proficiency with the different forms of CMC, and perceived interactivity in the different forms of CMC. The results will help teachers find a way to help students develop social skills that can be transferred to the real world.

Conclusions

Students perceived that email showed more social presence than the other forms of CMC and asynchronous classroom activities showed more social presence than discussion board and tutoring sessions.

Tu's (2002) research dealt with students ranging in age from 18 to 45. He found that students perceived that email showed more social presence than real-time chat or bulletin board post. This research found similar information with high school students. When comparing email and asynchronous classroom activities, email showed more social presence. The surprising part was that asynchronous classroom activities showed more social presence than discussion board and tutoring sessions. Educators can find email as a good way to establish rapport with their students. Likewise, students will establish social connections with other students through email and this should be encouraged. Early in the virtual course educators may wish to develop asynchronous classroom activities that are meant to be shared with students as well as themselves. Educators need to develop guidelines for appropriate remarks in virtual communications, such as email and asynchronous classroom activities. Students have become wary of expressing emotions through email. Tu (2002) found that email, real chat and bulletin boards all can show emotions, but students quickly found that real chat and bulletin boards were poor locations to express their emotions. An educator needs to guide students in the correct location for their emotions. When dealing with adolescents it is very important for them to have a proper way of dealing with their emotions. Without instructor guidance these students could become outsiders in the classroom and this could lead to lower learning levels as stated in Richardson and Swan (2003).

This research showed that female and male students did not show any difference in their perception of social presence in the different forms of CMC studied. As the data was analyzed, it was interesting to see how concealing the CMC can be. The data did not find a difference between male and female students in their rating of email, discussion board,

tutoring sessions or asynchronous classroom activities for social presence. One of the benefits with virtual education is everyone is anonymous. This enforces the ideas of Franz (2002) that the Internet is gender and race free. There are no stereotypes about students based on their gender, culture, or abilities. In a face-to-face school, students gain labels from how they look, who their peers are or family background that they may try to overcome, but in a virtual world this does not happen. Each student creates his/her own persona based on his/her abilities that are shown in the classroom. As with Wilson and Peterson's (2002) research students need to create their own identity that is based on their style and abilities. The anonymity is a boon to teachers trying to avoid sexual discrimination. In CMC teachers are more likely to be focused on learning than gender. In virtual education students must be busy and active to accomplish all the activities and participating with others to exchange ideas. This should appeal to both genders and prepare them for higher education. In email, discussion board and asynchronous classroom activities students reveal themselves as learners regardless of gender.

Students who rate their own self proficiency as being above average or expert had higher social presence scores on email and asynchronous classroom activities than students who rated their proficiency average, below average or novice. There was no significant difference found in self-rating for discussion board and tutoring sessions. When the students were compared by their own self-rating of proficiency with each form of CMC, email and asynchronous classroom activities showed a weak positive correlation between their self ratings and social presence scores. The more comfortable students are with email and asynchronous classroom activities, the more social presence the students perceived that form of CMC as having. This finding goes with the belief that as we

become more comfortable with technology, we tend to use it more as a way to interact with others. Baker et al. (2007) found a similar concept in how males used technology as a means to an end. The male subjects in Baker et al.'s study used technology as an instrument to understand science and the effect of science on society.

Students will naturally migrate to the form of CMC, which they feel most comfortable using. This form of CMC may not be the correct tool for certain actions, but student will still use it just because they are comfortable with that form. Educators need to help the student learn which form is appropriate and expedient for their interaction.

In this research students perceived that email showed more social interaction than discussion board, tutoring session and asynchronous classroom activities. Asynchronous classroom activities showed more social interaction than discussion board or tutoring sessions. If teachers know that students judge email as having the most social interactivity, they can help make a connection to the students through email or recommend that students email each other questions or comments. Kim and Lee (2002) believe that there needs to be social context and interaction during the learning process. Vonderwell (2002) found the opposite to be effective as well in some cases. Student learning will depend on their mindset in the course itself. If students want interaction they will seek it, but if they are only after independent work social interactions will slow their learning. Understanding students' purposes for virtual education can help teachers guide them in the best methods to socially interact or not.

As students move from middle school to high school, one of the problems most teenagers go though is how do they fit in, what role will they take? Helping students with social interaction becomes a hurdle within a virtual high school. Which form of CMC

gives them the best place to find their role? Tu (2002) found that email showed the most social interaction. This research comes to the same conclusion that Tu did. Students in this virtual school found email to have the most social interaction of the four CMC's studied and asynchronous classroom activities were second.

One of the other concepts that the researcher studied was years of experience. The number of years a student attends a cyber school has no relationship with the student's perceived social presence in any form of CMC studied. One would have thought that students who had been in a cyber school longer, would have felt that forms of CMC that are associated with virtual schools would show more aspects of social presence. This was not confirmed by analysis of the data. The data showed that students who had been in a cyber school for more years scored the CMC associated with a classroom (discussion board, tutoring sessions and asynchronous classroom activities) as having social presence, but no differently than the other forms of CMC.

This research showed how far we have come in developing social skills within virtual communities. The present generation has been surrounded by technology, and it has become a part of their culture. The culture of this generation is like no other we have had in the past. These students find communicating by written words commonplace. Texting, emails and instant messaging are skills they all have. Education has embraced the advancements in technology by developing curriculums within this medium. Using the different types of CMC has developed into virtual education.

This research was to understand how students saw each form of CMC relating to social presence. Students in school now have been immersed in our technology driven society where cell phones and computers are objects they interact with on a daily basis.

Teachers need to understand how to interact and make connections with their students and assist the student in making connections with other students. With cyber schools having limited interaction with students, they need to know which form of CMC students find as having social presence. Through this research, it was found that (for this group of students) that email was the CMC that showed the most social presence. Students accept the idea that they can build social interaction through their use of email. These students also found that asynchronous classroom activities can lead to social interaction. Instructors may plan some asynchronous classroom activities to be shared with the group rather than just with the instructor to facilitate student-to-student interaction.

Limitations

This study dealt with a small population of high school students (31) in one of 12 cyber schools in the state of Pennsylvania. The survey did not ask for ages or grade levels as the researcher thought that years in a cyber school would be a better way to make a comparison. All the students completed the survey. This was a response rate of 100 percent.

The survey itself was one that was modified from Tu's original survey by the removal of questions that concerned privacy and security. The correction of this would involve a longer survey, but would give a broader scope of data to analyze.

The methodology of this study was a quantitative analysis. The study used students' perceptions of their social presence rather than reviewing interactions that take place as part of a virtual classroom. A mixed methodology or a qualitative analysis may give a better view of the true social presence that students display in virtual classes. This study was hindered by limited access to the virtual classroom and the students.

While the study answered the research questions it revealed other areas of study that could be researched. The demographic questions could be expanded to include questions regarding grade point average, grade level, age of student, and length of time a student has used each form of CMC.

Further Research

Our world missed opportunities in the past to study technology and its affect on the cultures, but with virtual education, we do not have the luxury of not studying it. The questions are important: Is virtual education as good as face-to-face education? Are our students, young adults, socially competent? This research cannot address the first, but it is the second that was the focus of this research. Society cannot afford to sit back and let nature take its course. We need to be focused on the present and continue to review new ideas that make our world different. This study focused on a small group of high school students in a cyber school. Much research about virtual education is still to be discovered. As educators become more experienced with virtual classroom they will want to build a community of learners. Understanding which forms of CMC are perceived by students as enabling social presence will help instructors build communities. Curtis (2006) told us that learning occurs best when all constituents are accounted for in the community. With the support of parents, students, faculty, staff and administration the learning community can flourish.

Educators need to continue to look at different ways of reaching each generation. As new technology is developed, educators need to study its use and look at how each form can be used effectively in the classroom as a communication tool. Educators need to help students understand the application of each form of CMC and how to safely use it.

