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Democratic or Gendered Domain: Communication and Learning Styles in the Online Classroom

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Democratic or Gendered Domain:

Communication and Learning Styles in the Online Classroom

by Jennifer A. Bruns

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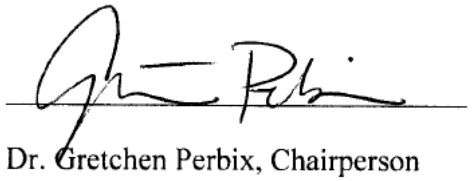

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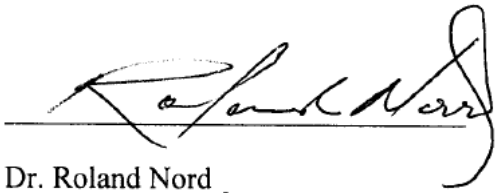

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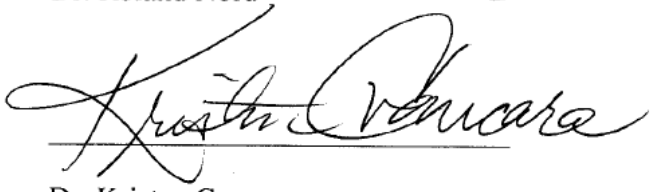

Dr. Kristen Cvancara

Abstract

Computer-mediated communication (CMC) within cyberspace has become a recent pedagogical phenomenon. Cyberspace creates a domain for new learning environments. Using the online classroom has the potential to break down gender barriers and erect a more democratic space for students. Even with this limitless potential, there are competing conceptions regarding these new and promising classrooms—will online education conform to the same standards that shape a gendered society, or will these classrooms create a more equitable environment for both male and female students?

Because of the rising numbers of online female students, gender bias becomes an increasingly important research topic. Yet the past research remains inconclusive regarding the relationships between gender, communication styles, and learning styles in the online environment (Yukselturk & Bulut, 2009). The purpose of the current project was to investigate cyberspace through CMC to study the influence of both biological and psychological gender on self-reported communication styles, online communication styles, and learning styles.

This project used a case study approach to investigate thirteen participants' style preferences. Participants completed the Bem Sex Role Inventory, the Communication Styles Q-Set, a demographic survey, the Kolb Learning Style Inventory, and McCrosky's Self-Perceived Communication Competence Scale. As the researcher, I analyzed participants' CMC in an online classroom using a developed Research Coding Scheme. I then compared participants' CMC to the other measures through the calculations of mean scores.

The results revealed differences between male and female participants when it came to participants' CMC and self-reported communication styles, there were style similarities between CMC and self-reported communication, participants' learning style preferences appeared to reflect the online environment, and learning style preferences drew parallels with communication style preferences. These results revealed that the online classroom fell short of a democratic ideal.

Online classrooms have the potential of breaking down barriers to student participation. Still the online classroom within this project did not break down all barriers and continued to mirror a gendered society. The need for further research is imperative. Other researchers should continue investigating these emerging classrooms—hopefully, leading to a better understanding of how to neutralize gender bias within this new cyberspace domain.

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I. Purpose of Study

The use of computer-mediated communication (CMC) in daily interactions has become commonplace in today's society (Price, 2006). College universities have been keen to exploit CMC within cyberspace by turning CMC into a pedagogical tool for offering more types of learning environments (Price, 2006). In turn, learning within cyberspace has become a widespread practice and the main phenomenon characterizing education since the late twentieth century (Chen & Tsai, 2007; Chyung, 2007). Cyberspace defined is a:

> Globally networked, computer-sustained, computer-accessed and computer-generated, multidimensional, artificial, or 'virtual' reality. In this reality, to which every computer is a window, seen or heard objects are neither physical nor, necessarily, representations of physical objects but are, rather, in form, character and action, made up of data, of pure information. (Benedikt, 1991, as cited in MacKinnon, 2006).

The primary difference between cyberspace and real life is the "interposition of some mediating and transforming agent or interface between the senses and the shared perception" (MacKinnon, 2006). CMC creates a virtual learning environment for its participants, with the computer acting as the mediating agent. CMC can take place through email, computer conferencing, and chat rooms.

There are competing conceptions of cyberspace and the online learning environment. Some theorists believe that cyberspace offers users, for the first time, the domain to be free from gender, race, age, and class. Users can create any identity they

choose without the presence of their oppressive physical bodies. Other theorists believe cyberspace may offer the possibility for identity play, but that cyberspace ultimately conforms to the gender constructs prevalent in society. These theorists believe "cyberspace cannot escape the social construction of gender because it was constructed by gendered individuals, and because gendered individuals have access it, in ways that reinforce the subjugation of women" (Luckman, 1999, p. 36). Cyberspace will only become a reflection of a gender-constructed and patriarchal society.

Many have researched cyberspace, discovering that such factors as a user's gender, communication style, and learning style influence CMC-based distance education (Blum 1998, 1999; Cooper & Miller, 1991; Garland & Martin, 2005; Gunn, McSporran, Macleod, & French, 2003; Sullivan, 2001; Taplin & Jegede, 2001; Trego, 2003). Other research remains inconclusive regarding the impact these influences have on the cyberspace-learning environment (Yukselturk & Bulut, 2009). Within the current project, I take a case study approach to understanding CMC-based distance education through investigating participants' communication and learning preference styles, actual CMC practices, and gender. This approach allowed me to gather rich data and explore the influence these factors have on the cyberspace-driven learning environment. To guide me in this process of inquiry, I proposed the following research questions:

Question 1. Do students of different genders (either biological or psychological) exhibit different communication styles in CMC-based online classrooms?

Question 2. Do students of different genders (either biological or psychological) have different communication styles in CMC-based online classrooms versus their self-reported communication styles?

Question 3. Do students of different genders (either biological or psychological) exhibit different learning styles in CMC-based online classrooms?

Question 4. Are certain types of learning styles related to students' self-reported communication styles in CMC-based online classrooms?

My purpose was to investigate cyberspace through CMC to understand the influence of gender on self-reported communication, online communication, and learning styles, and to study the relationships between these factors. My conclusions reveal that there are relationships between gender, communication styles, and learning styles in the online classroom. The online classroom in this study mirrored a gendered, not a democratic, society. Therefore, the cyberspace environment did not neutralize gender bias.

This study is only a qualitative beginning to understanding the depth of the relationships among gender, communication, and learning styles. Although the results add to the existing body of research, this topic warrants additional focus, especially as more educational institutions offer courses online. Addressing gender bias has the potential of improving both students' and online education's success as we venture forth in today's technological society.

II. Literature Review

Research remains inconclusive as to whether cyberspace is a democratic or a gendered domain. The following chapter includes a discussion about these competing conceptions of cyberspace (democratic versus gendered). Within this discussion, I include a focus on gendered communication, including gendered CMC and gendered face-to-face communication. I then close with an overview of CMC-based learning programs, with attention given on the conflicting findings regarding gender differences in these learning programs.

Cyberspace: A Democratic Domain

Some theorists believe that CMC is more democratic than other forms of communication. The social decontextualization of CMC is one of its supposed democratic characteristics (Herring, 1993). CMC neutralizes social and physical markers such as age, race, gender, accent, and voice, among others. While the absence of these physical markers may make CMC less personal, it also offer the possibility for "traditionally lower-status individuals" to participate on the same terms as other participants (Herring, 1993). In CMC, the emphasis is on the content, rather than the identity of the sender (Herring, 1993). For this reason, some have called CMC our society's "great equalizer" and have suggested that CMC offers gender equity within interactions (Wojahn, 1994).

Since physical markers do not structure CMC, some theorists believe that cyberspace may hold the possibility to neutralize the gendered body and its oppression

(Stone, 1995; Turkle, 1995). Cyberspace offers users a virtual body separate from real life—a domain where physical bodies have no consequences in this emerging cyberspace world. The virtual body can be whatever a user chooses, and some theorists believe that users can experience freedom from the oppression of gender and race for the first time. Turkle (1995) and Stone (1995) believe cyberspace is a democratic form of communication because it offers a medium for identity play. Turkle (1995) captures her argument by quoting a Multi-User Domain, Dimension, Dungeon, or Dialogue (MUD) user:

> You can be whoever you want to be. You can completely redefine yourself if you want. You can be the opposite sex. You can be more talkative. You can be less talkative. Whatever. You can just be whoever you want, really, whoever you have the capacity to be. You don't have to worry about the slots other people put you in as much. It's easier to change the way people perceive you, because all they've got is what you show them. They don't hear your accent and make assumptions. All they see is your words. (pp. 184-185)

Since cyberspace offers users constructed identities free from body-based genders, cyberspace holds the potential to overthrow gender stereotypes. Cyberspace creates the possibility to change social constructions of gender, as Bruckman (1993) states: "the network is in the process of changing not just how we work, but how we think of ourselves—and ultimately, who we are" (p. 4). CMC is one form of media that influences gender stereotypes and its social implications are vast—perhaps creating a democratic domain for its users.

Cyberspace: A Gendered Domain

Although cyberspace holds the possibility to neutralize gender constructions and social forces, other theorists believe that cyberspace does not guarantee that users will use this environment for the better or for its body-less possibility (Balsamo, 1999; Boudourides & Drakou, 2000; Whitney, 1997). Cyberspace, even as a new public and private sphere, must receive practical interpretations of its discursive forces, including concepts of power, history, gender, and politics (Frohne & Katti, 2000). Boudourides and Drakou (2000) believe that the ideology of cyberspace becoming a righteous realm does not correspond with face-to-face reality. Even though physical markers are not the primary means of structuring cyberspace communication, this does not mean that these markers will lose salience in the real world—and what shapes society will shape cyberspace. Frohne and Katti (2000) ask:

> Does the technological mobility promoted by the new electric media enable an emancipation of body and language politics that make the transcendence of boundaries viable? Or do the utopian concepts of virtual reality and cyberspace in practice exclude a certain range of actual bodies and languages, thereby inevitable[y] leading to political and cultural segregation? (p. 13)

These theorists believe that cyberspace has not neutralized gender; cyberspace only mirrors society and appears organized by the same patriarchal forms. Any changes cyberspace may have on society will only reinforce patriarchal societal norms, and cyberspace will not influence society for the better because society is the influencer of cyberspace.

Boudourides and Drakou (2000) believe that the social construction of gender is more powerful than any new identity creation. Balsamo (1999) suggests that traditional gender constructs are more comfortable for users and users will use traditional gender constructs more than any new identity creation. Whitney (1997) goes further by stating that identity creation is not just a case of using new words in cyberspace, but that word choice is a result of socialized learning. For this reason, it is difficult, if not impossible, for an individual to maintain a new identity because of the lack of socialization of that new role. Rather than gender being an influence on an individual's identity, gender becomes a part of that identity, making gender inescapable. Balsamo (1999) suggests that cyberspace will continue to produce traditional narratives in high-tech guise and these old stories are the same in that they have been historically gendered.

Despite the democratizing potential of cyberspace, Bruckman (1993) found that the subtle gender differences often left unobserved in face-to-face communication become obvious in MUDs. Bruckman found that men are often surprised how others treat them as female characters. Sexual harassment, unwanted attention, and sexual advances create "an uncomfortable atmosphere for women in MUDs, just as they do in real life" (p. 3). Users frequently offer technical assistance to female characters in MUDs with the underlying belief that women "need help." Users offer this technical assistance with the expectation of a sexual favor in return. While this might occur in real life (e.g., a man paying for dinner on a date), it becomes blatant in the MUD environment.

Herring (1994) proposes that women and men have different communication styles online and that these styles are stereotypically gendered. The male style is adversarial, containing "put-downs, strong, often contentions assertions, lengthy and/or

frequent postings, self-promotion and sarcasm." The female style has two aspects, supportiveness and attenuation, which typically co-occur. Herring defines both of these characteristics:

> "Supportiveness" is characterized by expressions of appreciation, thanking, and community-building activities that make other participants feel accepted and welcome. "Attenuation" includes hedging and expressing doubt, apologizing, asking questions, and contributing ideas in the form of suggestions.

Herring argues that men and women have different online communication norms and practices and that these cultures are separate, but not equal. The online norms and practices of men may actually conflict with the online female culture and in turn create an inhospitable cyberspace for women.

Herring (1993, 1994, 1996) further suggests that men and women have different communication ethics online. Herring found that male and female academic professionals do not equally participate in CMC. Women express consideration for the wants and needs of others as a value, while men assign their values to freedom from "censorship, forthright and open expression, and agonistic debate as a means to advance the pursuit of knowledge" (Herring, 1996). Herring demonstrates a gender bias in CMC, categorizing it as power-based and hierarchical.

Computer technology itself is possibly a male domain. Selfe and Selfe (1994) illustrate the computer as a gendered, classed, and racist technology. Selfe and Selfe theorize that computer technology is inherently male because computer interfaces contain icons oriented to the ideals of the white, male, middle- and upper-class professional (for example, the white pointer hand). The primary interfaces of computers do not provide

evidence of different cultures, races, linguistic groups, or economic statuses; rather, interfaces exclude and marginalize other perspectives and in doing so, enact a gesture of colonialism. Interfaces, according to Selfe and Selfe, operate as a grand narrative where users must abandon their "own culture or gender to acknowledge the dominance of other groups" (p. 494). If computer interfaces erect a border, these theorists believe that cyberspace undoubtedly erects these barriers as well (Selfe & Selfe, 1994).

Communication: Face-to-Face

The physical markers rendered anonymous in CMC are present in face-to-face communication.[1] Markers such as age, gender, and race are present when one communicates in person. For this reason, theorists may remain in debate whether cyberspace will neutralize or uphold gender, while face-to-face communication does not hold the same democratic potential. Gender, as a social construct, influences and is a product of communication (Mahoney & Knupfer, 1997).

Biological Gender

Through communication, people create meaning about themselves, including meanings of what it is to be a man or woman. Communication, in turn, maintains gendered themes that extend traditional relationships between women and men—relationships that place "men in positions of power and dominance and cast women into submissive, supportive roles" (Mills & Wandell, 2004, p. 11). Women and men experience linguistic discrimination both by how they learn to use language and the manner in which language

[1] As noted before, anonymity in cyberspace creates the space for its democratic potential.

treats them. “Messages delivered to people over many years, through different social situations and various media, become part of the daily vocabulary that can perpetuate gender stereotypes” (Mahoney & Knupfer, 1997, p. 201). Men and women do not speak different languages; they use the same language differently (Mills & Wandell, 2004). Biological sex and gender roles inform face-to-face communication, whether the individual is conscious of this choice or not (Ivy & Backlund, 2004).

Research has shown that communication purposes, intents, and goals differ for men and women. Men communicate to establish independence, status, hierarchy, and command, while women communicate to create intimacy, build rapport, and sustain relationships in communication (Mills & Wandell, 2004, p. 14). Women focus more on people, interpersonal relations, feelings, emotions, and opinions in conversations, while men focus more on facts, ideas, and plans and remove personal feelings from conversations (Mills & Wandell, 2004, p. 35). Women and men also use expressive language differently: women use more soft and weak explicatives (“oh, dear”), trivial adjectives (“precious,” “darling”), and diminutive qualifiers (“hardly,” “possibly”), while men use strong and hard explicatives (“oh, shit”), crude and harsh adjectives (“bloody, damn well”), and absolute qualifiers (“never,” “always,” “definitely”) (Mills & Wandell, 2004, p. 34). The style of discourse further differs, with women being interpretative, metaphorical, emotional, detailed, and responsive, and men being more descriptive, empirical, logical, terse, forceful, and authoritative (Mills & Wandell, 2004, p. 34). The following is a list of other differences between feminine and masculine styles in verbal communication from Mills and Wandell (2004, pp. 33-35).

Masculine

- Interrupts others and controls conversations more often
- Fills pauses and repeats points more often
- Takes more turns talking and has a longer length of time talking per turn
- Uses more humor and jokes in conversation
- Pursues more topics in conversation

Feminine

- Uses tag questions, disclaimers, hedges and hesitations more often
- Uses more intensifiers ("so," "such")
- Asks more questions and use questions to express opinions more often
- Has a higher level of disclosure and volunteers personal information more often
- Makes noises during conversations more often ("mhm," "uhuh," and "yeah")

Conversation styles also demonstrate different gender themes for men and women. Tannen (1994) explains that men and women generally adhere to gendered patterns in conversation styles (as cited in Mills & Wandell, 2004). Appendix 1 identifies various components of gender and conversational themes and rituals.

Psychological Gender

In studying differences in communicative behavior between men and women, researchers like Stephen and Harrison (1985) focused on not only biological sex but also psychological gender identity. Biological sex does not determine an individual's psychological gender identity alone (Stephen & Harrison, 1985). Men and women can be masculine, feminine, androgynous, or undifferentiated in their sex role orientation. Masculinity and femininity are not necessarily "two poles of a unidimensional continuum but rather two independent dimensions that underlie individuals' behavior" (Stephen & Harrison, 1985, p. 54). Androgynous describes an individual is high on both femininity and masculinity, while undifferentiated describes an individual is low on both femininity and masculinity in his or her sex role orientation. According to Bem (2009):

> The concept of psychological androgyny implies that it is possible for an individual to be both compassionate and assertive, both expressive and instrumental, both feminine and masculine, depending upon the situational appropriateness of these various modalities. And it further implies that an individual may even blend these complementary modalities in a single act, such as the ability to fire an employee, if the circumstances warrant it, but with sensitivity for the human emotion that such an act inevitably produces.