Although this study did not focus on these questions, the following would be areas for further study:

1. As students start taking classes in a virtual school at younger ages, how do their self-proficiency ratings change over a period of time?

2. We have all different kinds of students in our classrooms. Some students are out-going and others are shy. Are there differences in self-proficiency ratings and social presence scores of students who are extroverts compared to introverts?

3. Will students who develop a familiarity with a form of CMC by using it over a longer period of time rate that form as having more social presence than another form of CMC?

4. Do students who have higher social presence scores have better grades in the virtual classroom than students who have a lower social presence score? In a traditional classroom students who are very social do not always have high grades.

5. In this study only discussion board, asynchronous classroom activities and tutoring sessions were studied, but other forms that could be studied in the future are text messaging, instant messaging, podcasts, blogs or posting to a social network.

6. Researchers could look at the actual interaction that is taking place. Are the interactions all related to schoolwork? Do students ask about friends and family? Do the students intermix their conversation in CMC like they would in a face-to-face communication?

This research needs to be expanded into other cyber schools and lower grade levels. Researchers have looked at the corporate world, the college world and are now

doing research at the high school level. This research is just a small part of what needs to be done.

In conclusion, the survey was successful in gathering data for this study's research questions. The subject matter of CMC has become a central factor in the virtual classrooms. When new forms are developed and integrated into the virtual classroom it becomes important to review how they affect social presence. This research is just a small sampling of a very large and growing subject area that will need to be explored in more depth with research that involves surveys, interviews and review of all educational interactions. We are moving toward a new culture in this country where it is commonplace to be technologically sophisticated, but the need for human companionship should not be lost in the exchange. We have many ways to communicate with other people. Which ones we choose may be based on our own comfort level in their use. Learning about each type of CMC that is developed will provide educators with new ideas to provide a learning environment that advances both the intellectual and social development of their students.

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Appendix

Appendix A – Dr. Tu Original Survey

Computer-Mediated Communication (CMC) Questionnaire

The following questionnaire has been developed to investigate your attitude toward Computer-Mediated Communication (CMC), including e-mail, and the NetForum. You are to consider your course related use of Computer-Mediated Communication only. You will be presented with a statement about Computer-Mediated Communication are listed under each statement. The following descriptions apply to entire questionnaire:

Your responses will remain anonymous. Please answer each item.

Thank you for your assistance!

Part I:

Please read each statement carefully; then indicate the degree to which you **Agree/Disagree** with the statement as it relates to e-mail, and the NetForum, by selecting the appropriate answer.

1. Computer-Mediated Communication messages are social forms of communication.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

2. Computer-Mediated Communication messages are an informal and casual way to communicate.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

3. Computer-Mediated Communication messages convey feeling and emotion.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

4. Computer-Mediated Communication messages are impersonal (do not have qualities or characteristics).

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

5. Computer-Mediated Communication is not confidential enough to use to communicate personal and/or sensitive information.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

6. Computer-Mediated Communication is a sensitive means of communicating with others.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

7. Using Computer-Mediated Communication to communicate with others is pleasant.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

8. The replies to my Computer-Mediated Communication messages are immediate.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

9. Users of Computer-Mediated Communication are normally responsive to messages.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

10. The language people use to express themselves in online communication is stimulating.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

11. It is difficult to express what I want to communicate through Computer-Mediated Communication.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

12. The language used to express oneself in online communication is meaningful.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

13. The language used to express oneself in online communication is easily understood.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

14. I am comfortable participating, if I am familiar with the topics.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

15. I am uncomfortable participating, if I am not familiar with the topics.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

16. I am comfortable communicating with a person who is familiar to me.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

17. I am comfortable communicating with a person who is not familiar to me.

Strongly Agree	Agree	Uncertain	Dis
○	○	○	

Please read each statement carefully; then indicate the degree to which you feel the statement is **Likely/Unlikely** as it relates to e-mail, the NetForum, by selecting the appropriate answer.

18. What is the likelihood that a computer system operator might read and/or re-post messages sent to or from you?

Extremely Likely	Likely	No Opinion	Un
○	○	○	

19. What is the likelihood that someone else might read and/or re-post messages sent to or from you?

Extremely Likely	Likely	No Opinion	Un
○	○	○	

20. What is the likelihood that you might accidentally send message(s) to someone other than the intended recipients(s)?

Extremely Likely	Likely	No Opinion	Un
○	○	○	

21. What is the likelihood that someone might obtain personal information about you from the messages you send and/or receive?

Extremely Likely	Likely	No Opinion	Un
○	○	○	

For each item below, please read the statement carefully and then indicate your response to the statement as it relates to e-mail, and the NetForum, by selecting the appropriate answer.

22. Do you consider your online communication to be technically **RELIABLE** (e.g., free of system or software errors that might compromise the reliability of your online messages reaching ONLY the target destination)?

Extremely Reliable	Fairly Reliable	Neither reliable nor unreliable	Fairly U
○	○	○	

23. How **PRIVATE** are your messages on Computer-Mediated Communication?

Extremely Private	Private	No Opinion	Pu
○	○	○	

24. How **IMPORTANT** is privacy of a Computer-Mediated Communication?

Extremely Important	Fairly Important	Neutral	Fairly U
○	○	○	

25. How **SECURE/SECRET** is your online participation?

Extremely Secure	Fairly Secure	Neither risky nor insecure	Fairly
○	○	○	

26. How **RISKY** is it to share personal and sensitive topics online?

Extremely Risky	Risky	Neither risky nor safe	Fair
○	○	○	

27. Do you know of any instance where someone has been personally or professionally embarrassed because of their online activities?

Yes	No
○	○

28. Which of the following statements most closely reflects how you feel about the possibility of you even being personally or professionally embarrassed through your online participation?

It'll never happen to me	It's not likely to happen to me	I don't think about it and have no feeling	It's likely to happen to me	It's a sure thing that it'll happen to me
○	○	○	○	○

29. What is your professional **RELATIONSHIP** to other participants with whom you communicate?

They are close friends	They are casual friends	They are regular acquaintances	They are casual acquaintances	I don't have a relationship with them
○	○	○	○	○

30. If you are able to use online messages anonymously, how **CONCERNED** are you that your identity will be traced?

Extremely Concerned	Quite Concerned	Concerned	A little
○	○	○	

Part II:

1. How proficient are you in using Computer-Mediated Communication? (e.g., expertise with software and system commands, keyboard skills, etc.)

	Expert	Above Average	Average	Below Average	Novice
E-mail	◉	○	○	○	○
Threaded Discussion	○	○	○	○	○
Real-time chat	○	○	○	○	○

2. How many years have you been using the different forms of Computer-Mediated Communication?

E-mail	Years (EX: 1; 2.5; 3 etc.)
Threaded Discussion	Years
Real-time chat	Years

3. How many hours do you spend on course related Computer-Mediated Communication each week?

E-Mail	Hours (EX: 1; 2.5; 3 etc.)
Threaded Discussion	Hours
Real-time chat	Hours

4. How many years have you been using the Internet?

Internet	Years (EX: 1; 2.5; 3 etc.)

Part III:

1. Gender

Male	Female
○	○

2. You are

Under 18	18-25	26-35	36-45	45+
○	○	○	○	○

3. Estimate of your level of computer expertise.

No experience	Novice	Intermediate	Expert
○	○	○	○

4. Where do you presently use computer? (Check all that apply)

Home	Computer Lab	Library or Media Center	Classroom	Office
○	○	○	○	○

5. What is your predominant ethnic background?

Caucasian	African American	Latino	American Indian or Alaska Native	Asian and Pacific Islander	Other
○	○	○	○	○	○

6. Which group(s) are you affiliated with? (Check all that apply)

ED220i2	ED220P	ED238	ED236	ED239
○	○	○	○	○

7. What is your instructor's name and gender?

Instructor I		Male ○	Female ○
Instructor II		Male ○	Female ○
Instructor III		Male ○	Female ○
Instructor IV		Male ○	Female ○

Submit Reset

Thanks for your participation.

Appendix B – Modified Survey with comments on changes

Part 1

Please read each statement carefully; then indicate the degree to which you agree/disagree with the statement as it relates to each of the following form of Computer Mediated Communication: email, discussion boards, tutoring sessions and asynchronous classroom activities interactions by selecting the appropriate answers.

1. Email, discussion boards, tutoring sessions or asynchronous classroom activities can be used as a means to commutate and build social connections.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

2. Interactions using email, discussion boards, tutoring sessions or asynchronous classroom activities are casual or relaxed way to communicate.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

Heather Bigley 12/3/11 12:42 PM
Comment [1]: The term CMC was removed from all questions and replaced with the four specific forms of CMC used in the study.

Heather bigley 7/18/08 12:46 PM
Deleted: The following questionnaire has been developed to investigate your attitude toward Computer-Mediated Communication (CMC) which includes email, discussion boards, tutoring sessions and asynchronous classroom activities. You are to consider CMC within the world of PaCyber and Family Link Activities. . [1]

Heather bigley 7/13/08 12:13 PM
Deleted: Messages received though e

Heather Bigley 12/3/11 12:43 PM
Comment [2]: Replaced "are social forms of communications.

Heather bigley 7/13/08 12:13 PM
Deleted: are social forms of communications

Heather bigley 7/13/08 12:40 PM
Deleted: Messages received though

Heather Bigley 12/3/11 12:55 PM
Comment [3]: Added to help clarify the term casual.

Heather bigley 7/13/08 12:41 PM
Deleted: an informal and

Heather bigley 7/13/08 12:41 PM
Deleted: causal

3. Messages received though email, discussion boards, tutoring sessions or asynchronous classroom activities share feeling and emotions.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

Heather bigley 7/18/08 12:47 PM
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Heather Bigley 12/3/11 12:45 PM
Comment [4]: Used share rather than convey

Heather bigley 7/13/08 12:43 PM
Deleted: convey

4. Messages received though email, discussion boards, tutoring sessions or asynchronous classroom activities are impersonal (do not have qualities or characteristics that can be connected to the person posting or send the message).

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

Heather bigley 7/18/08 12:47 PM
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Heather Bigley 12/3/11 12:45 PM
Comment [5]: Add end statement to define Impersonal

5. Messages received though email, discussion boards, tutoring sessions or asynchronous classroom activities are not confidential enough to use to communicate personal or emotional messages.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

6. When communicating sensitive information, email, discussion boards, tutoring sessions or asynchronous classroom activities are appropriate ways to communicate with others.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

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Heather bigley 7/18/08 12:29 PM
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Heather bigley 7/13/08 12:05 PM
Deleted:

Heather Bigley 12/3/11 12:46 PM
Comment [6]: Replaced sensitive with emotional

Heather bigley 7/13/08 12:06 PM
Deleted: and/sensitive information

Heather bigley 7/13/08 12:48 PM
Deleted: Messages received

Heather bigley 7/13/08 12:50 PM
Deleted: though

Heather Bigley 12/3/11 12:49 PM
Comment [7]: Reworded to help students understand the question. Original question – CMC is a sensitive means of communicating with others.

Heather bigley 7/13/08 12:51 PM
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Heather bigley 7/13/08 12:51 PM
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Heather bigley 7/13/08 12:51 PM
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7. Messages that are received though email, discussion boards, tutoring sessions or asynchronous classroom activities are an enjoyable way to communicate with others.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

8. The replies to my email, discussion boards, tutoring sessions or asynchronous classroom activities are immediate.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

Heather bigley 7/18/08 12:47 PM
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Heather Bigley 12/3/11 12:50 PM
Comment [8]: Used enjoyable rather then pleasant.

Heather bigley 7/13/08 12:52 PM
Deleted: pleasant

Heather Bigley 12/3/11 12:50 PM
Comment [9]: No change

9. Users of email, discussion boards, tutoring sessions or asynchronous classroom activities normally respond to my messages.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

10. The language people use to express themselves in online communication is thought-provoking.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

Heather bigley 7/18/08 12:48 PM
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Heather Bigley 12/3/11 12:51 PM
Comment [10]: Changed responsive to respond

Heather bigley 7/18/08 12:32 PM
Deleted:

Heather Bigley 12/3/11 12:52 PM
Comment [11]: Changed stimulating to thought-provoking

Heather bigley 7/18/08 12:32 PM
Deleted: stimulating

11. When communicating through email, discussion boards, tutoring sessions or asynchronous classroom activities it is hard to express your emotions.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

12. The language used to express oneself in email, discussion boards, tutoring sessions or asynchronous classroom activities is expressive.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

Heather bigley 7/18/08 12:48 PM
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Heather bigley 7/13/08 12:55 PM
Deleted: It is difficult to express what I want to communicate through

Heather Bigley 12/3/11 12:53 PM
Comment [12]: Changed from difficult to express what I want to communicate

Heather bigley 7/18/08 12:48 PM
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Heather Bigley 12/3/11 12:54 PM
Comment [13]: Changed meaningful to expressive

Heather bigley 7/18/08 12:31 PM
Deleted:

Heather bigley 7/18/08 12:31 PM
Deleted: meaningful

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Heather Bigley 3/4/12 9:25 PM
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13. The language used to express oneself in email, discussion boards, tutoring sessions or asynchronous classroom activities is easily to understand.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

Heather Bigley 12/3/11 12:54 PM
Comment [14]: No changes
Heather bigley 7/18/08 12:32 PM
Deleted: understood

14. I only communicate through email, discussion boards, tutoring sessions or asynchronous classroom activities when I am comfortable with the topics.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

Heather bigley 7/18/08 12:48 PM
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Heather bigley 7/13/08 12:58 PM
Deleted: I am comfortable participating in
Heather Bigley 12/3/11 12:57 PM
Comment [15]: Original question – I am comfortable participating, if I am familiar with the topics.
Heather bigley 7/13/08 12:58 PM
Deleted: , if I am
Heather bigley 7/13/08 12:58 PM
Deleted: familiar with the
Heather Bigley 12/3/11 12:58 PM
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15. I am uneasy participating in email, discussion boards, tutoring sessions or asynchronous classroom activities when I am not familiar with the topics.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

16. I use email, discussion boards, tutoring sessions or asynchronous classroom activities to communicate with people who are familiar to me.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

Heather bigley 7/18/08 12:48 PM
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Heather bigley 7/13/08 1:00 PM
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Heather Bigley 12/3/11 12:59 PM
Comment [16]: Original questions – I am uncomfortable participating, if I am not familiar with the topics.

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Heather Bigley 12/3/11 1:00 PM
Comment [17]: No change

Heather bigley 7/13/08 1:04 PM
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Heather Bigley 3/4/12 9:25 PM
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17. I use email, discussion boards, tutoring sessions or asynchronous classroom activities to communicate with people who are not familiar to me.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

18. Are you comfortable using emoticon to express your emotions?

Yes	No

19. Do you use short-cuts (Online Lingo) when sending messages through email, discussion boards, tutoring sessions or asynchronous classroom activities that are intended for faculty or staff members?

	Yes	No
E-mail		
Discussion Boards		
Tutoring Sessions		
Asynchronous Classroom Activities		

Heather bigley 7/13/08 1:04 PM
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Heather Bigley 12/3/11 1:00 PM
Comment [18]: No change

Heather bigley 7/13/08 1:05 PM
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Heather Bigley 12/3/11 1:01 PM
Comment [19]: Original questions 18-30 were deleted as they covered Privacy and Security while using CMC

Heather Bigley 12/3/11 1:04 PM
Comment [20]: Questions 18-25 were created to gain knowledge about the use of emoticon and online lingo adding to social presence of the studnets.