Unlike biological sex, gender is neither fixed nor dichotomous (Mills & Wandell, 2004). Gender, being a social construct, refers to the "roles, behaviors, activities and attributes that a given society considers appropriate for men and women" (World Health Organization, 2010). Masculine and feminine are within those gender categories, with society defining what it is to be male or female; for example, dominant for males or

passive for females, and brave for males or emotional for females (Stets & Burke, 2000, p. 1).

Psychological gender identity differs from gender roles, stereotypes, and attitudes. Gender identity involves "the meanings that are applied to oneself on the basis of one's gender identification…these self-meanings are a source of motivation for gender-related behavior" (Stets & Burke, 2000, p. 2). Gender identity is how an individual views himself or herself as either masculine or feminine and what it means for an individual to be a man or woman within society (Stets & Burke, 2000, p. 1). This concept of gender identity allows the choice for a biological man to view himself as feminine and a biological woman to view herself as masculine.

Psychological gender identity can feasibly offer a better basis to investigate communication differences in comparison to biological sex alone. Stephen and Harrison (1985) found that the behavior styles of instrumentality and expressivity were more closely associated with masculine and feminine psychological gender identity than biological sex. Communication differences may not only be a matter of biological sex differences, but also gender identity differences.

Computer-Meditated Communication-based Learning Programs

More and more universities are offering CMC-based learning programs, with more female students enrolling in these online courses than male students (Kramarae, 2001, as cited in Garland & Martin, 2005). Online education potentially allows more flexibility for students than what the traditional classroom offers. Sullivan (2001) identifies online courses as being of great value to nontraditional students, particularly female adult

learners with children or family responsibilities. The increase in universities offering online courses and the increase in female students enrolling in these courses create the need to address gender bias.

In fact, gender bias is becoming an increasingly important research focus because of the rising numbers of online female students (Yukselturk & Bulut, 2009). Addressing gender bias in online education has the possibility to enrich classrooms, widen opportunities, and expand choices for all students (Bailey, 1996, as cited in Blum, 1998). "Gender equity in higher education is more than putting women on equal footing with men—it is eliminating barriers to participation and stereotypes that limit the opportunities and choices of both sexes" (Blum, 1998).

Similar to the theories of a democratic domain in cyberspace, some believe that distance education is a more democratic medium for the classroom setting than traditional teaching approaches (Chyung, 2007; Grace, 1994; Price, 2006). Grace (1994) concluded that CMC-based education programs provide an equitable learning environment for women and encourage female students to achieve because women can invest in the educational program to meet their goals (as cited in Trego, 2003). Price (2006) found that women outperform men online and are confident independent learners who engage academically. Price challenged the view that technology disadvantages women and classified this view as stereotypical. She theorized that women may have different interaction styles in comparison to their male counterparts and that these differences may actually relate to their stronger desires for academic engagement. In a study by Chyung (2007), female students improved their self-efficacy significantly more than men and outscored men on a final exam in an online learning environment.

Other research remains inconclusive regarding the effects of gender and gender biases on students' experiences in distance education (Yukselturk & Bulut, 2009). According to Yukselturk and Bulut (2009):

> [A] number of studies showed that male and female students experience the online environment differently with respect to several ways, such as, performances, motivations, perceptions, study habits, and communication behaviors (e.g. Chyung, 2007; Gunn et al., 2003; Price, 2006; Rovai & Baker, 2005; Sullivan, 2001; Taplin & Jegede, 2001), on the other hand, several results suggested that gender effects are insignificant (e.g. Astleitner & Steinberg, 2005; Lu et al., 2003; Ory, Bullock, & Burnaska,1997; Sierra & Wang, 2002; Yukselturk & Bulut, 2007). (p. 13)

Yukselturk and Bulut (2007, 2009) found that gender was unrelated to learning outcomes in online courses. Lu, Yu, and Liu (2003) found no significant impact of student learning styles, learning patterns, and other factors of learning performance in a graduate Web course. These studies suggest that students are able to learn equally well in online courses despite any difference of gender.

Others researchers believe that online education is not a neutral medium for learning and remains a gendered form of cyberspace (Blum, 1998, 1999; Trego, 2003). Trego (2003) found gender differences in preferred learning styles and communication patterns in an asynchronous, CMC-based learning program:

> Male students preferred to work independently, created more course postings, and were more likely to ask their instructors for assistance whereas female students preferred more classroom interaction, were more likely to respond to female

learners rather than to male learners, used more complimentary language when responding to learners, and were more apt to ask fellow students for assistance. (i) Blum (1998, 1999) found several traditional gender communication differences in distance education. Female students posted messages using more "elegant words," while male students posted messages that often had "rough" words; males were also more assertive in their messages. Blum further found learning style differences among genders in distance education; she perceived men as "separate learners" and women as "connected learners." She theorized that distance education is flexible enough for gender-specific learning styles, but found higher "dispositional, situational, and institutional barriers for female distance education students."

Other researchers found the following differences between male and female students in distance education programs:

- Sullivan (2001) found differences between male and female students regarding the way they identified the strengths and weaknesses of the online environment on a range of questions, such as flexibility, interactions, self-discipline, and self-motivation.
- Gunn, McSporran, Macleod, and French (2003) found that women posted and read more messages than men on a course bulletin board, relaying that there are gender differences in styles of participation and contribution in CMC (as cited in Yukselturk & Bulut, 2009).
- Taplin and Jegede (2001) found gender differences in the area of organization and use of study materials, confidence about studies and independent versus collaborative study, which contributed to men's and

women's success in online education.

- Garland and Martin (2005) found that gender was a factor in the relationship between learning style and student engagement in online vs. face-to-face courses.
- Cooper and Miller (1991) found that learning style and teaching style congruency related to academic performance and student evaluations.

Despite the conflicting findings regarding gender differences in the online classroom, the need to understand learning styles and communication styles and the impact of gender on these factors becomes vital to the success of these emerging classrooms. Investigating gender differences, learning styles, and communication styles in the online classroom has the possibility of enhancing all students' educational outcomes in these CMC-based classrooms.

III. Methods

In this project, I utilized a case-study approach to my methods. This approach allowed me to have an in-depth analysis of participants' preferences and examine the interplay of all of the factors under investigation (biological gender, psychological gender, actual CMC, self-reported communication styles, and learning styles). Within this chapter, I describe how I conducted the case study and include descriptions of the project's participants, materials, procedures, and funding sources.

Participants

Participants were students enrolled in one of two online Technical Communication (ENG 271) courses through Minnesota State University, Mankato during the summer of 2008.

Course One

ENG 271-01, Mondays 7:00-8:30 p.m. May 19, 2008 to July 25, 2008

Course Two

ENG 271-02, Wednesdays 7:00-8:30 p.m. May 19, 2008 to July 25, 2008

The Minnesota State University, Mankato (2008-2009) Undergraduate Bulletin describes Technical Communication (ENG 271) as an "introduction to learning the written and oral communication of technical information. Assignments include writing and presenting

proposals, reports, and documentation. Emphasis on use of rhetorical analysis, computer applications, collaborative writing, and usability testing to complete technical communication tasks in the workplace" (p. 148). According to a Minnesota State University, Mankato Technical Communication (ENG 271) syllabus:

> The course covers the skills and conventions pertinent to technical writing, with emphasis on individual student concerns. It is especially appropriate for science, engineering, computer science, business, and pre-professional majors (e.g., community health, psychology, law enforcement, and so forth) . . . Students are expected to possess the basic skills taught in Composition I (ENG 101), which is a prerequisite for Technical Communication (ENG 271). (Nord, 2008)

Sixteen participants (twelve men and four women) completed the study; thirteen out of seventeen students participated from course one and three out of fifteen students participated from course two. Based on the lack of participant involvement from course two, I used only participants' data from course one in the analysis. Therefore, this study had thirteen participants (ten men and three women). The thirteen participants in course one received extra credit for their involvement; course one participants earned a total of 25/25 points possible, while students choosing not to participate had 25 fewer points possible for the course. Course two participants did not receive extra credit for their involvement.

Participation in the research project was voluntary. Participants signed a consent form that outlined the objectives of project. I informed participants that they were able to withdraw their consent and could discontinue participation in the project at any time. I kept participants' names and information confidential, but did informed participants that I

would publish the results of the project in my master's thesis. I treated all participants in accordance with American Psychological Association standards for the ethical treatment of human participants. The governing Institutional Review Board at Minnesota State University, Mankato approved the project for research.

Recruitment and Involvement

I recruited participants the first week of their Technical Communication courses through a PowerPoint presentation about my project. Following class, I sent all students an email. (See Appendix 2.) If students chose to participate in the research project, I instructed them to contact me via email by sending their preferred email address, preferred home address, and their current age (to verify that they were at least the age of 18) in an email message. Upon receipt of the contact information and verification of age, I sent participants a package via United States Postal Mail (USPS).

In the USPS package, I asked participants to read and sign the consent form and then complete the Bem Sex Role Inventory, demographic survey, Learning Style Inventory, and Self-Perceived Communication Competence Scale. (Descriptions of these inventories will follow in the subsequent sections of this chapter.) I asked participants to send the completed inventories back to me by using a self-addressed and stamped envelope enclosed in the package. In total, the package included a letter and all inventories, with the exception of the Communication Styles Q-Set (CSQS). Instead of receiving the CSQS in paper form, I sent participants the CSQS directions in the USPS package and asked them to complete this inventory online using the card-sorting tool, OptimalSort.

I sent participants a reminder regarding their participation on July 11, 2008. Participants received a confirmation email when I received all of their completed inventories. I asked one participant to resubmit the inventories due to inadequate completion. One participant opted to participate at the beginning of the course, but quickly dropped the course before being included in any of the data. Therefore, thirteen participants completed the project from course one. I answered participant questions throughout the course via email.

Demographics

All participants (ten men and three women) were undergraduate students with a mean age of 22.62, with the youngest participant being 19 and the oldest 33. Eight participants identified themselves as seniors, four as juniors, and one as a sophomore. Participants' majors included four automotive engineering technology, four construction management, two electrical engineering, and one each of dietetics, English, and dental hygiene.

Ten participants indicated that they were "very comfortable" with technology/computers and three indicated that they were "somewhat comfortable" with technology/computers. The Technical Communication course was the first online course for four participants, while nine participants indicated that the course was not their first online course. Of the nine participants who had already completed an online course, six had completed one online course, two had completed two online courses, and one had completed four online courses. Of the nine participants who had already completed an online course, eight had used only the software Desire to Learn (D2L) in their previously completed online course(s), while one participant had used both D2L and Acrobat

Connect Professional.

Materials: Computer-Mediated Communication Software and Coding Scheme

I analyzed CMC that occurred within the software Desire to Learn (D2L). I also developed a specific CMC Research Coding Scheme for this case study that I used to analyze participants' online communication styles.

Desire to Learn

Participants utilized Desire to Learn (D2L) for small group coursework. (See Appendix 3.) D2L is a web-based learning management system for the delivery of online learning and teaching (Desire2Learn Incorporated, 2009). The analyzed course utilized the chat function of D2L to offer online chat, allowing participants to communicate synchronously by sending text messages in a virtual room.

Computer-Mediated Communication Research Coding Scheme

My Research Coding Scheme classified CMC into one of three sections: (1) substantive codes, which were messages that related to the discussion content or topic, (2) non-substantive codes, which were messages that did not necessarily relate to the discussion topic or content, and (3) other CMC-based items, which were messages that contained other CMC items, such as "thanks," "sorry," emoticons, questions asked, and more. I list a condensed version of the Research Coding Scheme below and the full version is available in Appendix 4.

Substantive Codes

- *A1. Structuring/Leading:* Statements which initiate a discussion and focus attention on the topic of the discussion
- *A2. Soliciting:* Any content-related question or request, which attempts to solicit a response or draw attention to something and start a discussion
- *A3. Responding:* A statement in direct response to a solicitation
- *A4. Reacting:* A reaction to a structuring statement or to another person's comments, but not a direct response to the question
- *A6. Answer to class question*
- *A8. Answer to class question with opinion:* An answer with opinionated interpretation
- *A9. Personal comments:* Personal comments to class questions or the class
- *A/B7. Demands/Decisions made in chat*[2]

Non-Substantive Codes

- *B1. Procedural:* Scheduling information, announcements, logistics, listserv membership, procedures, and more
- *B2. Technical:* Computer-related questions
- *B3. Chatting:* Personal statements, jokes, introductions, greetings, and more.
- *B4. Supportive:* Statements with an underlying positive reinforcement
- *B5.Uncodable:* Statements that consist of too little information or unreadable

[2] I classified "A/B7. Demands/decisions in chat" as both a substantive and non-substantive code because participants made demands and decisions in both their substantive and non-substantive messages.

to be coded meaningfully

Other CMC-based Items

- *C3.* Use of emoticons or emotional language
- *C4.* Containing "!"
- *C5.* Containing slang or cyberspace acronyms
- *C6.* Containing CAPPED words
- *C7.* Containing put-downs, insults, curse words, or crude language
- *C8.* Containing "Thanks" or "Thank You"
- *C10.* Questions asked
- *C12.* Containing "…"
- *C13.* Containing "Okay," "yea," "yes," or "yep"
- *C14.* Containing "sorry"

I adapted the substantive and non-substantive codes from the Davidson-Shivers and Morris (2001) coding scheme, and the other CMC-based items from Blum (2008). The coding scheme in Davidson-Shivers and Morris (2001) was from Davidson-Shivers and Rasmussen (1999), which was adapted from Piburn and Middleton (1998) and Williams and Meredith (1996). I modified the codes for this project, and the CMC examples given in Appendix 4 are from the current project. The modifications to the coding schemes are as follows:

Substantive Codes

- "Structuring/Leading" (A1) was originally "structuring" in Davidson-Shivers and Morris. I added "leading" to this code because I found that many of the CMC items that were "structuring" codes would also qualify as "leading" CMC. Therefore, the two categories were naturally occurring simultaneously, and if not simultaneously, these two items related in the CMC.
- I added the categories of "answer to class question" (A6); "answer to class question with opinion" (A8), "personal comments to class" (A9), and "demands/decisions in chat" (A/B7) to the coding scheme. I added these items out of necessity. For example, the need to add the categories relating to the class questions was because the CMC in this study focused on assigned coursework. CMC in D2L occurred only because participants were completing assignments; therefore, participants' CMC focused on providing answers to the class questions. This change of CMC focus warranted adding new categories to the original Davidson-Shivers and Morris coding scheme.

Non-substantive Codes

- I did not add any new categories to the original Davidson-Shivers and Morris scheme for non-substantive codes. I only adapted the original items to give examples from the current study that fit within these categories.

Other CMC-based Items

- I did not use all categories that Blum utilized in her original coding scheme, and some categories that I used, I slightly adapted. For example, Blum had the category "containing put-downs and insults," which I adapted to "containing putdowns, insults, curse words or crude language" (C7). Another example is that Blum had the category "containing :-) or symbols"; I adapted this to "use of emoticons, e.g., ☺ or emotional language ('haha,' 'umm,' 'ahh,' 'oops,' or 'oh')" (C3).
- I added three new categories to Blum's original scheme, which included "containing '…'" (C12); "containing 'okay,' 'yea,' 'yes,' or 'yep'" (C13); and "containing sorry" (C14). I added these categories to reflect the CMC items that occurred within this study.

I coded all CMC in D2L, with the exception of the instructors' contributions. I assigned more than one code to some lines of chat. For example, for the text "brands? or places?," I assigned the two codes "questions asked" (C10) and "soliciting" (A2). I assigned the code C10 twice because the participant framed his question in two parts—part one being "brands?" and part two being "places?" For the text "Good night all!" I assigned the codes of containing "!" (C4) and chatting (B3). "Good night all!" is an example where a non-substantive code occurred concurrently with other CMC-based codes ("!").

Computer-Mediated Communication Analysis

I recorded course, text-based CMC in D2L. For each class, instructors first used Acrobat Connect Professional for large group chat (where all students and the instructor were present) and then separated students into small groups for in-class coursework in D2L. In these small groups, the course instructors assigned four to five students and the instructors were not present for the majority of the small group chat; three to four small groups formed for each class. Following the class, the course instructors copied text-based CMC from the chat area in D2L and sent the chat to me in a Word document via email. Instructors also sent the PowerPoints presented in Acrobat Connect Professional, the URLs to the recorded class sessions in Acrobat Connect Professional, and the coursework assignments for small group chats in D2L.

The instructors recorded five of the ten weeks of the summer course. I randomly selected five weeks to record using the random sequence generator at http://www.random.org/sequences/.[3] The generator randomly selected the weeks three, five, seven, eight, and ten to record.

I printed all text-based chat in D2L onto paper for analysis. I then coded the CMC line-by-line using the developed Research Coding Scheme. After coding all small group chats from weeks three, five, seven, eight, and ten, I entered the data into Excel worksheets. I then calculated mean scores for each different item of the Research Coding Scheme by participant. After completing Excel worksheets for each participant, I merged each participant's means scores for the Research Coding Scheme items into one Excel

[3] The random sequence generator generated a randomized sequence of integers, which comes from atmospheric noise (Haahr, 2010).

worksheet to calculate the mean scores for all of the study's participants. I also calculated mean scores for each participant's number of lines of chat that he or she contributed during each recorded week. From the participants' individual mean scores, I was able to calculate mean scores for all of the entire participant pool. I further noted the recorder for each small group. The recorder was the student chosen by the group or instructor to summarize the small group coursework completed in the chat (D2L) and following the completion of the class, submitted a report to the instructor.

Materials: Inventories

I utilized various inventories for this case study, including the Bem Sex Role Inventory, Communication Styles Q-Set, Learning Style Inventory, Self-Perceived Communication Competence Scale, and a self-developed demographic survey.