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17. I use email, discussion boards, tutoring sessions or asynchronous classroom activities to communicate with people who are not familiar to me.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

18. Are you comfortable using emoticon to express your emotions?

Yes	No

19. Do you use short-cuts (Online Lingo) when sending messages through email, discussion boards, tutoring sessions or asynchronous classroom activities that are intended for faculty or staff members?

	Yes	No
E-mail		
Discussion Boards		
Tutoring Sessions		
Asynchronous Classroom Activities		

Heather bigley 7/13/08 1:04 PM
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Heather Bigley 12/3/11 1:00 PM
Comment [18]: No change

Heather bigley 7/13/08 1:05 PM
Deleted: that

Heather Bigley 12/3/11 1:01 PM
Comment [19]: Original questions 18-30 were deleted as they covered Privacy and Security while using CMC

Heather Bigley 12/3/11 1:04 PM
Comment [20]: Questions 18-25 were created to gain knowledge about the use of emoticon and online lingo adding to social presence of the studnets.

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20. Do you use short-cuts (Online Lingo) when sending messages through email, discussion boards, tutoring sessions or asynchronous classroom activities that are intended for other students?

	Yes	No
E-mail		
Discussion Boards		
Tutoring Sessions		
Asynchronous Classroom Activities		

Heather bigley 7/18/08 12:43 PM
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21. Email, discussion boards, tutoring sessions or asynchronous classroom activities are the correct places to express feelings of sadness.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

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22. Email, discussion boards, tutoring sessions or asynchronous classroom activities is the correct place to express feeling of happiness.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

23. When trying to work through a problem with another student is email, discussion boards, tutoring sessions or asynchronous classroom activities the correct place to resolve the problem.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

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24. When trying to work through a problem with a teacher/staff member of the school is email, discussion boards, tutoring sessions or asynchronous classroom activities the correct place to resolve the problem.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

25. Friendships started in email, discussion boards, tutoring sessions or asynchronous classroom activities become close friendships.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

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2 Unlikely ... [2]

Part 2

1. How proficient are you in using e-mail, discussion board, tutoring sessions, and asynchronous classroom activities?

	1 Novice	2 Below Average	3 Average	4 Above Average	5 Expert
E-mail					
Discussion Boards					
Tutoring Sessions					
Asynchronous Classroom Activities					

2. How many years have you been using the Internet? (Round the nearest full Year)

Years	

3. Gender

Male	Female

4. Do you attend the school related field trips?

Yes	No

   a. If yes, within the last year how many have you attended?

Numbers values from 1-20

5. Do you attend PaCyber ++?

Yes	No

6. How long have you attended a cyber school?

Number values from 1 to 12

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Appendix C – Modified Survey as viewed in SurveyMonkey

Computer Mediated Communication - Data collection

Assent Page

DUQUESNE UNIVERSITY
600 FORBES AVENUE
PITTSBURGH, PA 15282

ASSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE: The Awareness of Computer Mediated Communication's (CMC) Social Presence for Virtual High School Students

INVESTIGATOR: Heather A. Bigley

ADVISORS: Dr. Mary Frances Grasinger, C.S.J., Ph.D.
School of Education
412-396-5712

Dr. Robert L. Furman, ED.D
School of Education
412-396-5274

SOURCE OF SUPPORT: This study is being performed as fulfillment of the requirements for Doctoral Degree in Instructional Technologies within the School of Education at Duquesne University and has no external financial support but is sanctioned by the Leadership Team of The Pennsylvania Cyber Charter School.

PURPOSE: You are being asked as a current student of The Pennsylvania Cyber Charter School to participate in the research project that seeks to investigate the Awareness of Social Presence through the use of email, discussion boards, tutoring sessions, and asynchronous classroom activities. You will be asked to complete a survey questionnaire that will be found on Surveymonkey.com. The results of the Survey will be collected and given to the researcher and school officials.

These are the only requests that will be made of you.

RISKS AND BENEFITS: There are no risks to participants greater than those encountered in everyday life. All responses in the survey will be confidential. Moreover, data will be reported only in aggregate categories. The data will be secured in the researcher's home office. A technical report will be made available to the officials at The Pennsylvania Cyber Charter School. There are no benefits provided to participants except the knowledge of having contributed their insights. The results of this study will be used to make recommendations to faculty, students, parents and administration about using different CMC to create more opportunities for meaningful social interactions.

COMPENSATION: Participants will not be compensated in any way.

CONFIDENTIALITY: Your name will never appear on any survey or research instruments. No identity will be made in the data analysis. All written materials and assent forms will be stored in a locked file in the researcher's home office for a period of five years. Participants' responses will only appear in aggregated data summaries. Your response(s) will only appear in statistical data summaries. The survey only asks for demographic information about the participants, so there is little chance of connecting an email address from the consent form to survey responses.

The Survey will be conducted through a website (surveymonkey.com). Survey Monkey employs multiple layers of security to make sure that participants' responses remain private and secure. They employ a third-party firm to conduct daily audits of their security, and their data resides behind the latest in firewall and intrusion prevention technology. SurveyMonkey.com is a licensee of the TRUSTe Privacy Program. TRUSTe is an independent, non-profit organization whose mission is to build user's trust and confidence in the Internet by promoting the use of fair information practices.

RIGHT TO WITHDRAW: You are under no obligation to participate in this study. You are free to withdraw your consent to participate at any time.

SUMMARY OF RESULTS: A summary of the results of this research will be supplied to you, at no cost, upon request.

Page 1

Computer Mediated Communication - Data collection

VOLUNTARY ASSENT: I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my assent at any time, for any reason. On these terms, I certify that I am willing to participate in this research project.

I understand that should I have any further questions about my participation in this study, I may call Heather Bigley, Principal Investigator (412-367-1146), Dr. Mary Frances Grasinger, C.S.J., Ph.D. (412-396-5712), Dr. Robert L. Furman, ED.D, Co-Chairs of the Candidates Dissertation Committee and (412-396-5274) and Dr. Paul Richer, Chair of the Duquesne University Institutional Review Board (412-396-6326).

By continuing and completing the survey it will reflect your implicit assent to take part in the research study.

PA Cyper CMC

You are being asked as a current student at The Pennsylvania Cyber Charter School to participate in a research project that seeks to investigate if high schools students in a virtual community perceive email, discussion boards, tutoring sessions, and asynchronous classroom activities as tools that enhance the social presences within the virtual community. The results of this study will be used to make recommendations to faculty, students, parents and administration about using different CMC to create more opportunities for meaningful social interactions.

Part 1
Please read each statement carefully; then indicate the degree to which you agree/disagree with the statement as it relates to each of the following form of Computer Mediated Communication: email, discussion boards, tutoring sessions and asynchronous classroom activities interactions by selecting the appropriate answers.

1. Email, discussion boards, tutoring sessions or asynchronous classroom activities can be used as a means to communicate and build social connections.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

2. Interactions using email, discussion boards, tutoring sessions or asynchronous classroom activities are casual or a relaxed way to communicate?

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

3. Messages received though email, discussion boards, tutoring sessions or asynchronous classroom activities share feelings and emotions.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

Computer Mediated Communication - Data collection

4. Messages received though email, discussion boards, tutoring sessions or asynchronous classroom activities are impersonal (do not have qualities or characteristics that can be connected to the person posting or send the message).