Bem Sex Role Inventory

Participants completed the Bem Sex Role Inventory (BSRI).[4] The BSRI is a 60-item instrument that classifies individuals into masculine, feminine, androgynous, and undifferentiated psychological gender identity types according to Bem's gender schema theory (Bem, 1981). Of the 60-items, twenty are stereotypically feminine (e.g., affectionate, gentle, understanding), twenty are stereotypically masculine (e.g., ambitious, self-reliant, independent), and twenty serve as filler items (e.g., truthful, happy, conceited) (Bem, 2009). The BSRI asks participants to indicate on a seven-point scale how well each item describes him- or herself, with one being "never or almost true"

[4] Due to copyright purposes, I could not include the BSRI in an appendix for reference.

to seven “always or almost always true.”

Bem designed the BSRI for conducting empirical research on psychological androgyny (Bem, 2009). It enables participants to indicate whether they are high on both dimensions of masculinity or femininity (androgynous), low on both dimensions (undifferentiated), or high on one dimension but low on the other (masculine or feminine) (Bem, 2009). The BSRI provides these independent assessments of masculinity and femininity through the self-report of socially desirable, stereotypically masculine, and feminine personality traits (Bem, 2009). The BSRI also measures the extent that participants spontaneously sort information into distinct masculine and feminine categories. Research has provided strong validation of the BSRI (Bem, 1981). Bem (1981) reports that BSRI scores have proven to have high reliability, with test-retest reliability scores ranging from 0.76 to 0.94.

Communication Styles Q-Set and OptimalSort

Participants completed the Communication Styles Q-Set (CSQS). The CSQS is:

> A forced-choice q-sorting procedure consisting of a deck of 100 descriptors of interpersonal communication behavior. Representative items include: "Behaves assertively," "Finishes sentences for others." and "Listens intently and carefully." Many of the items for the CSQS were drawn or adapted from other established scales designed to assess elements of communication style. These included the California Q-Set (Block, 1961), the Couple's Interaction Scoring System (Gottman, Markman & Notarius, 1977), the Marital Interaction Coding System (Hops, Wills, Patterson & Weiss, 1972), the Communicator Style Measure

> (Norton, 1978), the Interpersonal Communication Satisfaction Measure (Hecht, 1978), and the Rhetorical Sensitivity Scale (Hart, Carlson & Eadie, 1980). In addition, items were also generated from written descriptions of communication behavior completed by college students. (Stephen & Harrison, 1985, pp. 54-55)

The CSQS asks participants to place the 100 communication descriptors into one of nine categories, ranging from category 1, "least characteristic of self," to category 9, "most characteristic of self" to describe the individual's unique communication style. (See directions in Appendix 5.)

Only a certain number of communication descriptors are allowed for each category. The communication descriptors allowed for each category, moving from category 1 to category 9, are 5, 8, 12, 16, 18, 16, 12, 8, 5. Therefore, only five communication descriptors are allowed for categories 1 and 9, only eight communication descriptors are allowed for categories 2 and 8, only twelve communication descriptors are allowed for categories 3 and 7, only sixteen communication descriptors are allowed for categories 4 and 6, and only eighteen communication descriptors are allowed for category 5. All communication descriptors are available in Appendix 6.

The purpose of using the CSQS was to utilize a survey tool that was capable of summarizing characteristic styles within groups of individuals, while also being capable of describing an individual's communication style in rich detail. Stephen and Harrison (1986) found validity and usefulness in the CSQS (p. 229). The CSQS had a test-retest reliability of 0.77 in their research (Stephen & Harrison, 1985). The CSQS varied systematically with well-established measures of social style and personality characteristics and was able to produce profiles of communication behaviors and

meaningful discriminations among research participants.

Participants in the research project completed the CSQS using the online card-sorting tool OptimalSort (available at http://www.optimalsort.com/pages/default.html). OptimalSort allowed participants to separate the descriptors into the categories using "cards" online through OptimalSort. (See the CSQS in OptimalSort in Appendix 7.) I sent participants a link so that they could complete the CSQS online at http://communication.optimalsort.com/csqs/.

Demographic Survey

For this case study, I developed a demographic survey. (See Appendix 8.) The survey contained basic questions regarding participants' ages, genders, education levels, and majors. The survey also contained a question regarding participants' comfort with technology and computers. Following that question, the survey asked participants if Technical Communication was their first online course and if it was not their first online course, they were to indicate how many online courses they had already completed. I asked participants who had previously completed an online course to indicate what type of software that course utilized; participants were to indicate if they had previously used D2L, Connect, both D2L and Connect, or some other type of software for the classroom meeting.

Learning Style Inventory

Participants completed the Kolb Learning Style Inventory (LSI) version 3.1.[5] Kolb designed the LSI to help individuals identify the way they learn from experience, in addition to providing a research tool for investigating experiential learning theory and the characteristics of individual learning styles (Kolb & Kolb, 2005).

The LSI is a self-assessment and measures the degree to which participants display different learning styles. Kolb did not intend the LSI for use to predict behavior for purposes of selection, placement, job assignment, or selective treatment (Kolb & Kolb, 2005). The following parameters determine the LSI (Kolb & Kolb, 2005, p. 10):

- The test is a self-report measure that is brief and straightforward, containing 12 items.
- The test requires participants to respond as if they are in a learning situation.
- The test is in forced-choice format, asking participants to rank four sentence endings that correspond with the four learning style modes.
- The test measures learning styles that would predict behavior in a way consistent with the theory of experiential learning.

Tests of the LSI have shown internal consistency reliability across a number of different populations (Kolb & Kolb, 2005). Ruble and Stout (1991) found the test-retest reliabilities for the six LSI scales averaged 0.54, with 53% of participants keeping their learning style classification on the retest (as cited in Kolb & Kolb, 2005, p. 16).

Kolb based the LSI on Experiential Learning Theory (ELT) (Kolb, 1984). The ELT model portrays two dialectically-related modes of grasping experience: Concrete

[5] Due to copyright purposes, I could not include the LSI in an appendix for reference.

Experience (feeling) and Abstract Conceptualization (thinking), and two dialectically-related modes of transforming experience: Reflective Observation (watching) and Active Experimentation (doing) (Kolb & Kolb, 2005). These approaches to learning are associated with four learning styles, with each learning style representing the combination of two modes: diverging, "the creator" (Concrete Experience/Reflective Observation), assimilating, "the planner" (Abstract Conceptualization/Reflective Observation), converging, "the decision maker" (Abstract Conceptualization/Active Experimentation), and accommodating, "the doer" (Concrete Experience/Active Experimentation) (Kolb & Kolb, 2005).

ELT defines learning style as a dynamic state arising from an individual's preferential resolution of the dual dialectics of experiencing/conceptualizing and acting/reflecting (Kolb & Kolb, 2005). Although most individuals prefer a certain learning style, these learning styles are influenced by a multitude of factors, including personality type, educational specialization, career choice, and current job role and tasks (Kolb, 1984); these learning styles can also change over time.

Self-Perceived Communication Competence

Participants completed the Self-Perceived Communication Competence Scale (SPCC). McCroskey and McCroskey (1988) composed this self-reporting measure of 12 items to reflect four communication contexts (public speaking, talking in a large meeting, talking in a small group, and talking in a dyad) and three types of receivers (strangers, acquaintances, and friends) (McCroskey & McCroskey, 1988). For each type of context and receiver, the SPCC asks participants to estimate their communication competence on

a 0-100 scale. Higher scores indicate good self-perceived communication competence, while lower scores suggest poor self-perceived communication competence.

McCroskey and McCroskey (1988) found the SPCC reliable and valid as a measure to understand communication behavior, and other studies support its construct and criterion-related validity (Blood, Blood, Tellis, & Gabel, 2001). According to Richmond and McCroskey (1998), the SPCC has test-retest reliability scores ranging from 0.44 to 0.92. Daly, McCroskey, Ayres, Hopf, and Ayres (1997) stated that the best measure of self-perceived communication competence is the SPCC (as cited in Blood et al., 2001). The SPCC also correlates positively and negatively with other measures, as noted by Blood et al. (2001):

> Researchers have reported that typical and good SPCC scores correlate positively with self-esteem (Chesebro et al., 1992; Rosenfeld et al., 1995), willingness to communicate (McCroskey, 1992), positive attitudes toward communication (Richmond et al., 1989), and sociability in adolescents (Rosenfeld et al., 1995). Studies have also been conducted that reported negative correlations between high communication apprehension and high self-perceived communication competence (Chesebro et al., 1992; Rosenfeld et al., 1995). (p. 168)

The SPCC allows participants to define communication competence, and relies on the importance of participants' self-perception of their competence. While the SPCC is a valid measure of self-perception, researchers do not considered it a valid measure of actual communication competence.

Inventory Analyses

I entered the BSRI, demographic survey, LSI, and SPCC results into Excel worksheets. I downloaded the CSQS from the online program, OptimalSort, into an Excel worksheet. The following is the manner in which I interpreted the inventories for this case study's results.

BSRI

I calculated each participant's mean score for the femininity and masculinity scales by utilizing the items Bem outlined in her research that corresponded to the two scales. I also calculated overall femininity and masculinity scale scores for the entire participant pool.

CSQS

I did not complete a q-sort analysis with the CSQS data. Instead, I utilized the CSQS as a rating task by calculating mean scores for each communication descriptor, 1-100, for the entire participant pool. To gain a better understanding of each participant's self-reported communication style, I completed Excel worksheets for each participant that sorted the communication style descriptors from category 1 to category 9. This sorting allowed me to reflect on the descriptors that each participant indicated as "least characteristic of self" and "most characteristic of self" when self-reporting their communication styles.

Demographic Survey

I calculated participants' totals from the demographic survey for each question to provide a description of the study's participants (results noted in first section of this chapter).

LSI

I calculated mean scores for individual participants and the entire participant pool for the learning style inventory modes of Active Experimentation, Abstract Conceptualization, Reflective Observation, and Concrete Experience. I calculated these mean scores by using the items Kolb outlined in his research that corresponded to the learning style inventory modes.

SPCC

I calculated mean scores for each receiver (stranger, acquaintance, and friend) and context (public, meeting, group, and dyad) of the SPCC using the items indicated by McCroskey to calculate these subscores. I also calculated an overall SPCC score for each participant and the entire participant pool, which was the average of all twelve of the SPCC descriptors.

To gain a better understanding of the relationships between participants' gender, communication styles, and learning styles, I performed comparative analyses with the mean scores calculated from the CSQS, SPCC, and Research Coding Scheme categories. I report the manner in which I studied these relationships in the next chapter along with

the results from these mean score comparisons.

Funding Sources

Minnesota State University, Mankato College of Graduate Studies and Research awarded a total of $167.50 for this project. I used this funding to purchase the BSRI and support the administration of the BSRI and LSI. The Hay Group Transforming Learning approved the project to use the LSI at no cost and OptimalSort offered its technology free of charge.

IV. Results

As the investigator in this case study, I interpreted the data through mean scores to gain an understanding of the results; the present chapter reports this interpretation. Within this study, I did not test for statistical significance. After I report mean scores, I close the chapter with a descriptive perspective of the CMC that includes my personal observations. Since I coded the chat line-by-line, I was able to observe the CMC and arrive at my own conclusions regarding participants' actual CMC.

Mean Scores of Inventories

I calculated mean scores for the inventories I used in this case study, including the Bem Sex Role Inventory, the Communication Styles Q-Set, the Computer-Mediated Communication Coding Scheme, the Learning Style Inventory, and the Self-Perceived Communication Competence Scale.

Bem Sex Role Inventory

Participants' mean masculinity score (M = 4.99) was higher than their mean femininity score (M = 4.43). The disparity in male and female participants (ten men versus three women) might have contributed to this difference of 0.56 between the scores. Male participants had higher masculinity mean scores (M = 5.23) and lower femininity mean scores (M = 4.30) than female participants. (See Appendix 9.) Female participants had higher femininity mean scores (M = 4.87) and lower masculinity mean scores (M = 4.22) than male participants. (See Appendix 9.) Participant one in the study (female) had the

highest femininity score (5.70), and participant thirteen (male) had the lowest femininity score (3.65). Participant eleven (male) had the highest masculinity score (6.00), and participant two (female) had the lowest masculinity score (3.60).

These mean scores indicated that participants' biological sex and masculinity and femininity scores on the BSRI appeared to correlate. If a participant was female, she was more likely to have a higher femininity score and a lower masculinity score, and the opposite appeared true for male participants. In fact, all female participants had higher femininity scores than masculinity scores and nine out of ten male participants had higher masculinity scores than femininity scores. (See Appendix 9.)

While this correlation appeared true when interpreting the mean scores and participants' genders, for some participants, the differences between their femininity and masculinity scores appear nominal. For example, participant eight (male) had a femininity score of 5.30 and a masculinity score of 5.55, with a difference of 0.25 between the two scores. Other participants, such as participant eleven (male), had a higher difference between the two scores, scoring 4.05 for the femininity score and 6.00 for the masculinity score, with a difference of 1.95. The mean difference between participants' masculinity and femininity scores was 0.93.

Communication Styles Q-Set

I utilized the CSQS as a rating task by calculating mean scores for each communication descriptor, 1-100, for the entire participant pool. I also sorted the communication descriptors for each participant to gain a better understanding of their individual communication styles, investigating what descriptors were least and most characteristic

of their self-reported communication style.

The CSQS forces participants to identify the communication descriptors within the scale of 1, “least characteristic of self,” to 9, “most characteristic of self,” by forced sorting. Since the higher (7-9) and the lower (1-3) categories allow only a limited number of communication descriptors, participants place the descriptors that are especially salient to their communication style in these categories (Stephen & Harrison, 1986). According to Stephen and Harrison (1986), communication descriptors placed in the middle categories (4-6) are usually less relevant to understanding participants’ communication styles because participants are more likely to place the less meaningful descriptors into these categories. These categories (4-6) also have less influence during numerical analysis than those placed in the extreme categories (1-3 and 7-9).

Based on this reasoning, it is worth highlighting the communication descriptors that received the lowest and the highest mean scores for the entire participant pool. Communication descriptor, Q27, “interrupts,” received the lowest mean score ($M = 2.23$), which indicated that participants rated this descriptor as least characteristic of their communication styles. The communication descriptor, Q23, “treats the other person as an equal,” received the highest mean score ($M = 7.85$), which indicated that participants rated this descriptor as most characteristic of their communication styles. Appendix 10 contains a table that displays the mean scores for all communication descriptors. Appendix 11 contains a table of the communication descriptors that received the lowest mean scores. Appendix 12 contains a table of the communication descriptors that received the highest mean scores.

Stephen and Harrison (1986) sorted thirty-two of the communication descriptors of the CSQS into thirteen different factors. They then assigned a name for these thirteen factors based on the theme represented by the assigned communication descriptors, such as "confidence/timidity," "consideration/intimidation," and "sociable/unsociable" (pp. 218-219). Stephen and Harrison completed this analysis to study the CSQS's face validity, and it did support the dimensional strength of the CSQS. Stephen and Harrison's thirteen factors also resembled other themes commonly named in the literature on communication style, such as "self-disclosure, apprehension, nonverbal animation, verbal-to-nonverbal consistency, [and] assertiveness" (p. 217).

When I reviewed the communication descriptors that received the highest and lowest mean scores (Appendices 11 and 12), and the themes in Stephen and Harrison's research, it appears that participants self-selected many communication descriptors that I can also categorize into themed groups. I categorized some of communication descriptors into the groups of intimate, judgmental, coercive, and inappropriate styles to represent participants' least characteristic communication styles.[6] Tables 1-4 present a sample of the different communication descriptors that demonstrate these groups of intimate, judgmental, coercive, and inappropriate.

[6] These groups are adapted from Stephen and Harrison (1986) and were originally "intimate," "judgmental," intimidation," and "inappropriate turn taking" in their research (pp. 218-219). Since Stephen and Harrison did not sort all of the CSQS communication descriptors into their identified thirteen factors, I sorted the descriptors into categories that I felt were appropriate for the identified theme.

Table 1. ***"Intimate" Communication Style***

Communication Descriptors	Mean Score
49. Touches others during conversation.	**2.31**
29. Winks at others during conversation.	**2.46**
74. Uses terms of endearment or pet names when talking with others.	**3.69**

Table 2. ***"Judgmental" Communication Style***

Communication Descriptors	Mean Score
84. Is likely to blame or accuse.	**2.38**
11. Gossips.	**2.62**
71. Is thin-skinned and sensitive to criticism.	**3.38**
65. Complains or criticizes more often than most people.	**3.69**
69. Disagrees frequently.	**3.85**

Table 3. ***"Coercive" Communication Style***

Communication Descriptors	Mean Score
47. Attempts to impress others or manipulate them through deception.	**2.31**
84. Is likely to blame or accuse.	**2.38**
24. Is forceful with people of lower rank or status.	**2.46**
81. Uses threats to gain compliance or cooperation form others.	**2.62**
2. Dominates others in conversation.	**3.62**
57. Is inflexible; relates to everyone in the same way.	**3.62**
70. Expresses hostile feelings directly.	**3.62**

Table 4. ***"Inappropriate" Communication Style***

Communication Descriptors	Mean Score
27. Interrupts.	**2.23**
54. Stares at others for unusually long periods of time.	**2.31**
52. Has a whining tone of voice.	**2.38**
95. Blurts out sentences.	**3.00**
9. Talks while others are talking.	**3.15**
58. Does not match facial expressions to the emotional content of the message.	**3.23**
73. Changes topic abruptly.	**3.38**
10. Has a loud voice.	**3.54**
83. Talks for long periods of time; chatters.	**3.54**
16. Tells the same events or stories again and again.	**3.62**
50. Has a soft voice which may be hard to hear at times.	**3.62**
98. Attends to other things such as TV or work, while involved in a conversation.	**3.62**
68. Shakes or shows nervousness when speaking.	**3.69**
76. Limits responses to few words; answers questions with a simple "yes" or "no."	**3.69**
48. Mumbles and blends words together.	**3.92**
80. Occasionally contributes irrelevant comments during a conversation.	**3.92**

The majority of the categories that participants self-selected as least characteristic of their communication styles, with the exception of intimate, were categories that most often equate with negative styles of communication. Communication descriptors, such as "attempts to impress others or manipulate them through deception" within the category of coercive, and "is likely to blame or accuse" within the category of judgmental, demonstrate these negative communication styles.