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

5. Messages received though email, discussion boards, tutoring sessions or asynchronous classroom activities are NOT confidential enough to use to communicate personal or emotional messages.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

6. When communicating sensitive information email, discussion boards, tutoring sessions or asynchronous classroom activities are appropriate ways to communicate with others.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

7. Messages that are received though email, discussion boards, tutoring sessions or asynchronous classroom activities are an enjoyable way to communicate with others.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

PA Cyber CMC

Computer Mediated Communication - Data collection

8. The replies to my email, discussion boards, tutoring sessions or asynchronous classroom activities are immediate.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

9. Users of email, discussion boards, tutoring sessions or asynchronous classroom activities normally respond to my messages.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

10. The language people use to express themselves in online communication is thought-provoking.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

11. When communicating through email, discussion boards, tutoring sessions or asynchronous classroom activities it is hard to express your emotions.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

12. The language used to express oneself in email, discussion boards, tutoring sessions or asynchronous classroom activities is expressive.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

Computer Mediated Communication - Data collection

13. The language used to express oneself in email, discussion boards, tutoring sessions or asynchronous classroom activities is easy to understand.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

14. I ONLY communicate through email, discussion boards, tutoring sessions or asynchronous classroom activities when I am comfortable with the topics.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

PA Cyber CMC

15. I am uneasy participating in email, discussion boards, tutoring sessions or asynchronous classroom activities when I am not familiar with the topics.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

16. I use email, discussion boards, tutoring sessions or asynchronous classroom activities to communicate with people who are familiar to me.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

17. I use email, discussion boards, tutoring sessions or asynchronous classroom activities to communicate with people who are NOT familiar to me.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

Computer Mediated Communication - Data collection

18. Are you comfortable using emoticon to express your emotions?

◯ Yes

◯ No

19. Do you use short-cuts (Online Lingo) when sending messages through email, discussion boards, tutoring sessions or asynchronous classroom activities that are intended for faculty or staff members?

	Yes	No
E-Mail	◯	◯
Discussion Boards	◯	◯
Tutoring Sessions	◯	◯
Asynchronous Classroom Activities	◯	◯

20. Do you use short-cuts (Online Lingo) when sending messages through email, discussion boards, tutoring sessions or asynchronous classroom activities that are intended for other students?

	Yes	No
E-Mail	◯	◯
Discussion Boards	◯	◯
Tutoring Sessions	◯	◯
Asynchronous Classroom Activities	◯	◯

21. Email, discussion boards, tutoring sessions or asynchronous classroom activities are the correct places to express feelings of sadness.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

PA Cyber CMC

22. Email, discussion boards, tutoring sessions or asynchronous classroom activities is the correct place to express feeling of happiness.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

Computer Mediated Communication - Data collection

23. When trying to work through a problem with another student is email, discussion boards, tutoring sessions or asynchronous classroom activities the correct place to resolve the problem?

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

24. When trying to work through a problem with a teacher/staff member of the school is email, discussion boards, tutoring sessions or asynchronous classroom activities the correct place to resolve the problem?

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

25. Friendships started in email, discussion boards, tutoring sessions or asynchronous classroom activities become close friendships.

	1 Strongly Disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly Agree
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

PA Cyber CMC

Part two will gather demographic information.

26. How proficient are you in using e-mail, discussion board, tutoring sessions, and asynchronous classroom activities?

	1 Novice	2 Below Average	3 Average	4 Above Average	5 Expert
E-Mail	◯	◯	◯	◯	◯
Discussion Boards	◯	◯	◯	◯	◯
Tutoring Sessions	◯	◯	◯	◯	◯
Asynchronous Classroom Activities	◯	◯	◯	◯	◯

27. How many years have you been using the Internet? (Round the nearest full Year)

Years

Computer Mediated Communication - Data collection

28. Gender

- ◯ Female
- ◯ Male

29. Do you attend PaCyber ++?

- ◯ Yes
- ◯ No

30. How long have you attended a Cyber School?

Number of Years

31. Do you attend the school related field trips?

- ◯ Yes
- ◯ No

32. If yes, within the last year how many have you attended?

Number you have attended

Appendix D – Raw data from SurveyMonkey

RespondentID	CollectorID	StartDate	EndDate	Email, discussion boards, tutoring sessions or asynchronous classroom activities can be used as a means to communicate and build social connections.				Interactions using email, discussion boards, tutoring sessions or asynchronous classroom activities are casual or a relaxed way to communicate?			
				E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities
1183361780	13960794	10/12/2010	10/12/2010	3	2	2	4	4	2	2	4
1173398728	13960794	09/30/2010	09/30/2010	5	5	5	5	5	5	5	5
1166759266	13960794	09/23/2010	09/23/2010	5	5	2	4	4	5	2	3
1144542967	13960794	08/26/2010	08/26/2010	5	5	5	5	4	4	4	4
1141791046	13960794	08/24/2010	08/24/2010	4	2	4	2	4	5	3	2
1141290221	13960794	08/23/2010	08/23/2010	4	4	5	4	5	5	5	5
1140926669	13960794	08/23/2010	08/23/2010	4	1	1	5	5	5	4	5
1138877307	13960794	08/19/2010	08/19/2010	5	4	3	4	5	4	4	5
1137885172	13960794	08/18/2010	08/18/2010	5	5	5	5	5	5	5	5
1133911469	13960794	08/12/2010	08/12/2010	4	4	4	5	5	5	4	4
1131156129	13960794	08/09/2010	08/10/2010	5	4	4	3	5	5	4	3
1131153634	13960794	08/09/2010	08/09/2010	2	2	3	3	4	4	4	4
1128826839	13960794	08/05/2010	08/05/2010	5	4	4	5	5	4	4	5
986006550	12464039	03/02/2010	03/02/2010	5	5	5	5	5	4	5	5
967172903	11668361	02/08/2010	02/08/2010	4	2	4	3	4	4		3
967063105	11668361	02/08/2010	02/08/2010	5	4	3	3	4	4	3	3
966054167	11668361	02/06/2010	02/06/2010	4	4	4	4	3	3	3	3
965385367	11668361	02/05/2010	02/05/2010	5	4	3	5	5	5	3	5
965278778	11668361	02/05/2010	02/05/2010	4	4	3	5	4	5	3	5
965251798	11668361	02/05/2010	02/05/2010	4	4	3	4	4	4	3	4
965113720	11668361	02/05/2010	02/05/2010	4	4	3	3	3	3	3	3
964589621	11668361	02/05/2010	02/05/2010	5	5	5	5	5	5	5	5
964496271	11668361	02/04/2010	02/04/2010	2	1	1	3	3	3	3	4
964283871	11668361	02/04/2010	02/04/2010	5	4	3	4	5	3	4	4
964003043	11668361	02/04/2010	02/04/2010	5	5	3	5	5	5	3	5
959230292	11668361	01/29/2010	01/29/2010	4	4	3	2	4	2	3	3
959164291	11668361	01/29/2010	01/29/2010	4	3	4	3	5	4	4	3
958243050	11668361	01/28/2010	01/28/2010	4	4	4	4	4	4	2	2
957323351	11668361	01/27/2010	01/27/2010	5	4	4	4	4	4	4	4
956694862	11668361	01/27/2010	01/27/2010	2	1	3	4	4	4	4	4
956415297	11668361	01/26/2010	01/26/2010	4	3	4	4	4	4	2	3

RespondentID	When communicating sensitive information email, discussion boards, tutoring sessions or asynchronous classroom activities are appropriate ways to communicate with others.				Messages that are received though email, discussion boards, tutoring sessions or asynchronous classroom activities are an enjoyable way to communicate with others.				The replies to my email, discussion boards, tutoring sessions or asynchronous classroom activities are immediate.			
	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities
1183361780	3	2	2	2	3	2	2	3	4	3	3	4
1173398728	4	4	4	4	5	5	5	4	5	5	5	5
1166759266	5	2	4	3	5	5	3	4	5	3	5	5
1144542967					4	4	4	4	2	2	2	2
1141791046	4	1	3	1	2	4	2	4	2	2	5	4
1141290221	3	3	3	3	4	4	4	4	4	2	5	4
1140926669	5	1	1	1	4	3	3	5	5	5	5	5
1138877307	4	1	1	4	4	4	3	3	4	4	3	4
1137885172	4	2	2	2	5	5	5	5	4			
1133911469	2	1	2	2	3	3	4	4	2	2	5	5
1131156129	5	2	2	3	5	4	4	3	5	4	4	3
1131153634	2	2	2	2	4	4	4	4	2	3	3	4
1128826839	4	2	1	2	5	4	4	4	5	4	4	4
986006550	5	1	1	2	4	5	5	5	5	3	5	5
967172903	4	1	4	3	3	1	4	3	3	3		3
967063105	2	1	3	3	5	5	3	3	4	4	3	3
966054167	4	2	2	2	4	4	4	4	4	4	4	4
965385367	5	5	3	5	5	5	4	5	5	5	5	5
965278778	5	3	3	4	4	5	3	5	4	4	3	4
965251798	3	2	2	2	4	4	3	4	5	4	3	4
965113720	3	3	3	3	4	4	3	3	3	3	3	3
964589621	5	5	5	5	5	5	5	5	4	4	4	4
964496271	3	3	3	4	3	3	3	4	3	3	3	4
964283871	5	3	4	3	4	4	5	4	3	3	3	3
964003043	4	1	2	2	5	4	3	4	4	4	3	4
959230292	2	2	2	2	4	4	4	4	2	3	3	3
959164291	4	3	4	4	4	4	4	3	5	4	5	3
958243050	4	4	4	4	4	4	2	2	4	4	4	4
957323351	5	4	4	4	4	4	4	4	4	3	4	3
956694862	3	2	4	4	2	2	3	3	4	4	4	4
956415297	2	2	2	2	4	4	3	4	4	3	3	4

RespondentID	Users of email, discussion boards, tutoring sessions or asynchronous classroom activities normally respond to my messages.				The language people use to express themselves in online communication is thought-provoking.				When communicating through email, discussion boards, tutoring sessions or asynchronous classroom activities it is hard to express your emotions.			
	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities
1183361780	4	3	3	4	3	3	3	3	2	4	4	2
1173398728	5	5	5	5	5	5	5	5	1	1	1	1
1166759266	5	5	5	5	4	3	5	5	1	1	1	1
1144542967	4	4	4	4	3	3	3	3	4	4	4	4
1141791046	5	3	5	4	2	3	4	4	2	2	2	2
1141290221	4	4	5	4	4	4	5	4	3	3	2	2
1140926669	5	5	5	5	5	5	5	4	3	3	3	3
1138877307	4	4	3	4	2	2	3	2	4	4	3	4
1137885172	5	4	4	4	4	4	4	4	1	1	1	1
1133911469	4	3	5	5	3	3	3	3	4	4	2	2
1131156129	5	4	4	3	5	4	4	3	1	2	2	3
1131153634	4	3	4	4	4	4	2	2	4	4	4	4
1128826839	5	4	4	4	4	4	5	5	2	2	2	2
986006550	5	3	5	5	4	4	5	5	2	1	1	1
967172903	4	4	4	3	3	3	3	3	4	4	4	4
967063105	4	4	3	3	2	4	3	3	2	2	3	3
966054167	4	4	4	4	4	4	4	4	2	2	2	2
965385367	5	5	5	5	5	5	5	5	1	1	1	1
965278778	5	4	3	4	4	5	3	5	2	3	3	2
965251798	5	5	3	4	3	3	3	3	2	2	3	2
965113720	3	3	3	3	2	2	3	3	2	2	3	3
964589621	5	5	5	5	4	4	4	4	3	3	3	3
964496271	3	3	3	4	3	3	3	2	3	3	3	3
964283871	4	3	4	4	4	3	2	2	4	3	2	2
964003043	4	4	3	4	3	3	3	3	2	3	3	2
959230292	4	3	3	3	4	3	3	3	4	3	3	3
959164291	4	4	4	4	3	3	3	3	1	2	1	2
958243050	4	4	4	4	4	4	4	4	2	2	4	2
957323351	4	3	4	3	4	4	4	4	2	2	2	2
956694862	4	4	4	4	3	3	3	4	5	5	4	4
956415297	4	3	3	4	4	4	4	4	4	4	3	3

RespondentID	The language used to express oneself in email, discussion boards, tutoring sessions or asynchronous classroom activities is expressive.				The language used to express oneself in email, discussion boards, tutoring sessions or asynchronous classroom activities is easy to understand.				I ONLY communicate through email, discussion boards, tutoring sessions or asynchronous classroom activities when I am comfortable with the topics.			
	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities
1183361780	4	2	2	3	4	3	3	4	2	3	3	2
1173398728	5	5	5	5	5	5	5	5	1	1	1	1
1166759266	5	4	4	2	4	4	4	4	2	2	2	2
1144542967	3	3	3	3	4	4	4	4	4	4	4	4
1141791046	2	2	3	4	4	1	4	4	2	3	2	4
1141290221	3	3	4	3	4	4	4	4	2	4	2	2
1140926669	3	3	3	4	5	5	5	5	2	5	1	4
1138877307	3	3	3	3	4	4	3	4	4	4	3	4
1137885172	4	4	4	4	4	4	4	4	2	2	2	2
1133911469	2	2	4	4	3	3	4	4	4	4	2	2
1131156129	5	4	4	3	5	4	4	3	3	3	3	3
1131153634	2	2	2	2	2	2	2	2	4	4	4	4
1128826839	5	3	4	4	5	4	4	4	2	4	2	4
986006550	4	4	5	5	5	5	5	5	5	5	5	5
967172903	3	3	3	3	4	4	4	4	4	2	4	3
967063105	2	4	3	3	5	5	3	3	1	1	1	1
966054167	4	4	4	4	4	4	4	4	4	4	4	4
965385367	5	5	4	5	5	5	5	5	1	1	1	1
965278778	4	4	3	4	5	4	3	4	4	4	3	4
965251798	4	3	3	4	5	5	3	5	4	4	3	4
965113720	3	3	3	3	4	4	3	3	4	4	3	3
964589621	4	4	4	4	4	4	4	4	4	4	4	4
964496271	3	3	3	3	3	3	3	4	3	3	3	5
964283871	3	3	2	4	3	4	4	3	2	2	2	2
964003043	4	2	3	4	4	4	3	4	4	4	3	4
959230292	4	3	3	3	4	3	3	3	2	3	3	3
959164291	5	4	5	4	5	5	5	5	1	2	2	2
958243050	4	4	2	4	4	4	4	4	2	2	2	2
957323351	4	4	4	4	4	4	4	4	4	4	4	4
956694862	2	2	4	4	3	3	4	5	2	4	4	4
956415297	3	3	4	4	3	3	4	4	4	4	4	4