The opposite was true for the communication descriptors that participants' rated as most characteristic of their communication styles. (See Appendix 12.) These communication descriptors equated with more positive styles or socially desirable forms of communication. I categorized these descriptors into the groups of respectful, attentive, social, and confidence.[7] Tables 5-8 present the different communication descriptors that demonstrate these groups of respectful, attentive, social, and confidence.

Table 5. ***"Respectful" Communication Style***

Communication Descriptors	Mean Score
41. Is the sort of person who will admit to being wrong.	**6.15**
77. Chooses words which fit the subject and are appropriate for the audience.	**6.15**
38. Recognizes and verbally acknowledges other's contribution to the conversation.	**6.23**
96. Lets people make their own decisions.	**6.23**
37. Brings up topics in the right time and place.	**6.46**
23. Treats the other person as an equal.	**7.85**

[7] These groups are adapted from Stephen and Harrison (1986) and were originally "accepting," "attentiveness," "sociable," and "confidence" in their research (pp. 218-219). Since Stephen and Harrison did not sort all of the CSQS communication descriptors into their identified thirteen factors, I sorted the descriptors into categories that I felt were appropriate for the identified theme.

Table 6. ***"Attentive" Communication Style***

Communication Descriptors	Mean Score
19. Shows attention by directing his/her body toward the speaker.	**6.46**
44. Makes frequent and appropriate eye contact.	**6.54**
12. Smiles frequently.	**6.62**
26. Shows sensitivity to the feelings of others when conversing with them.	**6.69**
33. Nods head frequently while listening.	**6.77**
53. Listens intently and carefully.	**6.92**

Table 7. ***"Social" Communication Style***

Communication Descriptors	Mean Score
100. Tends to be liked and accepted by others.	**6.23**
42. Is sociable—likes to be with others.	**7.31**

Table 8. ***"Confident" Communication Style***

Communication Descriptors	Mean Score
30. Expresses ideas well, speaks easily and smoothly.	**6.08**
45. Appears confident and sure that he/she is right.	**6.31**

The majority of participants rated positive communication descriptors as more characteristic of self, and negative communication descriptors as less characteristic of self for their communication styles. With these ratings, participants in this study emerge with self-identified constructive and socially desirable communication styles.

Computer-Mediated Communication Coding Scheme

I calculated mean scores for each coding scheme category (number of times the coding scheme category occurred divided by participant). (See Appendix 13.) The higher the mean score, the greater the frequency that particular coding scheme category occurred in the CMC. The lower the mean score, the less frequent that coding scheme category occurred in the CMC. For example, each participant had an average of 3.31 "reacting" (A4) codes that he or she made during the five weeks of the recorded chat.

According to the highest mean scores, the majority of participants' CMC focused on answers to class questions (A6 and A8), responding statements (A3), asking questions (C10), and using CMC with "okay," "yea," "yes," or "yep" (C13). The lowest mean scores showed that participants used few put-downs, insults, curse words, or crude language (C7), slang or cyberspace acronyms (C5), "sorry" (C14), and capped words (C6) in their CMC.

One interpretation of this finding is that participants mainly focused on the assignments they were to complete in D2L. The coding scheme revealed that chats did not focus extensively on personal topics, such as "personal comments to class questions or class" (A9) (M = 1.15). Instead, substantive codes, such as soliciting (A2) (M = 8.23) and responding (A3) (M = 12.20), received high mean scores. Participants also used very little emotional language, emotional punctuation, or cyberspace slang, which may again indicate that participants focused on the course assignments. The focus on answering the class questions (A6) (M = 13.50) and answering class questions with opinion (A8) (M = 8.23) possibly left little time for participants' CMC to include other non-answer items in D2L. Another possibility is that participants simply did not feel comfortable

chatting within the online classroom about personal topics, which resulted in fewer chatting codes and less use of emotional language (C3), “sorry” (C14), or put-downs (C7).

As part of the coding scheme, I calculated how many lines of chat each participant contributed to D2L for each coded week. I did this to quantify each participant’s contribution to the CMC. Appendix 14 lists each participant and his or her contributed chat lines by recorded week. The average of chat lines contributed by each participant was 77.54, with each participant contributing an average of 15.51 chat lines per week. Week five received the highest number of chat lines, with a total of 306, and week seven received the lowest number of chat lines, with a total of 126. There was a difference of 180 chat lines between week five and week seven.

During weeks three and five, a different course instructor (a female instructor) led the course than the instructor who taught during weeks seven, eight, and ten (a male instructor), and weeks three and five have more chat lines than weeks seven, eight, and ten. Weeks three and five had total chat lines of 251 and 306, while weeks seven, eight, and ten had total chat lines of 126, 132, and 193. Before interpreting the data, my initial assumption was that the difference between instructors would have little influence on the number of chat lines participants contributed to the CMC. I held this assumption because while the course instructors lead the chats in Acrobat Connect Professional (the unrecorded chat), they did not lead the chat in the small groups in D2L (the recorded chat). Still, the difference between the instructors may have contributed to the different number of chat lines and this finding required further inquiry.

Upon further investigation, in weeks seven, eight, and ten, the chat I received had no indication that the instructor had joined the chat and he did not contribute any chat lines to the small group CMC. However, in weeks three and five, the first course instructor often made appearances in the D2L chat room. She did not necessarily contribute to the chat, but she made an appearance and the following would appear for students to see in D2L: "[Instructor's name] joined the Chat." There was also one recorded instance where the course instructor during week five contributed to the CMC to help a small group decide upon the recorder.[8] The mere fact that the first course instructor made a presence, even without adding CMC, may have influenced the participants to contribute more to the CMC. They may have felt more accountable when the instructor was present in comparison to the other weeks when the other instructor was absent from the chat.

There are other possible contributing factors beyond the instructors' virtual presence for this finding. Students perhaps had more time to complete their course assignments in D2L with the first course instructor, which lead to more CMC. The complexity of the assignments also possibly varied from week to week, which could have lead to more CMC during the first few weeks of the course. Another possibility could be the scheduling of the instructors. Participants may have felt more comfortable in the course by weeks seven, eight, and ten, and this comfort within the course may have lend itself to the students not participating as much in the small group chats. Participants may have felt differently when the course first began and may have felt that they needed to

[8] I highlight the instance when the instructor joined the D2L chat when I provide a descriptive perspective of the CMC within the current chapter.

contribute more chat because they were unsure of how that contribution might affect their grades or how much chat was needed for the course assignments.

Learning Style Inventory

I calculated mean scores for each learning style inventory mode. Concrete Experience received the lowest mean score (M = 23.38) and Active Experimentation received the highest mean score (M = 36.92), a difference of 13.54. There was less difference, 0.77, between the learning style modes of Abstract Conceptualization (M = 30.62) and Reflective Observation (M = 29.85). Appendix 15 contains participants' individual mean scores and the mean scores for the entire participant pool for the Learning Style Inventory.

Participant thirteen had the lowest Concrete Experience score of 16, and participant ten had the highest with a score of 34, a difference of 18. Participant eleven had the lowest Reflective Observation score of 22, and participant two had the highest with 38, a difference of 16. Participant two also had the lowest Abstract Conceptualization score of 21, and participant thirteen had the highest at 44, a difference of 23. Participant twelve had the lowest Active Experimentation score with 24, and participant nine had the highest score with 48, a difference of 24. Table 9 shows participants' lowest and highest mean scores according to their learning style mode preferences.

Table 9. ***Learning Style Inventory Modes***

Participant	Highest Mean Score	Lowest Mean Score
Participant One	Active Experimentation	Concrete Experience
Participant Two	Active Experimentation	Concrete Experience and Abstract Conceptualization
Participant Three	Abstract Conceptualization	Reflective Observation
Participant Four	Active Experimentation	Abstract Conceptualization
Participant Five	Active Experimentation	Concrete Experience and Abstract Conceptualization
Participant Six	Reflective Observation	Concrete Experience
Participant Seven	Active Experimentation	Concrete Experience
Participant Eight	Active Experimentation	Abstract Conceptualization
Participant Nine	Active Experimentation	Reflective Observation
Participant Ten	Concrete Experience and Abstract Conceptualization	Active Experimentation
Participant Eleven	Active Experimentation	Reflective Observation
Participant Twelve	Abstract Conceptualization	Concrete Experience
Participant Thirteen	Abstract Conceptualization	Concrete Experience

Only one participant had Active Experimentation as his lowest mean score, while seven participants, over 50% of the participant pool, rated Active Experimentation as their highest mean score. This same participant (ten) was the only participant to have Concrete Experience as his highest mean score, while seven participants, again over 50% of the participant pool, had Concrete Experience as their lowest mean score. These differences demonstrate that there were varied learning style preferences within the participant pool. However, a general trend was that participants rated Concrete Experience as their lowest

mean score and rated Active Experimentation as their highest mean score.

Self-Perceived Communication Competence

Richmond and McCrosky (1998) identified that a high overall SPCC score as a score above 87, and a low overall SPCC as a score under 59. The mean score of overall SPCC for the participant pool was 82.57 on a scale of 0-100. This moderately high score of 82.57 indicates participants' sense of self-perceived communication competence. Even though the mean score of 82.57 for the participant pool indicated moderately high SPCC, there were individual differences amongst participants SPCC scores. (See Appendix 16.) The lowest participant mean score in this project was 63.33 and the highest participant mean score was 95.83, a difference of 32.50.

McCroskey composed the SPCC to reflect communication competence when communicating in four communication contexts (public, meeting, group, and dyad) and to three types of receivers (stranger, acquaintance, and friend). For subscores, Richmond and McCrosky (1998) identified both high and low scores for the SPCC. Table 10 compares these high and low scores to the participant pool's mean scores.

Table 10. ***Self-Perceived Communication Competence Subscores***

Context or Receiver	High SPCC	Low SPCC	Mean Scores
Public	> 86 High SPCC	< 51 Low SPCC	79.44
Meeting	> 85 High SPCC	< 51 Low SPCC	78.05
Group	> 90 High SPCC	< 61 Low SPCC	85.41
Dyad	> 93 High SPCC	< 68 Low SPCC	87.38
Stranger	> 79 High SPCC	< 31 Low SPCC	71.12
Acquaintance	> 92 High SPCC	< 62 Low SPCC	86.94
Friend	> 99 High SPCC	< 76 Low SPCC	93.21

The participant pool had moderately high SPCC scores across the different communication contexts (public, meeting, group, and dyad) and receivers (stranger, acquaintance, and friend). While none of the mean scores were close to indicating low SPCC, none of the mean scores clearly indicated high SPCC.

Mean Score Relationships: Gender

In an effort to understand the style differences between male and female participants, I sorted mean scores for the inventories by participants' genders. I then compared male and female participants' mean scores for the Communication Styles Q-Set, Self-Perceived Communication Competence Scale, Computer-Mediated Communication Coding Scheme, and Learning Style Inventory.

Gender and Communication Styles Q-Set

I sorted the scores for all CSQS communication descriptors, 1-100, by gender and calculated the mean score for each gender. I then calculated the difference between the female and male participants' mean scores for each communication descriptor. From this calculation, I placed communication descriptors with a rating difference of 1.00 between the female and male participants' mean scores into two tables. (See Appendices 17 and 18.) I report the communication descriptors that have a difference of 2.00 or higher in Tables 11 and 12. Table 11 depicts the communication descriptors that female participants rated at least 2.00 higher than male participants. Table 12 depicts the communication descriptors that male participants rated at least 2.00 higher than female participants.

Table 11. ***Female versus Male Participants' Scores for Communication Descriptors***

Communication Descriptor	Women	Men	Difference
60. Blushes easily.	6.00	3.60	**2.40**
71. Is thin-skinned and sensitive to criticism.	5.33	2.80	**2.53**
6. Keeps people at a distance; avoids close interpersonal relationships.	5.67	3.00	**2.67**
74. Uses terms of endearment or pet names when talking with others.	4.67	3.40	**2.67**
85. Likes to follow rather than lead; accepts authority.	6.33	3.20	**3.13**
55. Behaves in a feminine way.	7.67	1.50	**6.17**

Table 12. ***Male versus Female Participants' Scores for Communication Descriptors***

Communication Descriptor	Women	Men	Difference
38. Recognizes and verbally acknowledges other's contribution to the conversation.	4.67	6.70	**2.03**
7. Starts conversations.	4.00	6.10	**2.10**
87. Is calm and relaxed in manner.	4.00	6.40	**2.40**
43. Behaves in a masculine way.	3.00	6.80	**3.80**

The higher the mean score, the more characteristic participants rated that particular communication descriptor of their communication styles; the lower the rating, the less characteristic participants rated that particular communication descriptor of their communication styles. The most notable difference between the two genders related to the communication descriptors "behaves in a masculine way" and "behaves in a feminine way." In fact, "behaves in a feminine way" had the highest difference between the genders. Female participants rated "behaves in a feminine way" as 7.67 and male participants rated this descriptor 1.50, a difference of 6.17.

Gender and Self-Perceived Communication Competence

Male participants in this study reported higher SPCC than female participants. (See Appendix 19.) The SPCC mean score for male participants was 84.05 compared to 77.64 for female participants, a 6.41 difference between the genders. Male participants also had higher SPCC mean scores than female participants on all subscores, with the exception of the women having a higher SPCC mean score than men for the receiver of "friend." The largest difference between male and female participants' SPCC subscores was when it

came to the receiver of "stranger." Male participants had a mean score of 73.95 and female participants' had a mean score of 61.67, a difference of 12.28 between the genders.

Gender and Computer-Mediated Communication Coding Scheme

I sorted the scores for all coding scheme categories by gender and calculated the mean scores for each gender. I then calculated the difference between the female and male participants' mean scores for each category. (See Appendix 20.) The average difference between female and male participants mean scores for the coding scheme categories was 1.98. The following codes that had a higher than the average difference between the genders included soliciting (A2), answer to class question (A6), procedural (B1), supportive (B4), containing "okay," "yea," "yes" or "yep" (C13), containing "..." (C12), containing "!" (C4), and questions asked (C10). Female participants used all of these coding scheme codes with greater frequency than male participants. In fact, female participants used the majority of the coding scheme code categories in greater frequency than male participants, with the exception of the codes of technical (B2), uncodable (B5), containing emoticons or emotional language (C3), containing slang or cyberspace acronyms (C5), and containing "sorry" (C14).

I calculated mean scores for the chat lines by genders (Table 13). A negative difference indicates that on average male participants contributed more chat lines during that particular week than female participants, while a positive difference indicates that on average female participants contributed more chat lines during that particular week than male participants.

Table 13. ***Chat Line Scores by Gender***

Gender	Week 3	Week 5	Week 7	Week 8	Week 10
Women	17.67	35.00	10.67	12.33	16.00
Men	19.80	20.10	9.40	9.50	14.50
Difference	**-2.13**	**14.90**	**1.27**	**2.83**	**1.50**

With the exception of week three, female participants on average contributed more to the CMC in D2L than their male counterparts. This difference between the genders did appear nominal; the average difference between the two genders was 4.53. The largest difference between the contributions was during week five, a difference of 14.90. The smallest difference between the two genders was week ten, a difference of 1.50.

Gender and Learning Style Inventory

I calculated mean scores for each learning style inventory mode for both genders (Table 14). A negative difference indicates that male participants had a higher preference for that particular learning style mode than female participants, while a positive difference indicates that female participants had a higher preference for that particular learning style mode than male participants.

Table 14. ***Learning Style Inventory Mode Scores by Gender***

Gender	Concrete Experience	Reflective Observation	Abstract Conceptualization	Active Experimentation
Women	21.67	33.34	24.00	41.00
Men	23.90	28.80	32.60	35.70
Difference	**-2.23**	**4.54**	**-8.00**	**5.30**

There were differences with learning style mode preferences between the genders, with the differences of mean scores ranging from 2.23 to 8.00. All three female participants had the learning style mode of Active Experimentation as their highest mean score and either had Abstract Conceptualization or Concrete Experience as their lowest mean score (one had Concrete, one had Abstract, and one had both). The ten male participants highest and lowest mean scores for the learning style inventory modes varied considerably. For their highest mean score, five male participants had Active Experimentation, three had Abstract Conceptualization, one had Reflective Observation, and one had both Abstract Conceptualization and Concrete Experience. For their lowest mean scores, four had Concrete Experience, three had Reflective Observation, one had Abstract Conceptualization, one had Active Experimentation, and one had both Concrete Experience and Abstract Conceptualization.

Mean Score Relationships: Communication Styles

I compared participants' mean scores on the Computer-Mediated Communication Coding Scheme, Communication Styles Q-Set, and Self-Perceived Communication Competence Scale to investigate relationships between online communication styles and self-reported communication styles.