RespondentID	I am uneasy participating in email, discussion boards, tutoring sessions or asynchronous classroom activities when I am not familiar with the topics.				I use email, discussion boards, tutoring sessions or asynchronous classroom activities to communicate with people who are familiar to me.				I use email, discussion boards, tutoring sessions or asynchronous classroom activities to communicate with people who are NOT familiar to me.			
	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities
1183361780	2	3	3	2	4	2	2	3	3	3	3	3
1173398728	1	1	1	1	5	5	5	5	5	5	5	5
1166759266	1	1	1	1	5	4	3	4	4	4	3	4
1144542967	4	4	4	4	4	4	4	4	2	2	2	2
1141791046	2	5	2	4	1	1	1	2	4	4	4	4
1141290221	4	4	4	4	4	4	4	4	2	2	2	2
1140926669	1	1	1	1	4	1	1	4	1	1	1	5
1138877307	4	4	3	4	2	2	3	2	4	4	3	4
1137885172	2	2	2	2	5	5	5	5	5	5	5	5
1133911469	4	4	2	2	4	4	4	5	2	3	4	4
1131156129	3	4	3	3	5	4	4	3	3	4	4	3
1131153634	4	4	4	4	4	4	4	4	2	2	2	2
1128826839	2	4	2	4	4	2	2	4	5	4	4	5
986006550	2	2	2	2	4	2	4	5	4	2	4	5
967172903	4	3	4	3	4	2	2	2	2	4	2	3
967063105	1	1	1	1	5	4	2	2	5	5	3	3
966054167	4	4	4	4	4	4	4	4	2	2	2	2
965385367	1	1	1	1	5	5	3	5	3	3	3	3
965278778	3	3	3	3	4	3	3	4	3	4	3	4
965251798	3	3	3	2	4	3	3	4	3	4	3	4
965113720	4	4	4	4	4	4	4	4	2	2	2	2
964589621	2	2	2	2	4	4	4	4	4	4	4	4
964496271	3	3	3	2	1	1	1	4	1	1	1	4
964283871	2	4	5	4	5	3	3	4	4	4	3	4
964003043	3	3	3	3	4	4	3	4	4	4	3	4
959230292	4	3	3	3	4	3	3	3	4	3	3	3
959164291	2	2	2	2	4	4	4	4	4	4	4	4
958243050	2	2	3	3	4	4	4	4	4	4	2	4
957323351	2	2	2	2	4	4	4	4	3	2	2	2
956694862	2	2	4	5	1	2	2	2	2	2	4	4
956415297	4	4	4	4	4	4	3	3	3	3	3	3

RespondentID	Are you comfortable using emoticon to express your emotions?	Do you use short-cuts (Online Lingo) when sending messages through email, discussion boards, tutoring sessions or asynchronous classroom activities that are intended for faculty or staff members?				Do you use short-cuts (Online Lingo) when sending messages through email, discussion boards, tutoring sessions or asynchronous classroom activities that are intended for other students?				Email, discussion boards, tutoring sessions or a classroom activities are the correct places to ex of sadness.		
	Response	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions
1183361780	1	2	2	2	2	1	2	2	1	2	2	2
1173398728	1	2	2	2	2	1	1	1	1	4	4	4
1166759266	1	2	2	2	2	1	1	1	1	3	3	3
1144542967	2					2	2	2	2	2	2	2
1141791046	1	2	2	2	2	2	2	2	1	4	1	1
1141290221	1	2	2	2	2	2	2	2	2	3	3	3
1140926669	2	2	2	2	1	1	1	1	1	5	1	1
1138877307	2	2	2	2	2	2	2	2	2	1	1	1
1137885172	1	2	2	2	2	1	2	2	2	5	2	2
1133911469	1	2	2	2	2	1	1	1	1	3	3	3
1131156129	1	2	2	2	2	1	2	2	2	4	2	2
1131153634	1	2	2	2	2	1	1	1	1	2	2	2
1128826839	1	2	2	2	2	1	2	2	2	4	1	1
986006550	1	2	2	2	1	1	1	1	1	5	2	5
967172903	1	2	2	1	2	1	2	1	1	3	3	3
967063105	1	2	2	2	2	2	2	2	2	4	2	3
966054167	1	2	2	2	2	2	2	2	2	2	2	2
965385367	1	1	2	2	2	1	1	1	1	3	3	3
965278778	1	2	2	2	2	2	2	2	2	4	2	3
965251798	1	2	2	2	2	2	2	2	2	4	2	2
965113720	2	2	2	2	2	2	2	2	2	3	3	3
964589621	1	2	2	2	2	2	2	2	2	3	3	3
964496271	1	2	2	2	2	2	2	2	2	1	1	1
964283871	1	2	2	2	2	2	2	2	2	5	2	3
964003043	1	2	2	2	2	1	1	1	1	4	2	2
959230292	1					1	2	2	2	2	2	2
959164291	1	1	1	1	1	1	1	1	1	4	3	4
958243050	1	2	2	2	2	1	1	1	1	4	4	2
957323351	1	2	2	2	2	1	1	2	2	2	2	2
956694862	1	2	2	2	2	2	2	2	1	1	1	1
956415297	1	2	2	2	2	1	1	2	2	3	3	2

RespondentID	synchronous press feelings	Email, discussion boards, tutoring sessions or asynchronous classroom activities is the correct place to express feeling of happiness.				When trying to work through a problem with another student is email, discussion boards, tutoring sessions or asynchronous classroom activities the correct place to resolve the problem?				When trying to work through a problem with a member of the school is email, discussion boarc sessions or asynchronous classroom activities th to resolve the problem?		
	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions
1183361780	2	4	3	3	4	2	3	3	4	4	3	3
1173398728	4	4	4	4	4	5	5	5	5	5	5	5
1166759266	3	3	3	3	3	5	1	1	2	5	1	1
1144542967	2	4	4	4	4	2	2	2	2	3	3	3
1141791046	2	4	2	2	4	4	1	1	2	4	1	4
1141290221	3	3	3	3	3	3	3	3	3	4	2	4
1140926669	1	5	5	5	5	5	1	1	5	5	1	1
1138877307	1	4	4	4	4	3	3	3	3	4	2	2
1137885172	2	5	4	4	4	5	1	1	1	5	1	1
1133911469	3	4	4	4	4	4	1	1	1	4	1	1
1131156129	2	5	4	3	3	5	2	2	2	5	5	4
1131153634	2	2	2	2	2	2	2	2	2	2	2	2
1128826839	1	5	4	4	4	5	2	1	2	5	1	3
986006550	5	5	4	5	5	5	5	2	4	5	5	5
967172903	3	3	3	3		2	2	2	2	2	2	2
967063105	3	5	5	5	5	2	2	3	3	4	3	3
966054167	2	3	3	3	3	3	3	3	3	5	3	3
965385367	3	5	5	5	5	4	5	5	5	4	5	5
965278778	3	4	2	3	3	4	4	3	4	5	4	3
965251798	2	4	4	2	2	2	4	4	3	4	4	4
965113720	3	3	3	3	3	3	3	3	3	3	3	3
964589621	3	3	3	3	3	3	3	3	3	3	3	3
964496271	3	1	1	1	4	4	1	1	1	5	1	3
964283871	2	5	5	4	5	5	2	4	5	5	1	5
964003043	3	4	4	3	4	4	2	2	3	5	2	5
959230292	2	4	3	3	3	4	3	3	3	5	2	2
959164291	3	4	4	4	4	4	2	4	3	5	1	4
958243050	2	4	4	4	4	4	4	2	4	4	2	2
957323351	2	3	3	3	3	2	2	2	2	4	2	4
956694862	1	3	3	4	4	2	4	4	5	4	4	5
956415297	3	3	3	3	3	2	2	2	2	3	2	2