Computer-Mediated Communication Coding Scheme

Participants' mean scores for each coding scheme category ranged from 0.38 to 13.50. (See Appendix 13.) However, when I compared mean scores, there appeared to be relationships within some of the coding scheme categories. For example, the majority of participants who used CMC with more "thanks" or "thank you" (C8) also used more supportive CMC (B4). (See Appendix 21.) Other relationships included the CMC codes that positively correlated with structuring/leading CMC (A1). The majority of participants who used more structuring/leading CMC (A1) had CMC with more soliciting codes (A2), responding codes (A3), made more decisions/demands (A/B7), had CMC with more exclamation points (C4), and asked more questions (C10) (Table 15). This finding is especially evident when comparing such participants as participant one, eight, and ten to participants twelve and thirteen.

Table 15. ***Structuring/Leading CMC and other CMC codes***

Participant	A1.	A2.	A3.	A/B7.	C4.	C10.
Participant One	13.00	16.00	23.00	7.00	9.00	24.00
Participant Two	0.00	12.00	9.00	1.00	2.00	16.00
Participant Three	3.00	8.00	13.00	5.00	0.00	9.00
Participant Four	8.00	5.00	7.00	8.00	17.00	11.00
Participant Five	7.00	8.00	16.00	6.00	0.00	9.00
Participant Six	1.00	7.00	7.00	4.00	2.00	8.00
Participant Seven	8.00	10.00	23.00	7.00	2.00	15.00
Participant Eight	10.00	11.00	10.00	5.00	8.00	12.00
Participant Nine	2.00	3.00	11.00	4.00	0.00	3.00
Participant Ten	15.00	16.00	18.00	7.00	14.00	31.00
Participant Eleven	8.00	8.00	11.00	4.00	6.00	9.00
Participant Twelve	1.00	1.00	6.00	1.00	4.00	3.00
Participant Thirteen	0.00	2.00	5.00	0.00	0.00	3.00
Mean Score	**5.85**	**8.23**	**12.20**	**4.54**	**4.92**	**11.80**

Another relationship included participants' use of capped words (C4) and exclamation points (C6). For the majority of participants, if they used more capped words in their CMC they also used more exclamation points than participants who used less capped words in their CMC. (See Appendix 22.) Only participants who had six or more recorded instances of capped words also had one or more noted instances of exclamation points.

Communication Styles Q-Set and Computer-Mediated Communication Coding Scheme

In order to study the relationship between self-reported communication styles and CMC, I needed to identify the CMC codes that I wanted to compare to the CSQS communication descriptors. I identified codes that I thought would have the greatest potential for a relationship with the CSQS communication descriptors. I also identified at least one code per category to investigate (substantive, non-substantive, or other CMC-based items). The CMC codes I selected to compare to the CSQS communication descriptors included structuring/leading (A1), supportive (B3), chatting (B4), and containing put-downs, insults, curse words, or crude language (C7).

In order to compare these CMC codes to the communication descriptors, I sorted participants for each code into two different groups. I sorted participants based on their use of that code. If a participants' mean scores fell below the mean score of the entire participant pool, I identified them as "low," and if they fell above the mean score, I identified them as "high." (See low and high groups in Appendix 23.) I then sorted the communication descriptors by the selected participants and calculated mean scores for each group. From those calculations, I calculated the difference between the high and low participants' mean scores. Appendices 24-27 list any CSQS communication descriptors that had a difference of at least 1.00 between the groups. I subtracted the mean score of the high participants' scores from the low participants' scores, so a negative difference demonstrates that low participants used that coding scheme code with greater frequency, while a positive difference demonstrates that high participants used that coding scheme with greater frequency.

Some communication descriptors appeared on more than one table in Appendices 24-27, such as the descriptor, Q3, "tells jokes frequently or injects humor into the conversation." "Tells jokes frequently or injects humor into the conversation" appeared on both the tables for C7 and B4, which identify differences of 2.00 or more between the groups. But, this specific descriptor interacted differently within the two tables. Participants rated Q3 as more characteristic of their communication styles if they had a greater frequency of using put-downs, insults, curse words, or crude language in their CMC (C7), while participants rated Q3 as less characteristic of their communication styles if they had a greater frequency of supportive comments in their CMC (B4). Other communication descriptors, such as "talks while others are talking," only appeared within the table of structuring/leading CMC (A1) in Appendix 24.

Communication Styles Q-Set and Self-Perceived Communication Competence

Both the CSQS and the SPCC are self-reported measures of communication styles and competence. In order to compare these two measures and explore any relationships, I identified the three participants who had the highest and lowest SPCC scores. Participants two (63.33), seven (75.00), and thirteen (67.92) reported the lowest SPCC, with a mean score of 68.75. Participants three (90.42), six (95.83), and eleven (89.75) reported the highest SPCC scores, with a mean score of 92.00. (See Appendix 19.) I then calculated mean scores for these two groups ("low SPCC" and "high SPCC") for the CSQS communication descriptors. I report any difference of 1.00 or more between the groups in Appendix 28. I subtracted the low SPCC participants' mean scores from the high SPCC participants' mean scores, so a negative difference demonstrates that the participants with

high SPCC rated those communication descriptors as more characteristic of their communication styles, while a positive difference demonstrates that the participants with low SPCC rated those communication descriptors as more characteristic of their communication styles.

Participants with higher SPCC rated such descriptors as "appears confident and sure that he/she is right" and "starts conversations" as more characteristic of their communication styles than participants with lower SPCC. Participants with lower SPCC rated such communication descriptors as "likes to follow rather than lead; accepts authority," "laughs frequently," "blushes easily," "has a soft voice which may be hard to hear at times," and "mumbles and blends words together" as more characteristic of their communication styles than participants with higher SPCC. There was a difference of 5.66 between participants with higher versus lower SPCC for the communication descriptor "mumbles and blends words together." Participants with lower SPCC gave this descriptor a mean score of 7.33, which would indicate that this descriptor is very characteristic of their communication styles, while participants with higher SPCC gave this descriptor a mean score of 1.67, which would indicate that this descriptor is not very characteristic of their communication styles.

Mean Score Relationships: Learning Styles

To investigate any relationship between the learning styles and the self-reported communication styles, I sorted participants based on their highest and lowest mean scores for the learning style inventory modes. Eight groups of participants emerged from this sort. (See Appendix 29.) Some participants are in more than one of the lowest or highest

mean score groups because they had the same mean score for two different learning style inventory modes.

Learning Style Inventory Groups and Self-Reported Communication Styles

For each group with the learning style inventory modes of Active Experimentation, Abstract Conceptualization, Reflective Observation, and Concrete Experience rated as their highest mean score (groups one, three, five, and seven), I identified that group's highest and lowest mean scores when it came to their self-reports of the CSQS communication descriptors. I report these "least characteristic of self" (lowest mean scores) and "most characteristic of self" (highest mean scores) communication descriptors for Active Experimentation, Abstract Conceptualization, Reflective Observation, and Concrete Experience in Appendices 30-33.

From that analysis, I compared the communication descriptors that appeared on more than one table. Certain communication descriptors, such as "smells pleasant" and "treats the other person as an equal" appeared on every learning style inventory mode's highest mean score table. To discover which communication descriptors were unique to each learning style mode, I identified the descriptors that were exclusive to Active Experimentation, Abstract Conceptualization, Reflective Observation, and Concrete Experience. (See Appendix 34.)

Learning Style Inventory Groups versus Other Participants

I wanted to identify the CSQS communication descriptors that had a difference of at least 1.00 between the identified learning style inventory groups. (See Appendix 29.) For this

type of analysis, I omitted the groups of two, five, and seven because these groups only had one participant. For the remaining groups (one, three, four, six, and eight), I calculated mean scores to compare to the remaining participants' mean scores. I subtracted the mean score of the identified groups from the remaining participants' mean score. For this reason, a negative difference demonstrates that the identified grouped participants had a higher mean score than the remaining participants, and a positive difference demonstrates that those grouped participants had a higher mean score than the remaining participants. I report this analysis in Appendices 35-38. The higher the mean score, the more characteristic that particular communication descriptor was for the group, while the lower the mean score the less characteristic that particular communication descriptor was for the group.

Some of the communication descriptors appeared within different tables during this analysis, such as the communication descriptor "behaves in a feminine way." In fact, only six descriptors were unique to the tables in Appendices 35-38. These unique descriptors included "reacts to basically simple and clear-cut situations in complicated ways" for high Abstract Conceptualization; "starts conversations," "is calm and relaxed in manner," and "keeps people at a distance; avoids close interpersonal relationships" for low Abstract Conceptualization; "paraphrases or restates what other people say" for low Reflective Observation; and "is the sort of person who will admit to being wrong" for low Concrete Experience.

Communication Observations

I observed that the CMC reflected many face-to-face communication norms. The CMC often had (1) a beginning, which started with either a "hello" or a focus on procedural items (e.g., who would be the recorder), (2) a middle, which focused on the small group assignments and answering the questions, and (3) an end, when participants would check-in with others to see if they have completed the assignment to their classmates' satisfaction and then finished with either some sort of goodbye or thanks.

Beginning: Hellos and Procedures

The small group CMC began with some sort of introduction and a focus on how to proceed with the assignment.

Week 3, Introduction

Participant 5: hello

Participant 3: hey, so we got one more commin?

Participant 5: hey now what exacly are we suppose to do from here

Participant 3: thats a good question

Participant 5: no idea

Participant 3: Assignment: Find two web sites dealing with the same topic, but published by competing orgainizations. For example, department store web sites by Target and Walmart, or vehicle sales sites by Ford and Toyota.

Week 5, Introduction

Participant 5: hey

Participant 11: hey

Participant 7: hey

Participant 7: has everyone read the assignment?

Participant 5: yep

Participant 7: yes

Participant 11: well who wants what?

After a quick "hello," groups would often have a procedural discussion about the assigned coursework. At some point in the discussion, the group would discuss who would be the appointed class recorder. Most often, the recorder discussion took place at the beginning of the chat. Some groups had a classmate who volunteered quickly, while other groups struggled with the decision.

Week 3, Classmate Volunteered Quickly

Participant 8: Select a group Recorder.

Participant 11: Well hello!

Participant 8: who wants to be recorder

Participant 9: what up

Participant 8: hello [name omitted]

Participant 11: We need [name omitted] yet

Participant 8: come on [name omitted]

Participant 9: what sites should we do

Participant 11: Ok, well we can start without him...hopefully he will join us soon.

Participant 8: sounds good

Participant 8: how do we want to assign the recorder

Participant 11: Pick a number one thru ten and whoever is closest loses...I have the number!

Participant 11: J/k i will record

Participant 8: thanks man

Week 5, Recorder Appointed by Instructor

Participant 1: i was recorder last week as well... does that mean i am every week?

Participant 8: how do we want to break this up

Participant 10: no, i don't think so. It should change every week.

Participant 8: no because I was last week

Participant 1: i wonder why i have to do it again

Participant 10: I guess we need to figure out what kind of graphs can be worked on, for the information given. I am guessing, a bar graph, pie chart, tables, anything else??

Instructor: No, Participant 1, I didn't mean for you to be recorder more often than the others.

Instructor: So, could someone else be recorder, since Participant 1 already was last week?

Instructor: [name omitted], have you been recorder lately?

Participant 8: I agree with the bar, pie and table

Participant 1: [name omitted] is no longer in the chat

Participant 10: I can be the recorder.

Participant 1: thank you

Participant 1: who wants what graph?

Instructor: How about Participant 10, then?

Participant 10: no problem, either way lets start, I can do the bar graph for the first one.

Instructor: How about Participant 10, then?

Participant 10: Professor, I will be the recorder.

Participant 8: i will do the pie

Instructor: Thank you, Participant 10!!!

The recorder role varied from week to week, so that all students had the opportunity to fulfill the recorder's responsibilities. Even though there was the assigned role each week, this role did not necessarily dictate which participant would lead the small group discussion. Some participants did not have any chat coded as structuring/leading (A1), while others were above the participant average (M = 5.85) (Table 16).

Table 16. ***Structuring/Leading CMC and Chat lines***

Participant	A1. Structuring/Leading	Chat lines
Participant One	13.00	122.00
Participant Two	0.00	70.00
Participant Three	3.00	72.00
Participant Four	8.00	83.00
Participant Five	7.00	73.00
Participant Six	1.00	50.00
Participant Seven	8.00	71.00
Participant Eight	10.00	109.00
Participant Nine	2.00	67.00
Participant Ten	15.00	119.00
Participant Eleven	8.00	75.00
Participant Twelve	1.00	59.00
Participant Thirteen	0.00	38.00
Mean Score	**5.85**	**77.54**

Participants who led the discussion also contributed more to the overall discussion, which is especially noticeable when looking at participants one, eight, and ten in comparison to such participants as six, twelve, and thirteen (Table 16). Participants one, eight, and ten had more leading/structuring chat and participated more in the small group discussion.

Middle: Coursework and Other Items

The majority of the discussion focused on the small group assignments, with the highest number of chat lines (175) coded as answers to class questions (A6). Participants generally were supportive of other participants in their discussions, with 68 codes for the word "thanks" or "thank you" (C8) and 95 codes for supportive statements, such as "sounds good" (B4). It appeared that participants also supported each other by the use of the words "okay," "yea," "yes," or "yep" (C13). C13 received the third highest number of items coded with 156 codes. For example, participant ten stated at one point during week three, "yeah that's great, really appreciate it Participant 7!" and "ok works for me."

Participants rarely made personal comments regarding the course (A9 = 15 codes) and only a few times made crude comments or used curse words in the chat (C7 = 6 codes).

Week 3, C7 example

Participant 9: both try to sell parents by say they use quality and healthy products.

Participant 9: which is bs

Week 5, C7 example

Participant 9: no shit

I coded basic chatting (B3) only 114 times, and the majority of that chatting did not relate to the participant's personal life, but rather to non-related classroom items.

Week 8, B3 non-personal examples

Participant 4: Have a great night.

Participant 4: I lost my team…are you all watching the Twins???

Participant 12: Have a good night every body

Week 10, B3 personal examples

Participant 4: I know you need to get to work and Participant 12 shouldn't have to for his last night of class before graduation.

Participant 8: thanks so much for recording and congrats to you Participant 12

Participant 13: yup thanks Participant 4 and congrats to Participant 12

Certain participants also displayed different CMC items in their chat than others, which is noticeable in the differences of CMC coded items, emoticons, "!" and "…" (Table 17). Some participants used many of these CMC items, while some participants did not use any at all.

Table 17. ***Emoticons/Emotional Language, "!", and "…"***

Participant	C3. Emoticons	C4. "!"	C12. "..."
Participant One	1.00	9.00	24.00
Participant Two	0.00	2.00	1.00
Participant Three	2.00	0.00	6.00
Participant Four	1.00	17.00	2.00
Participant Five	0.00	0.00	0.00
Participant Six	2.00	2.00	1.00
Participant Seven	0.00	2.00	31.00
Participant Eight	1.00	8.00	2.00
Participant Nine	2.00	0.00	0.00
Participant Ten	3.00	14.00	0.00
Participant Eleven	7.00	6.00	8.00
Participant Twelve	1.00	4.00	0.00
Participant Thirteen	3.00	0.00	0.00
Mean Score	**1.77**	**4.92**	**5.77**

Participant eleven used the most emoticons, while participants two, five, and seven did not use any emoticons. Other participants like four and ten used more than ten exclamation points in their CMC, while participants three, five, nine, and thirteen did not use any. It also becomes evident that participants one and seven mainly used "...", while the rest of the participants used "..." very little in their CMC (less than ten recorded instances).

End: Check-in and Goodbyes

Towards the end of the discussion, participants checked in with other participants to make sure they adequately answered the questions and had completed with the assignment before ending the discussion and leaving the class.

Week 3, Checking-in

Participant 1: do you have enough info about the websites Participant 4? or should we find a few more things?

Participant 6: thats about all i have to comment on the websites

Participant 4: I should have enough info.

Participant 12: all the new info and new items can be obtained just by clicking on the scroll bar in pizza hut

Participant 6: so are we done with chat then?\

Participant 1: if it is okay with Participant 4?

Participant 4: I think so, but I don't know if we can leave before 8:30 or not.

Participant 6: she said it probley wont take us the whole time

Participant 1: thanks for being the recorder Participant 4...talk to you all next week!

Participant 6: yea thanks!

Participant 12: Thanks very much Participant 4

Participant three during Week 10 even commented: “It’s the last assignment and i just want to be done with it.”

The discussions usually ended with the cordial “goodbyes” and “thank-yous.”

Week 10, Example of Chat Session Ending

Participant 12: Thanks a lot for being the recorder Participant 4, thanks a lot everybody

Participant 8: thanks everyone for the participation!!!!

Participant 8: see ya...

Participant 4: We all made it through - and no final!!! Yes!!!

Participant 12: have a good rest of the summer

Participant 13: bye

Participant 12: have a good night

Participant 12: bye

Participant 4: Enjoy your last month of summer before classes begin again. It's been great working with all of you!

Participant 4: Goodbye

The majority of the small group discussions had some type of a similar closing before participants would leave the D2L chat room and end the class session for the night.

V. Discussion and Implications

In the previous chapter I reported the results of this case study, which included mean scores of the inventories and a descriptive perspective of the CMC. I also compared the mean scores of the inventories and recorded CMC to gain a better understanding of the relationship between these scores and the factors under investigation (biological gender, psychological gender, actual CMC, and self-reported communication and learning styles).

The current chapter includes a discussion of these results as they relate to the questions I proposed in the first chapter. I also explore the implications that these results may have for the online classroom. Since my method for the study was qualitative, I intensely investigated a small participant pool. For this reason, my study's results have limited scope and generalizability outside this discussion. Instead, my emphasis was on exploration, and that exploration is the basis of this chapter.