RespondentID	teacher/staff ls, tutoring he correct place	Friendships started in email, discussion boards, tutoring sessions or asynchronous classroom activities become close friendships.				How proficient are you in using e-mail, discussion board, tutoring sessions, and asynchronous classroom activities?				How many years have you been using the Internet? (Round the nearest full Year)	Gender	Do you attend PaCyber ++?
	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	Years	Response	Response
1183361780	4	3	3	3	3	5	5	5	5	13	2	1
1173398728	5	5	5	5	5	4	4	4	4	3	2	2
1166759266	2	4	4	1	4	5	5	5	5	12	2	2
1144542967	3	3	3	3	3	2	2	2	2	3	1	1
1141791046	1	1	1	1	1	4	4	4	4	12	1	1
1141290221	2	2	3	4	3	4	3	4	4	5	1	1
1140926669	5	5	3	3	5	5	5	5	5	6	1	1
1138877307	2	3	3	3	3	4	3	1	3	5	1	1
1137885172	1	4	2	2	3	3	1	1	1	3	2	1
1133911469	1	3	3	3	4	3	3	4	5	2	2	2
1131156129	3	5	3	3	3	5	3	3	3	5	1	1
1131153634	2	4	2	2	4	3	3	3	3	6	1	1
1128826839	1	5	3	3	5	5	4	5	5	6	1	1
986006550	5	4	4	3	4	5	5	5	5	12	1	1
967172903	2	3	3	3	3	4	4	4	4	8	2	1
967063105	3	5	4	3	3	5	4	1	1	8	2	1
966054167	3	3	3	3	3	5	4	4	4	9	1	2
965385367	5	5	5	5	5	5	5	5	5	5	2	2
965278778	4	3	4	3	4	4	4	3	4	7	2	1
965251798	3	3	3	3	3	3	4	3	3	7	2	1
965113720	3	3	3	3	3	3	3	3	3	5	2	1
964589621	3	3	3	3	3	5	1	1	1	10	1	2
964496271	1	1	1	1	1	5	1	5	5	5	1	1
964283871	4	4	3	3	4	4	3	2	4	8	1	1
964003043	5	4	3	3	4	4	3	2	3	7	1	2
959230292	2	4	3	3	3	5	3	3	3	11	1	2
959164291	2	4	4	4	4	5	5	5	4	5	1	1
958243050	2	2	2	2	2	5	3	2	2	12	2	1
957323351	4	3	3	3	3	4	4	4	4	7	1	1
956694862	5	2	2	2	2	5	3	2	4	6	1	1
956415297	2	3	2	3	3	4	3	3	3	12	1	1

RespondentID	How long have you attended a Cyber School?	Do you attend the school related field trips?	If yes, within the last year how many have you attended?
	Number of Years	Response	Number you have attended
1183361780	6	1	6
1173398728	2	2	
1166759266	8	1	8
1144542967	6	2	
1141791046	1	1	2
1141290221	2	2	
1140926669	4	2	
1138877307	3	2	0
1137885172	2	1	1
1133911469	5	1	2
1131156129	1	1	1
1131153634	3	2	
1128826839	4	1	2
986006550	9	1	2
967172903	5	2	
967063105	3	2	
966054167	1	2	
965385367	4	1	2
965278778	5	1	2
965251798	1	1	4
965113720	5	2	
964589621	2	2	
964496271	4	2	
964283871	1	2	0
964003043	2	2	0
959230292	4	2	
959164291	4	1	2
958243050	2	2	0
957323351	3	2	
956694862	1	2	0
956415297	3	1	0

Appendix E – Total Scores from Survey

Social context				online communication				
E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	
3.38	2.25	2.25	3.13	3.22	2.56	2.56	3.00	
4.38	4.38	4.38	4.13	4.00	4.00	4.00	3.89	
4.25	3.75	3.13	3.75	3.56	3.33	3.56	3.33	
3.13	3.13	3.13	3.13	2.22	2.22	2.22	2.22	
3.50	1.88	2.88	2.00	3.22	2.56	2.67	3.00	
3.75	3.88	4.25	3.88	3.11	3.22	3.67	3.33	
4.50	2.75	2.63	3.50	3.22	2.78	2.78	2.67	
3.75	2.88	2.88	3.63	2.44	2.44	2.56	2.44	
4.25	4.00	4.00	4.00	3.89	3.56	3.56	3.56	
3.25	2.88	3.50	3.88	2.67	2.67	3.33	3.44	
4.75	3.63	3.50	3.00	4.11	3.44	3.33	2.89	
3.00	2.75	3.13	2.88	2.44	2.44	2.33	2.33	
4.25	3.00	3.25	3.63	3.89	3.00	3.44	3.22	
4.50	3.38	3.63	3.63	3.89	3.56	4.22	4.11	
3.63	2.50	3.13	3.13	2.89	2.89	2.78	2.44	
4.00	3.00	2.88	2.88	3.44	3.33	3.22	3.22	
3.50	3.25	3.25	3.25	3.33	3.22	3.22	3.22	
4.75	4.63	3.75	4.75	3.89	4.00	3.89	4.00	
4.00	3.25	3.00	3.75	3.67	3.33	3.00	3.67	
3.88	3.50	2.75	3.38	3.56	3.22	2.78	3.11	
3.63	3.63	3.25	3.25	2.56	2.56	2.56	2.56	
4.13	4.13	4.13	4.13	3.33	3.33	3.33	3.33	
2.88	2.75	2.75	3.13	2.56	2.56	2.56	3.11	
4.25	3.13	3.75	3.63	3.44	3.11	3.11	3.33	
4.13	3.13	2.88	3.50	3.44	2.67	2.78	3.22	
3.00	2.75	2.75	2.63	2.89	2.67	2.67	2.67	
4.25	3.88	4.13	3.75	3.67	3.22	3.56	3.22	
3.75	3.75	3.75	3.50	3.56	3.56	2.67	3.11	
4.13	4.00	4.00	4.00	3.22	3.22	3.33	3.33	
2.38	2.25	2.75	3.13	2.44	2.33	2.78	3.00	
3.38	3.13	3.00	3.13	2.78	2.89	3.11	3.22	

Social Interactivity				Total Perception			
E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities	E-Mail	Discussion Boards	Tutoring Sessions	Asynchronous Classroom Activities
3.25	2.88	2.88	3.50	3.28	2.56	2.56	3.21
4.50	4.50	4.50	4.38	4.29	4.29	4.29	4.13
4.50	3.25	2.88	3.63	4.10	3.44	3.19	3.57
3.00	3.00	3.00	3.00	2.78	2.78	2.78	2.78
3.00	2.00	3.00	2.75	3.24	2.14	2.85	2.58
3.13	3.00	3.63	3.00	3.33	3.37	3.85	3.40
4.50	3.50	3.00	4.88	4.07	3.01	2.80	3.68
3.50	3.25	2.88	3.13	3.23	2.86	2.77	3.06
4.25	2.38	2.38	2.50	4.13	3.31	3.31	3.35
3.25	2.38	3.13	3.25	3.06	2.64	3.32	3.52
4.50	3.38	3.38	2.88	4.45	3.48	3.40	2.92
3.00	2.75	2.88	3.25	2.81	2.65	2.78	2.82
4.50	3.00	3.13	3.25	4.21	3.00	3.27	3.37
4.63	4.25	4.25	4.63	4.34	3.73	4.03	4.12
2.88	2.50	2.63	2.75	3.13	2.63	2.84	2.77
3.75	3.50	3.00	3.00	3.73	3.28	3.03	3.03
3.63	3.38	3.38	3.38	3.49	3.28	3.28	3.28
4.25	4.50	4.38	4.50	4.30	4.38	4.00	4.42
4.00	4.00	3.00	4.00	3.89	3.53	3.00	3.81
3.75	3.88	3.25	3.63	3.73	3.53	2.93	3.37
3.13	3.13	2.88	2.88	3.10	3.10	2.89	2.89
3.88	3.88	3.88	3.88	3.78	3.78	3.78	3.78
3.13	2.25	2.50	3.00	2.85	2.52	2.60	3.08
3.88	2.50	3.38	3.50	3.86	2.91	3.41	3.49
4.13	3.25	3.13	3.88	3.90	3.01	2.93	3.53
3.38	3.00	3.00	3.00	3.09	2.81	2.81	2.76
3.88	3.13	3.88	3.13	3.93	3.41	3.85	3.37
3.50	3.25	2.63	2.88	3.60	3.52	3.01	3.16
3.63	3.13	3.63	3.38	3.66	3.45	3.65	3.57
3.00	3.50	3.50	3.50	2.61	2.69	3.01	3.21
3.25	2.75	2.75	3.13	3.13	2.92	2.95	3.16