Biological and Psychological Gender

Participants' biological and psychological genders appeared to correlate in this study. All biological female participants had higher femininity scores and lower masculinity scores, and the opposite was true for nine of the ten biological male participants. For this reason, I conclude that the majority of biological male and female participants did not identify with a different gender identity, and that biological sex did coincide with how participants viewed themselves as either masculine or feminine. The participants' assumptions of what is socially acceptable to be a man or woman may contribute to this

finding.

Society members generally know and understand gender expectations. The BSRI not only measures what participants self-report and identify as their masculine or feminine traits but also measures the extent to which participants sort the listed traits into masculine and feminine categories (Bem, 2009). As a result, biological male participants could recognize the stereotypical and socially desirable masculine traits and could indicate these traits as more characteristic of themselves and feminine traits as less characteristic, conforming to gender norms; the opposite could be true of biological female participants.

Bem stated (1981) that "the sex typed individual is highly attuned to these definitions and is motivated to keep her or his behavior consistent with them, a goal he or she presumably accomplishes both by selecting behaviors and attributes that enhance the image and by avoiding behavior and attributes that violate that image" (p. 20). A finding in the CSQS reinforces Bem's conclusion: male participants indicated that the descriptor "behaves in a masculine way" as more characteristic of their communication styles, while female participants indicated that the descriptor "behaves in a feminine way" as more characteristic of their communication styles. In comparison to the other 98 CSQS communication descriptors, "behaves in a masculine way" and "behaves in a feminine way" had the largest difference between male and female participants' mean scores.

Biological gender and psychological gender were not separate factors in this case study. This finding could indicate either that participants did not identify with a different identity or that they ultimately conformed to societal expectations. Furthermore, it appeared that participants conformed to expectations not only when it came to gender

roles but also when it came to socially desirable communication characteristics. Participants self-selected many positive traits as more characteristic of their communication styles and other negative traits as less characteristic of their communication styles. Again, perhaps participants naturally had more constructive and socially desirable communication styles—or perhaps participants conformed to what they felt was expected of their communication styles. These findings demonstrate that biological and psychological gender did not influence communication and learning styles separately.

Question 1. Gender and Communication Styles

Gender differences emerged in the participants' CMC and self-reported communication styles in this study. Female participants rated such CSQS communication descriptors as "likes to follow rather than lead; accepts authority," "is thin-skinned and sensitive to criticism," "blushes easily," and "has a soft voice which may be hard to hear at times" as more characteristic of their communication than male participants. Male participants rated such descriptors as "starts conversations," "brings up topics at the right time and place," "appears confident and sure that he/she is right," "is quick to challenge or object," "speaks abruptly with a staccato rhythm," "behaves assertively," and "uses threats to gain compliance or cooperation from others" as more characteristic of their communication styles than female participants. Male participants also reported higher SPCC scores than female participants.

Gender differences further emerged when it came to participants' actual CMC. In the online classroom, female participants asked more questions, answered more

questions, chatted with more exclamation points, used more capped words, and used more “thanks” and “thank you” in their communication than their male counterparts. These findings mirrored Blum’s (1998, 1999) research. Blum found that women accounted for 100% of messages containing capped words and exclamation points. Blum also found that women accounted for 75% of the messages containing the word “thanks” or “thank you” in CMC-based distance education. In the current study, during every week of recorded CMC, with the exception of the first recorded week, female participants contributed more than male participants to the CMC. Female participants on average utilized the majority of the recorded CMC codes more frequently than male participants did; female participants had higher mean scores for 18 of the 23 recorded codes.

Both self-reported communication and CMC exhibited many of the traditional gender stereotypes. As reported in the previous section, male and female participants indicated that either they behave in a masculine or feminine way based on their genders—and society, not participants, defines these masculine and feminine traits. The CSQS communication descriptors of “behaves in a masculine way” and “behaves in a feminine way” did not explicitly define traits of masculinity and femininity; participants came to their own conclusions. Participants not only accepted masculine and feminine as part of traditional gender roles, but also adopted them as their own based on their individual gender.

Online and self-reported communication coincided with that of other research on gender influence on communication. Past research has shown that women focus more on relationships in their communication than men (Mills & Wandell, 2004). In the current study, female participants maintained this supporter role by asking more questions and

answering more questions. This coincides with Blum's (1998) research where women asked 80.8% of questions in CMC-based distance education. Herring (1994) identified "asking more questions" as one of the characteristics of the female style of online communication; this characteristic is a part of participant supportiveness that builds a community and helps others feel welcomed. Female participants on average made more supportive comments in the CMC, and participants who used more supportive comments in their CMC reported such descriptors as "behaves in a feminine way" as more characteristic of their communication styles and other descriptors as "dominates others in conversations" and "behaves in a masculine way" as less characteristic of their communication styles. These findings support the idea that to behave in a feminine way is to show support, while to behave in a masculine way is to dominate.

Male participants indicated that their communication styles were more abrupt, challenging, and threatening. Male participants ultimately conformed to traditional gender norms by establishing command, independence, assertiveness, confidence, and "being right" in their self-reported communication styles. Female participants indicated that their communication styles were more sensitive, accepting, and quiet. Both female and male participants reinforced the traditional male role of authority, power, and dominance within communication, with the female participants taking the role of follower and male participants taking the role of leader.

Implications for Online Education

The results of this case study suggest that men and women adhere to traditional gender roles. The online classroom offers the possibility to neutralize gender because physical

markers are not the primary means of structuring the communication; however, norms in this study extended to the online classroom. In this case, gender did not lose salience in the cyberspace world. As previously noted by Mahoney and Knupfer (1997), "gender is a social construct, and as such, it both influences and is a product of communication" (p. 201). Gender is a part of communication norms within almost any medium, virtual or face-to-face, whether participants are conscious of this influence or not.

Self-reported communication and CMC in this study reflected the same patriarchal dominance that reinforces gender stereotypes in face-to-face communication. Participants remained in traditional and comfortable gender roles and did not fully explore the limitless potential of CMC. Conversely, this finding does have its limitations. This study did not reinforce all traditional gender norms. There were not large differences between the two genders when it came to all commonly male and female style characteristics in communication. For example, female participants made more structuring/leading CMC messages than male participants. However, the difference between the genders was not large (a reported difference of 1.50). Male participants also used more CMC that contained the word "sorry," with a difference between the genders of 0.60. It is possible that the online classroom was able to neutralize some of the influence gender had on CMC. Even though gender may have not influenced all traditional aspects of CMC, it still had a presence in the online classroom and influenced participants' communication. It appears that women remained in the supporting role while men remained in the leading role—creating cyberspace inequality.

Question 2. Online and Self-Reported Communication Styles

Communication Coding Scheme and Communication Styles Q-Set

There were relationships between participants' CMC and self-reported communication in the CSQS. Some of these relationships suggest that there are correlations between online communication and self-reported communication. Parallels emerged when it came to traditionally gendered communication norms. Participants who produced more supportive CMC than other participants reported some of the following communication descriptors as more characteristic of their communication: "is thin-skinned and sensitive to criticism," "has social poise and presence; appears socially at ease," and "shows sensitivity to the feelings of others when conversing with them." Participants who produced more supportive CMC also reported some of the following communication descriptors as less characteristic of their communication: "use sarcasm," "has a loud voice," "dominates others in conversation," "complains or criticizes more often than most people," and "uses threats to gain compliance or cooperation from others." The majority of these communication descriptors reflect a participant who would most likely make a supportive comment within his or her CMC. The communication descriptor "shows sensitivity to the feelings of others when conversing with them" explicitly supports this indication.

Participants' use of supportive CMC and the CMC item "containing put-downs, insults, curse words, or crude language" correlated differently with the CSQS descriptors, "tells jokes frequently or injects humor into the conversation," "has a loud voice," and "uses sarcasm." Those who had a greater frequency of put-downs, insults, curse words, or crude language in CMC indicated that these descriptors were more characteristic of their

communication, while participants who had a greater frequency of supportive CMC indicated that these same descriptors were less characteristic of their communication. Thus, those who made more supportive comments within CMC indicated they are not as likely to make jokes or use sarcasm, while those who indicated that they are sarcastic and like to tell jokes, made more negative comments and less supportive comments within CMC.

Blum (1998) found in her research that men accounted for 63% of the jokes, 95.5% of the jokes of a sexual nature, and 96% of the comments containing putdowns or insults in CMC. Joke making was not characteristic of supportive comments, but characteristic of CMC crudeness (put-downs, insults, curse words, or crude language) in this study. It appears that gender influence presented itself through the very nature of the CMC and self-reported communication. As Herring (1994) argued, men and women may have different communication norms, but these norms are not necessarily equal. In fact, women may create a supportive CMC learning environment, while men create an environment filled with more sarcasm, dominance, and manipulation.

Other relationships emerged between the CMC and the self-reported communication styles. For example, participants who had more chatting codes in their CMC indicated that the following descriptors were more characteristic of their communication styles: “picks up details in others’ conversation,” “explains by using examples, analogies or stories,” “asks for other people’s opinions, ideas, and comments,” “likes to tell stories or anecdotes,” and “chooses words which fit the subject and are appropriate for the audience.” Other relationships between the CMC and the CSQS appeared to have no obvious connection. Participants who had more structuring/leading

CMC reported "talks while others are talking," "has a loud voice," and "talks for long periods of time; chatters" as less characteristic of their communication styles. These descriptors are not atypical of a participant that may have more structuring/leading CMC, but these descriptors do not necessarily reveal a deeper relationship between CMC and self-reported communication. Communication by its very nature is complex, and these relationships are difficult to measure and fully understand. Nonetheless, these findings do suggest that there is a relationship between CMC and self-reported communication styles. In addition, these findings advance that gender has an influence on both self-reported communication and CMC.

Communication Competence and Self-Reported Communication

Relationships between self-reported communication competence and participants' self-reported communication emerged. Communication competence is defined as the "adequate ability to pass along or give information; the ability to make know by talking or writing" (McCroskey & McCroskey, 1988, p. 109). The SPCC measures participants' self-reported competence to communicate in different contexts and to different receivers.

Participants who rated themselves higher on communication competence rated such descriptors as "appears confident and sure that he/she is right" and "starts conversations" as more characteristic of their communication styles than participants with lower SPCC. Participants with higher SPCC also rated other communication descriptors as less characteristic of their communication styles: "mumbles and blends words together," "has a soft voice which may be hard to hear at times," "blushes easily," and "likes to follow rather than lead; accepts authority" than participants with lower SPCC.

These examples of communication descriptors that had a relationship with the SPCC corresponded. A participant with higher communication competence would most likely rather lead than follow, speak with a self-assured voice, and appear confident in communication than a participant with lower communication competence. More communication competence would most likely mean a more assertive communicator, both verbally and nonverbally; the communication descriptors that corresponded with communication competence reinforce this belief.

Since both the SPCC and CSQS were self-reported measures, these corresponding relationships possibly present the CSQS and SPCC as valid inventories to measure communication styles and competence. Participants self-reported their communication in a similar manner on both inventories. This reliability extends to the other measures of the study, supporting the study's internal validity. If participants answered these inventories in a similar manner, which measured communication styles, one could assume that participants were thoughtful and honest in self-reports because participants were not answering these inventories differently.

Implications for Online Education

The relationships between the self-reported communication (CSQS and SPCC) and CMC generate more awareness and expand upon the findings discussed in the prior section on gender influence. The previous findings indicated that participants were not able to overthrow all gender stereotypes and that norms extended to the online classroom. However, these norms did not directly imply that masculinity correlated with crudeness. Instead, the previous findings revealed that the masculine style of communication was

authoritative, direct, and dominant and that the feminine style was supportive, with men being more prone to the masculine style of communication and women to the feminine. The findings in the current section reveal that the masculine style of communication is more likely to contain sarcasm and insults.

These identified masculine traits would most likely create an inhospitable atmosphere in the online classroom. Even more so, these masculine traits would most likely create barriers to female participation and success online—and would limit the possibilities for both sexes by prohibiting anyone from participating comfortably online. Women may remain in a supportive role because a masculine atmosphere does not create opportunities for women to feel confident and secure.

Online education is flexible enough for gender differences, but if traditional gender norms extend to the classroom, gender norms nullify this flexibility. Instructors may want to identify these masculine behaviors within the classroom to help neutralize norms. Instructors may also want to check in on students periodically when chatting in small groups. Making a periodic appearance in the small group chat might make students feel accountable for their communication and stop negative behaviors before they occur. In this study, an instructor's presence and contribution to the small group chat may have had an impact on students' online behaviors. When the instructor was present in the online classroom, students contributed more chat lines than the weeks when the instructor did not make an appearance.[9] Students may feel more accountable when they know that an instructor is present in the online classroom; and if this presence can affect students'

[9] Students could see the instructor's presence in this study through the appearance of her name in the D2L chat room or through the contribution of her chat in their discussions.

contribution to CMC, this presence may help to neutralize negative behaviors.

Instructors may ultimately need to become an online classroom referee to keep students respectful of their fellow classmates. Students may feel more comfortable making negative comments online than face-to-face because they do not visually see the impact this behavior has on other students, much like the new trend of cyber-harassment. The aggressor can remain somewhat anonymous in the online classroom; however, with an instructor's presence, this anonymity may lose salience. According to Gupta (2008):

> In both cases [cyber-bullying and cyber-harassment], the intent is to threaten, humiliate, and destroy the victims by causing emotional distress, demanding submission, spreading lies, and compromising the economic and social wellbeing of the victim. It is a deliberate, malicious act done for self-gain and satisfaction. In an unsupervised digital world where identities are fluid and fiction can become fact overnight, digital predators find cyber-bullying and cyber-harassment to be an exciting game that provides them with an emotional high, twenty-four hours a day, seven days a week. Today, the footprints of digital predators can be seen all over the world as they target victims without regard to nationality, gender, age, education, class, race or religion, and make virulent attacks. It has become a growing problem for governments, legislative bodies, corporations, communities and individuals.

Universities and instructors have the authority to create a safe space for students. Multi-faceted approaches are necessary to help stop cyber-harassment, including approaches at all university levels—the administrative level, instructor level, and student level.

Universities should adapt current harassment policies to include cyber-harassment and effectively implement these new policies on their campus.[10] Instructors should also implement no-tolerance policies regarding the use of offensive jokes, sarcasm, insults, and putdowns to help to neutralize cyber-harassment within their online classrooms. Instructors should also identify harassing behaviors and act according to their universities' policies. At the student level, students should received education on the topic of cyber-harassment, including education on university policies and victims' rights. All students, including victims and bystanders, should be encouraged to report cyber-harassment. If cyber-harassment becomes a serious problem on a university campus, other approaches might be needed, such as classroom discussions, focus groups, or awareness activities on the topic.

Question 3. Learning Styles

Participants in the online classroom identified most with the Active Experimentation learning style mode, with eight participants rating Active Experimentation as their highest mean score and one participant rating Active Experimentation as his lowest mean score. Participants identified next with Abstract Conceptualization, with four participants rating Abstract Conceptualization as their highest mean score and four participants rating Abstract Conceptualization as their lowest mean score. Participants then identified with Reflective Observation, with one participant rating Reflective Observation as his highest mean score and three participants rating Reflective Observation as their lowest mean

[10] In my belief, a written policy is only effective when the university properly implements that policy on its campus; this is why I distinguish between adopting and implementing policies in the sentence.

score. Participants identified least with Concrete Experience, with one participant rating Concrete Experience as his highest mean score and seven participants rating Concrete Experience as their lowest mean score.

The online environment in this study, D2L, demanded an active presence from participants. In the analyzed small group chat, the participants' tasks were to answer the posed questions and get the assignments done. Following the small group chat in D2L, one student (the recorder) was to summarize the collaborative work completed in the D2L chat and to submit a report to the instructor either that same night or the following morning. For this reason, there were minimal, if any, opportunities for concrete experiences or many reflective observations. The online classroom was a quick, demanding environment where participants had to make decisions now and participation was part of the passing grade. The majority of the chat focused on the task, the course assignment. For example, the assignment for week three was the following:

> **Assignment:** Find two web sites dealing with the same topic, but published by competing organizations. For example, department store web sites by Target and Walmart, or vehicle sales sites by Ford and Toyota. Identify the differences in the web site producers' attitudes toward, or assumptions about, their audiences. What elements of the web sites indicate their assumptions about what will appeal to their audience, or what their audience's expectations. Consider use of color, graphics, multimedia, interactivity, etc.

Given the active and demanding structure of D2L in this study, participants' preferences for particular learning style modes appeared to reflect the environment of the online classroom. This is not to say that any type of learning style is not adaptable to the online environment or that the online environment is not adaptable to any type of learning style. Instead, a certain learning style may actually incline a learner to academic success within the online environment, and this learner may not need to adapt as much to the online environment.

Active Experimentation

In theory, Active Experimentation is probably the best-suited learning style mode for the online classroom. Those who identify with Active Experimentation value the ability to manipulate the environment to produce results. Simply put, "the active experimentation learning mode focuses on actively influencing people and changing situations" (Kolb, 1984, p. 69). Active Experimentation indicates an active "doing" orientation to learning that relies on experimentation (Zanich, 1991). Those with this learning style mode prefer to be interact with others who allow them to play an active role in the decision process, instead of reflecting or observing. According to Zanich (1991), those high in Active Experimentation learn best when they can engage in such class work like small group discussions and dislike passive learning situations like listening to lectures.

Students who identify with Active Experimentation are probably suited for the online classroom because this classroom setting is a new, changing, and manipulative environment that requires students to self-direct learning to achieve results. Those who participate in online classes must be willing to experiment with technology to complete

their coursework (e.g., online small group assignments, discussion boards, and quizzes). Online discussions are also an active process; if students do not actively write their input through chat or speak their minds through a microphone, their input is lost. The online classroom is not an environment where nonverbal communication has much presence—unless a student has an excellent webcam that allows nonverbal communication into cyberspace.[11]

Abstract Conceptualization

Following Active Experimentation, participants self-identified the most with Abstract Conceptualization. Students oriented towards this learning style mode depend on cognitive rather than emotional skills. Abstract Conceptualization indicates an analytical, conceptual approach to learning that relies heavily on logical thinking and rational evaluation (Zanich, 1991). These learners gain more when they are in an impersonal learning situation and tend to orient themselves towards symbols and things (Zanich, 1991).

The online classroom extends to this learning style mode because opportunities for emotional and discovery experiences are lacking online. The online environment does not allow for many, if any, tactile or kinetic exercises. In most cases, the ability to conceptualize without physically seeing the problem is most likely important to a student's success. Students need to have the ability to conceptualize abstractly because the concrete experience is lacking.

[11] However, in this study, I only analyzed written CMC.

Abstract learners do not rely on interpersonal relationships. Instead of interpersonal relationships, abstract learners depend upon symbols or things; for this reason, a computer or screen would work just as well as person to help conceptualize the problem. Some researchers, such as Song, Singleton, Hill, and Koh (2004), have criticized online communication for its lack of community as well as delayed communication. Students with a preference for this learning style mode may be exempt from these known criticisms of online communication since these students would probably prefer online communities.

Reflective Observation and Concrete Experience

Participants in this study identified least with the Reflective Observation and Concrete Experience learning style modes. Reflective Observation indicates a reflective approach to learning that relies on careful observing, hence the "observation." Such learners value objective judgments, impartiality, and patience and prefer to monitor rather than act on a situation (Zanich, 1991). Learners who identify with the Concrete Experience learning style mode like to feel and experience, learning best when they can become involved in specific examples (Zanich, 1991). Concrete learners represent a receptive, experience-based approach to learning (Zanich, 1991). These concrete learners further characterized learning opportunities as direct interpersonal interactions with humans, not things or objects like learners with a preference for the Abstract Conceptualization learning style mode.

I theorize that the learning style modes of Reflective Observation and Concrete Experience do not as easily extend to the online classroom for the opposite reasons that I

theorized that the Active Experimentation and Abstract Conceptualization learning style modes do extend to the online classroom. Very often, the online classroom demands participation for a passing grade. As a result, sitting in the back of the classroom not participating in a group discussion or simply listening to an instructor's lecture may suffice in a face-to-face setting, but not as easily in the online setting. Information moves quickly in the online classroom. A student desiring to observe rather than act on a problem or to reflect and not respond to a discussion question may become lost within cyberspace. A student desiring concrete experiences is also going to find that these experiences are minimal or absent altogether. Belonging to an online community is different from a face-to-face community. Students with a preference for the Concrete Experience learning style mode may find an online community inadequate for their needs to have interpersonal interactions with others.

Implications for Online Education

Researchers such as Maddux, Ewing-Taylor, and Johnson (2002) suggested that one way to ensure the quality of online education is through consideration of student learning styles. Learning styles may offer a way to assist instructors in adapting their online classrooms to meet students' individual needs (Richmond & Cummings, 2005). In the present study, I theorize that students who have learning style modes best adapted to the online environment self-selected the online classroom. The largest difference between the mean scores of the learning style modes was between Active Experimentation and Concrete Experience, with participants rating Active Experimentation the highest and Concrete Experience the lowest. In my belief, this difference suggests that the course instructors would not need to adapt their classroom to meet the majority of their students'

needs. Their students were predisposed to the online environment by their learning style mode preferences alone. In fact, students with more diverse learning styles may actually go online to get their needs met by this diverse and emerging environment.

All participants in this study, with the exception of one, were either junior or senior undergraduate students. By this time in a college experience, a student may understand their learning styles as specific strengths or weaknesses. Having a clear understanding of their strengths and weaknesses would allow students to self-elect to participate in online classrooms or the traditional face-to-face classrooms. Although many argue that students enroll in online courses because of their ease and convenience, participants possibly chose the online environment because they believed that their skill set would allow them to succeed in this self-directed setting.[12] Online learning, by its very nature, is self-directed.

Song and Hill (2007) stated that self-directed learning is critical to online learning because of its unique characteristic of the physical and social separation of the learner from the instructor and other learners. Shapley (2000) found that students needed to have a high level of self-direction in order to succeed in the online learning environment (as cited in Song & Hill, 2007). Other theorists believe that online learning gives more control of the instruction to the learners, thereby creating its self-directed nature (Song & Hill, 2007). Accordingly, Shapley and others believe that self-direction is a desirable trait

[12] I am not saying that students do not choose online courses because of their ease and convenience. Rather, I am posing the argument that students might also elect to participate in online courses if they believe they can be successful in these environments; or, they might elect to not participate in online courses if they believe they cannot be successful.

for learners to succeed in online learning environments. It is possible that participants involved in this study understood the self-directed nature of online learning. These students may have pursued this learning environment because they believed they could self-direct their learning and succeed. Other students may have overlooked online opportunities and the potential convenience of learning online because they believed that their strengths and weaknesses were not suited for success in this type of classroom. However, this belief is only a theory since I did not ask participants why they enrolled in the technical communication courses.

Because of the increasingly heavy demand for online education, Thiele (2003) urged assessment of the quality and effectiveness of online classrooms to study the effect of online learning delivery on learner outcomes. Students may avoid expanded educational opportunities because they feel that the online environment does not readily adapt to their learning style needs. Since instructors do not usually engage online students in a face-to-face setting, they may not be aware of these individual concerns of students (Richmond & Cummings, 2005).[13] Instructors may have to first design online courses to meet the needs of students with various learning styles for these students to feel comfortable enrolling in online courses.

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[13] Engaging students in a face-to-face setting is much more typical in traditional classrooms. For example, a student might have an individual meeting with his or her professor in person to discuss his or her progress within the course. This same possibility for students in an online classroom may not exist, since some students live states away from their online course professors' locations, where only meetings through CMC are a possibility. Furthermore, individual student concerns may not be addressed because these students are simply not present in the online classroom. These students may feel that their learning style is not be suited for the online environment, and so they avoid online courses altogether.

Richmond and Cummings (2005) emphasized the importance of designing courses to accommodate students' learning styles and provided specific instruction for using Kolb's learning style theory modes to design online courses. Table 18 is from Richmond and Cummings (2005) and provides "specific course activities, methods of delivering course content, student evaluation, and instructor style that are appropriate for use within the context of the four learning environments" (pp. 51-52).[14] The four learning environments include Symbolic, Perceptual, Behavioral, and Affective. The Symbolic Learning Environment best supports the Abstract Conceptualization mode, the Perceptual Learning Environment best supports the Reflective Observation Learning mode, the Behavioral Learning Environment best supports the Active Experimentation mode, and the Affective Learning Environment best supports the Concrete Experience learning mode (Richmond & Cummings, 2005, p. 50).

[14] Table 18 is taken directly from Richmond and Cummings (2005). Richmond and Cummings also note that the information in Table 18 was adapted from Kolb (1984).

Table 18. ***Learning Environments and Application to Online Courses***

Environment	Activities	Content Delivery	Evaluation	Instructor Style
Affective	Interactive tutorials that require autonomy	Synchronous chat discussions with both peer and instructor involvement	Peer and instructor feedback which is personalized	Coach or helper
Symbolic	Multiple-choice quizzes and tests, case study analysis	Lectures that focus on theories or broad concepts	Instructor derived based on objective criteria	Top-down didactic, guide, and task master
Perceptual	Online reading journal and lecture summaries	Lectures that focus on interpretation and asynchronous chat discussions	Instructor evaluates work compared to others in the field	Expert opinion and deemphasizes critical evaluation
Behavioral	Structured group projects and homework that applies to theories	Peer asynchronous chat discussions and lectures are not helpful	Peer feedback ownership and justification of grading policies	Role model and exemplar of the class content

The possibility of exploring new ways of reaching students with different learning styles may not only improve the quality of online course delivery but also enhance student learning (Richmond & Cummings, 2005).

Question 4. Learning Styles and Self-Reported Communication Styles

Participants' preferences for learning style modes paralleled their self-reported communication styles.

Active Experimentation

An individual with a preferred learning style mode of Active Experimentation would most likely influence people in communication through action. In this study, participants who rated Active Experimentation as their highest mean score also rated such CSQS communication descriptors as "listens intently and carefully," "nods head frequently while listening," "laughs frequently," "shows attention by directing his/her body toward the speaker," and "makes frequent an appropriate eye contact" as a few of their "most characteristic of self" communication descriptors. Participants who had Active Experimentation as their highest mean score also rated the communication descriptor "winks at others during conversation" as more characteristic of their communication than did the other participants. These communication descriptors demonstrate active components of nonverbal communication, indicating that physical action may further extend to learner preference, such as encouraging action to enhance knowledge retention. An example of this influence might include encouraging a learner to write notes (an action) while listening to a lecture, since a lecture is more of an activity aimed towards an abstract learner.

Active learners want to influence people and change situations. For this reason, an active learner would most likely want to act on opportunities and be assertive in communication; descriptors that were related with these types of characteristics included

"reminds others to follow through with their duties and obligations" and "expresses hostile feelings directly." These communication descriptors extend to the learner's desire to influence and play an active role in the decision process. An active learner would engage in not only the learning process but also the communication process. The relationships with both physical (nodding, winking) and communicative actions (assertiveness, expressiveness) demonstrate these learners' preferences for playing an active role in the communication process.

Abstract Conceptualization

Abstract learners are analytical and focus on ideas and concepts. These learners would most likely think through their communication and virtually "think before they speak," being intent on both their words and actions. Abstract learners rely on logics and evaluation, gaining more from ideas than emotions. These learners would probably not focus on the interpersonal interaction as much as concrete learners, but would probably have more confidence in their speaking skills than reflective observers.

This study found relationships between communication descriptors and the Abstract Conceptualization learning style mode that supported these assumed characteristics. Participants who had Abstract Conceptualization as their highest mean score rated such communication descriptors as "shakes or shows nervousness when speaking," "complains or criticizes more often than most people," "has a whining tone of voice," and "attempts to impress others or manipulate them through deception" as less characteristic of their communication than did the other participants. These relationships represent abstract learners as confident speakers who are cautious with both their words

and their actions, being careful not to manipulate through communication.

Not overly focused on interpersonal interactions, participants with Abstract Conceptualization as their highest mean score rated the communication descriptor "tells personal fantasies, daydreams, and speculations" as less characteristic of their communication styles than did the other participants. This descriptor conceivably demonstrates an abstract learner's reluctance to divulge personal information within communication. Instead of focusing on personal topics, participants with Abstract Conceptualization as their highest mean score rated the descriptor "asks for other peoples' opinions, ideas, and comments" and "explains by using examples, analogies, or stories" as more characteristic of their communication. Rather than focusing on personal topics, these descriptors reinforce the idea that abstract learners would want to focus on abstract topics within communication. Very often, theoretical complexities are the bases of opinions and ideas. Demonstrating the ambiguity of these theoretical complexities is the communication descriptor "gives vague answers—does not take a stand;" participants with Abstract Conceptualization as their highest mean score rated this descriptor as more characteristic of their communication styles than did the other participants. Abstract learners emerged as cautious and perhaps quietly confident speakers that are prone to conversations that reflect their learning style—abstract.

Reflective Observation

Reflective observers might be more hesitant to communicate since they prefer to observe rather than actively persuade. In comparison to other learners, reflective observers may be more subtle in their communication. Participants who had Reflective Observation as their highest mean score rated such communication descriptors as "treats the other person

as an equal," "lets people make their own decisions," and "realizes when people don't understand, and tries to clarify" as some of their "most characteristic of self" communication descriptors. Since observers value objectivity in learning, this trait would most likely extend to communication and the descriptor "lets people make their own decisions" supports that concept. Participants also rated the descriptor "is forceful with people of lower rank or status" as one of their least characteristic descriptors of their communication styles. Again, this rating supports the concept that observers would be subtle in their communication and would not actively persuade but would rather provide information and intellectualize and reflect on that information. In fact, participants rated "intellectualizes and tries to reason through a topic" as one of their "most characteristic of self" communication descriptors. These findings characterize reflective observers as learners who value impartiality in not only their learning but also their communication.

Concrete Experience

An individual with a preference for the Concrete Experience learning style mode would most likely focus on the interpersonal interaction during communication. One could assume that a concrete learner would be the most comfortable learner in communication because of this focus on people. The one participant with Concrete Experience as his highest mean score rated such descriptors as "blushes easily," "stares at others for unusually long periods of time," "has a whining tone of voice," "mumbles and blends words together," "interrupts," and "gossips" as some of his least characteristic communication descriptors. These descriptors demonstrate that this concrete learner has confidence in his communication.

This same participant rated the communication descriptors "shows sensitivity to the feelings of others when conversing with them" and "behaves in a sympathetic or considerate manner" as some of his most characteristic descriptors. He rated other descriptors as "attempts to impress others or manipulate them through deception" and "is forceful with people of lower rank or status" as some of his least characteristic descriptors. These descriptors support the idea that concrete learners would focus on interpersonal relationships within their communication. With that stated, this same learner also rated "controls what gets talked about" as one of his most characteristic communication descriptors, and this descriptor does not necessarily fit the mold of a concrete learner's people-focused communication.

These findings imply that this concrete learner did focus on interpersonal interactions with others (because all of these descriptors included and focused on the "other" person in the communication). However, those interactions for the concrete learner may not include how that focus affects the other person during communication. The concrete learner may be more focused on persuading and that is why that focus is important—to influence the other's decisions. Overall, this concrete learner was confident in his communication, perhaps hoping for opportunities to make a decision not only for himself but also for others involved in the interaction.

Implications for Online Education

I believe that this case study's results demonstrate that communication and learning styles are related factors. Communication styles may influence participants' preferences for learning styles, and learning styles may influence participants' preferences for

communication styles. Exploring these interactions between communication and learning styles sheds light on not only individual preferences but also how communication and learning styles affect learners' experiences within the online classroom.

Assessing students' learning styles might help instructors to create course content and structure assignments and classroom work that directly involve communication. For example, instructors might want to experiment with which students they assign to small group chats based on students' learning style preferences. If an instructor organizes a small group with one concrete experience learner and three reflective observers, the concrete experience learner would most likely make more decisions and control the chat. However, if an active experimentation learner was in that same group, he or she might behave more assertively towards the concrete learner and voice if he or she disagrees.

Blum (1998, 1999) and Trego (2003) identified men as separate/independent learners and women as connected/interactive learners. This preference for learning would extend to how instructors would develop course content and exercises, perhaps scheduling opportunities for both individual and group assignments. Communication dynamics has the possibility to influence both a student's success and the student's contribution to CMC.

A student's communicative response may also indicate his or her learning style preferences. For example, an instructor might find a student not participating in the CMC. When the student does participate, his or her response demonstrates a thoughtful judgment and understanding of the ideas. This finding might reveal that this learner is a reflective observer and that he or she may not be as quickly adaptable to the online environment as an active experimentation learner. It is not that the reflective observer

learner is not participating fully in the online classroom but that he or she is reflecting on his or her thoughts before interacting with others.

Instructors who understand students based on their learning or communication styles can enrich their students' classroom experiences. This awareness can help direct instructors when designing their online courses and course work that focuses on communicative interactions. This awareness can further advance instructors in understanding why students may communicate in a certain manner or why students may or may not equally participate in CMC. In general, it is important to understand that learning styles and communication styles can both influence students' participation and experiences within the online classroom.

VI. Limitations

Even though this study had results with implications for the online classroom, there are important limitations for consideration. Within this chapter, I explore limitations regarding the project's participants, scope, data, and process.

Participants

This study examined thirteen participants and men and women did not participate equally (ten men versus three women). A study with more participants and equal participation between the genders would have the potential to generate results with external validity. Because only thirteen students participated in this study, the findings are not generalizable since individual differences may account for the results. That is not to say that the implications in the discussion session are not worth noting, but that the results may not apply to a distinctly different CMC-based course and participant population. What this case study does offer is rich insight into factors that require further exploration.

Another limitation was that I did not randomly select participants and I did not randomly assigned participants to either a control group or experimental group. All participants knew that they were a part of the study, and all students consented to participate. This knowledge of the research and participation in the inventories could have resulted in participant bias.

Scope

I designed this study to gather an in-depth look at each participant's gender (biological and psychological) and style preferences (communication and learning styles). This scope allowed me to obtain information about each participant and have a comprehensive inquiry into his or her learning, self-reported and CMC styles, and the relationships between these style preferences. With that stated, there are still limitations regarding the data.

The analyzed CMC was narrow in scope. In the online classroom, participants knew each other's identities. Participants knew the other participants by name, which did not allow for identity play. A participant could most likely guess another participant's gender by his or her name, and therefore, could not likely hide his or her gender from other participants. I left the chat in Acrobat Connect Professional unanalyzed, but it was also possible in Connect for participants to appear by a webcam and/or use a microphone; thus, their voices or visual image could have revealed their genders and other visual markers, such as age and race. In their CMC, some participants even indicated that they knew each other outside of the online classroom.

Another limitation to the CMC was that I analyzed only written communication in small group chat. Participants' purpose during those small group chats was to complete their assigned coursework. This focus did not allow for much unstructured chatting time. Instead, participants focused on the assignments. I quickly added the coding items "answer to class questions" and "answer to class question with opinion" to the coding scheme because so many participant responses were answers. For this reason, the excess of student answers may have limited the opportunity to study unstructured and naturally-

occurring CMC.

Data

This study had data limitations. I only calculated mean scores of the inventories and then compared these scores to investigate relationships among the participants based on their biological genders and communication and learning style preferences. To perform this type of investigation, I self-sorted participants into groups to compare the mean scores. I also did not investigate whether any relationship was statistically significant.

Another limitation was the coding scheme and coding process. I was the only researcher to code the data. The CMC codes had the possibility of researcher bias since I made my own coding scheme and coded all the CMC by hand. However, this limitation could also extend to internal validity since I was the only researcher to code the CMC and a different researcher could have coded the CMC differently.

Process

The process for completing this study was extensive. Faced with various limitations throughout the research process, my thesis ultimately became a case study that emphasized exploration. However, my initial goal was to create an empirical project that investigated learning style, self-reported communication style, online communication style, in addition to biological and psychological gender. I found it imperative to explore these factors within the same cohesive project—discovering if online classrooms mirrored a democratic or a gendered society.

After I designed a project to gather rich data on the study's participants, I realized that I needed to limit my scope to make the project manageable. In my original thesis proposal, I had two additional research questions: [15]

> **Question 1.** Do instructors' self-reported communication styles relate to students' communication styles in CMC-based online classrooms?

> **Question 2.** Do instructors' learning styles relate to student communication styles in CMC-based online classrooms?

I omitted these research questions to focus solely on student participants before I began any data collection.

Through the data collection process, I met my goal of gathering rich information on the study's participants. I had actually gathered so much data that I again faced the decision to limit the project's scope. I stated in my original thesis proposal that I would study both text-based and voice-based CMC in D2L and Acrobat Connect Professional. I decided to leave CMC that occurred within the software, Adobe Acrobat Connect Professional, unanalyzed.[16] I left CMC in Connect unanalyzed because the majority of

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[15] These are two research questions in addition to the four research questions that I proposed in the first chapter of the thesis.

[16] Students participated in the online classroom through Connect prior to meeting in their small groups in D2L. Connect offered live online classrooms, allowing participants to communicate and collaborate instantly (Adobe Systems Incorporated, 2006). Participants had the potential of interacting in Connect through screen sharing, as well as through chats, white boards and embedded quizzes or surveys.

the CMC was student responses to the instructors' presentations and activities. I decided that CMC in D2L fit the purposes of the project best since participants were communicating with each other in the small group chats without the constant presence from the course instructor.

My next step was data analysis. With my original goal of an empirical study, I first completed two-tailed Pearson correlations and analyses of variances with the data. I later omitted these findings from my thesis based on the study's limitations, which included the small participant size, the unequal gender participation (ten men and three women), and the lack of a control group. These limitations, as previously discussed within this chapter, limited my ability to include statistical tests with significance. I had to refocus my project; I refocused on mean scores and general trends within the participant pool.[17] My project shifted from a quantitative empirical study to a qualitative case study.

I have learned through this process that my initial goal was too large for an empirical research project. On one hand, investigating all factors within the same project allowed me to gather detailed information. No one project had investigated all the factors that I studied and the case study approach allowed for this preliminary exploration.[18] On the other hand, this detailed information only related to thirteen participants and an empirical project requires more student participation to have results with generalizability.

[17] I also discussed limitations regarding data within this chapter.

[18] To the best of my knowledge, no one study has investigated biological gender, psychological gender, actual CMC, and self-reported communication and learning styles within the same project.

My initial goal to investigate all factors within the same project made for a comprehensive case study with interesting results. Nonetheless, this goal also made for an intense research process. This project offers important information regarding the relationships between biological gender, psychological gender, actual CMC, and self-reported communication and learning styles—and these relationships have implications for the online classroom that require further research, both quantitative and qualitative.

VII. Final Thoughts

CMC has the potential to overthrow gender stereotypes, creating equal and new opportunities for those that society has traditionally marginalized. The online learning environment *could* create a more equitable space for both women and men to participate equally and comfortably. Through this new technological medium, students *could* safely invest in their education to meet their academic goals. The possibilities are limitless—if the online classroom *can* break down barriers and become a democratic domain. In this case study, the online classroom fell short of this democratic ideal and remained biased.

In the online environment, participants did not differ from the gender norms that define their face-to-face communication, gender, or learning styles. The online classroom remained gendered. Moreover, I theorized that the online classroom may have even stopped some students with specific learning styles from enrolling in the course because they did not feel that they could succeed in an online setting. There are many opportunities available for further research to investigate these barriers and better understand the implications of this study.

At the conclusion of this project, I still have many unanswered questions such as, if the online classroom does mirror a patriarchal society, what can we do to shape these classrooms to make the environment safe and equitable, encouraging participation? It is a possibility that the results of this study demonstrate that students may not enroll in online courses because they feel that their skills are not suited for this new place. For this reason, what can we do to make the online classroom a neutral medium that encourages

all types of student enrollment? Researchers should continue to study CMC in the online classroom, investigating the relationships between CMC, self-reported communication styles, and the influence of gender on these style preferences. Researchers should further connect these style preferences and gender to actual student success, asking how these factors impact academic achievement. Few researchers have studied how students' predispositions towards communication and learning styles influence educational outcomes (Dwyer, 1998; Johnson, 2003; as citied in Allen, Long, O'Mara & Judd, 2007). I could only theorize the implications of this case study and perhaps these implications are only the beginning to a new body of research.

The need to address gender bias is crucial. Right now student enrollment for online education continues to increase, but critics state that more students will drop out of online courses than traditional face-to-face courses (Diaz, 2002). I have to ask, is gender inequality causing students to drop out of online education? The results from this study imply that online education is inequitable. Furthermore, online classrooms are perhaps even more inhospitable for students than traditional face-to-face classrooms because students do retain a degree of anonymity, and this anonymity creates the space for cyber-harassment. For this reason, the emerging area of cyber-harassment also warrants further study.

The need to study these factors and their impact on students' experiences is essential for student success and online education's success. Online education has much potential. It is our responsibility to discover how to make this technological domain the best environment possible for both students and instructors. Instead of society influencing cyberspace, let us do what we can to make CMC-based education a powerful sphere of

influence on a gendered society.

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Appendix 1. Tables of Gender and Conversational Themes and Rituals[19]

Communication and Relationships

COMMUNICATION AND RELATIONSHIPS Tannen 1990, 1994	**Feminine Style**	**Masculine Style**
What are relationships for?	• Intimacy: assume we are close and the same	• Independence: assume we are separate and different
The goal of communication is to…	• Seek and give confirmation and • support • Create community; connect to others Negotiate for closeness	• Seek dominance; avoid subordination Manage contests; negotiate to have the upper hand • Maintain independence
Assumptions about social order	• We are essentially peers or equals We avoid superiority, being one-up	• We are either one-up or one-down on some relevant criteria • We avoid inferiority, being one-down
Fear	• Isolation or loss of community	• Engulfment or loss of independence

[19] These tables are taken directly from Mills and Wandell (2004).

Alignment with Others

ALIGNMENT WITH OTHERS Tannen 1990, 1994	**Feminine Style**	**Masculine Style**
Symmetry and asymmetry	• *Symmetry*: look for and express similarities	• *Asymmetry*: look for and express differences
The value of alignment with others	• Connection: being embedded comfortably in a network	• Separation: being free and independent of each other

Rituals of Alignment

RITUALS OF ALIGNMENT Tannen 1990, 1994	**Feminine Style**	**Masculine Style**
"I'm sorry"	• A conversation smoother • A way to restore balance to a conversation • An expression of understanding and • care	• An apology or admission of wrongdoing that puts you one-down Accepting an apology from another • puts you one-up
Apology: A two-step ritual	• One person acknowledges responsibility for something that went wrong and expects the other will reciprocate and share blame in a mutual face-saving ritual	• One person admits a fault or wrongdoing (and takes a one-down position); the other person accepts the apology\ (enjoying the one-up position)
Blame: Assume or assign	• Assume blame ("I should have…")	• Assign blame ("What happened was…")

RITUALS OF ALIGNMENT Tannen 1990, 1994	**Feminine Style**	**Masculine Style**
Thanks	• A ritual conversation closer to signal leave-taking or dismissal • A ritual invitation to trigger reciprocal thanks • Another's failure to reciprocate is hurtful	• An appreciation to which you answer, "You're welcome" and enjoy being one-up
Sympathy is	• The connection of one person who cares to another person	• A reminder of one's weakness by someone stronger or better off
Asking for information or help	• Gets you lots of information • Does not involve status	• Asking reveals what you don't know and puts you one-down • Others may not know and will make up answers
Saying, "I don't know, but I'll get back to you" is…	• Honest and professional	• Weak and incompetent
Responding when asked or told what to do	• Just do it • Asking is more polite than telling	• Resist being told what to do • Asking is manipulative if you have the power to tell
Offering to help	• A generous move to show care and concern, build rapport, support another	• Implies that the recipient is incompetent and one-down
Responses to being deferred to or protected (i.e. wave car on, hold door)	• Enjoy the polite gesture	• Resent the gesture since it puts you one-down and restricts independence
Name dropping	• Shows you are connected to or close to someone	• Shows your status and advertise one's self-importance

RITUALS OF ALIGNMENT Tannen 1990, 1994	**Feminine Style**	**Masculine Style**
Trouble talk is about	• Expressing feelings to another who listens and understand	• Understanding the implicit request for advice or solutions
Response to previous speaker	• Conjunctive—relate comments to those the previous speaker made	• Disjunctive—change the subject

Public and Private Contexts for Conversation

PUBLIC AND PRIVATE CONTEXTS Tannen 1990, 1994	**Feminine Style**	**Masculine Style**
Rapport talk and report talk	• *Rapport talk*: In private, women establish connections and negotiate relationships	• *Report talk:* In public, men preserve their independence and negotiate their place in the hierarchy
What suffices as evidence in public talk?	• Use personal examples and stories as valid evidence to inform and persuade others	• Use objective experience and information as valid evidence • One's own experience is not valid evidence
Backstage and onstage	• Backstage is when no men are around and women can talk freely Onstage is when men are present and women monitor what they say	• Backstage only happens in private places • Men are onstage in any public setting and vie for the upper-hand
Laments, trouble talk	• Bond in pain • Connect in pain, loss and trouble	• Men do not generally discuss problems with anyone—especially other men—well, maybe with women

PUBLIC AND PRIVATE CONTEXTS Tannen 1990, 1994	**Feminine Style**	**Masculine Style**
Contact with friends	• Stay in frequent touch • Communicate about insignificant details of daily life	• Assume friends will be there whenever needed • Communicate regularly at public places about local or world problems

Big Talk and Small Talk

BIG TALK AND SMALL TALK Tannen 1990, 1994	**Feminine Style**	**Masculine Style**
Small talk: Smoothes relationships and prepares people for big talk	• Small talk focuses on personal lives	• Small talk is mainly banter about sports and politics
Big talk: Addresses tasks and gets things done	• Big talk is about tasks needing to be done	• Big talk is about business issues and office politics
Giving praise and attention	• Expect attention and praise for work; enjoy these as social rewards • Give more praise and attention Without feedback, "Where do I stand?"	• Interpret too much attention as micromanagement or power play or being checked-up on • Give less praise and attention • Without feedback, my work must be okay
Compliments as conventional praise	• Compliment more • Compliments are a two-way ritual—one compliment elicits another back • A prompt for a compliment (i.e. "How did I do?) is not an invitation to criticism	• Compliment less • Compliments are a two-way ritual— one compliments and the other says, • "Thank you" • "How did I do?" is a request for criticism

BIG TALK AND SMALL TALK Tannen 1990, 1994	**Feminine Style**	**Masculine Style**
Humor	• Self-mockery is a high form of humor and play • Off color jokes are for same sex groups only, or are not appropriate • The ability of some women to "play" with the men can set them apart from other women	• Teasing, mock attacks, insults and put - downs are forms of humor and high play • Off color jokes are a common source of humor

Lecturing and Listening

LECTURING AND LISTENING Tannen 1990, 1994	**Feminine Style**	**Masculine Style**
Obligation during conversation	• Listen: give the gift of audience	• Lecture: give the gift of information
Disclosure	• Expect mutual disclosure and sharing of topics	• Expect to change the subject to what we know
Issues	• Have I been helpful? • Do you like me?	• Have I won? • Do you respect me?
Overlaps and interruptions	• Overlaps express agreement, support or anticipation of how sentences will end	• Overlaps are an attempt to get the floor and shift conversational topics

Managing and Leading at Work

MANAGING AND LEADING Tannen 1990, 1994	**Feminine Style**	**Masculine Style**
Getting things done	• Giving orders is "bossy" so give suggestions instead to prevent being resented or disliked • Work quietly behind the scenes • Be humble: avoid the spotlight, be like the others and fit in • State opinions mildly and see who supports	• Giving orders and pushing others around is a way to gain and maintain high status • Get maximum visibility • Put yourself forward: get in the spotlight, stand out from the crowd • State opinions forcefully and see who challenges
Using indirectness to get things done • Both women and men are indirect, just in different ways • Indirectness does not reflect insecurity • Indirectness is not manipulative	• Request, state a need, hint, give another the opportunity to volunteer, presume, or explain the situation and what must be done • Hesitations, pauses, tag questions, laughter and approving words also communicate indirectness	• Military subordinates must "read" indirectness in those of high rank and take the implied action (i.e. "It's hot in here" means "Do something about it now" • The burden of interpretation is with the subordinate
Communicating about successes and strengths	• Be modest; self-efface • Do not call attention to self • Depend on others to blow your horn	• Boast and brag • Call attention to • Toot your own horn

MANAGING AND LEADING Tannen 1990, 1994	**Feminine Style**	**Masculine Style**
Decision-making and "What do you think?"	• Consult with others for their best thoughts, advice and information before making the best decision • Decide by consensus • Discuss things and check with others to make plans • Do not assume silence is agreement	• If you have to ask what others think, you are one-down or incompetent • Make the decision yourself and announce it to others • Assume people will speak up if they dissent.
Giving criticism	• Deliver softly; spare others' feelings • Include praise before and after criticism • Play down your authority when offering criticism	• Deliver straight and direct; feelings have no place in business • Assume other can take it • Just say what is wrong or needs to be changed • Use authority and one-up position when criticizing
Negotiating	• Work from outside-in: Ask what other wants to invite two-way exchange about big picture • Work toward specifics • Respect other's feelings • Bluffs and threats from others are taken literally; if personal, conceding to other is respectful	• Work from inside-out: Tell what you want, and if other has different ideas, then negotiate • Work from specifics • Respect for feelings is not salient • Bluffs and threats are negotiation moves; the other will also bluff and threaten in a balancing move—or call your bluff

Meetings: A Special Case of Public Talk

MEETINGS Note: No one's conversation style is fixed: Everyone's style varies with regard to context and make-up of the group Tannen 1994	**Feminine Style**	**Masculine Style**
An all too familiar pattern…	• Make suggestion which is ignored— perhaps due to succinctness, low volume and disclaimers	• Re-introduce a suggestion the group has ignored and get the credit for it— expanding on it, loudly and in absolute terms
Turn taking expectations	• Expect conversational balance: to take a portion of time in meetings equal to others • Expect to take turns; wait for turn and invite or prompt others to speak	• Expect to dominate conversation: do as much of the talking as possible • Expect others will speak up if they have something to say
To explore or improve ideas	• Create a climate of mutual support for creativity and spontaneity • Focus on what is good or useful about ideas before criticizing them	• Have a ritual fight; debate, argue, object and challenge to find what is true or best, or to improve ideas • Express ideas in absolute terms and expect others to counter these vigorously
Who you are makes a difference	• Talk more with higher position than others in the meeting • Tend to pay attention to a woman whose contributions are equal to man	• Talk more with higher position than others in the meeting • Tend to pay attention to a man whose contributions are equal to woman

MEETINGS Note: No one's conversation style is fixed: Everyone's style varies with regard to context and make-up of the group Tannen 1994	**Feminine Style**	**Masculine Style**
Structured and unstructured formats	• Structured format (i.e. round robin): Women participate as much as men • Unstructured format (i.e. self structured): Women contribute less than men	• Structured format (i.e. round robin): Men participate as much as women • Unstructured format (i.e. self structured): Men contribute more than women
Structured and free-for-all periods	• During structured parts, women talk less than men • During free-for-all parts, women interact as much as men	• During structured parts, men talk more than women • During free-for-all parts, men interact as much as women

Appendix 2. Email to Participants

Dear 271 Students,

Hi! My name is Jennifer Bruns and I am graduate student in the M.A. Technical Communication program at Minnesota State University, Mankato. I just spoke to your class about my research project and now am sending you that open invitation to take part in my project.

I want to learn more about communication styles in online technical communication classrooms. **You can begin your participation right now!** All you have to do is send me your preferred email address and your home address to jennifer.bruns-1@mnsu.edu . You also need to send me your age, so that I can verify you are at least 18 years of age.

Once I have your contact information and your age, I will send you the research surveys and the consent form by US Postal Mail (that is why I need your home address). Just complete the surveys and sign the consent form and send them all back to me in the self-addressed and stamped envelope enclosed in the packet. I will also send you the directions on how to complete the Communication Styles survey in the packet (this survey is completed online).

Just as a note, you will receive the results from the Communication Styles survey and the Learning Style survey. If requested, you can also have the opportunity to read my thesis

after its completion. I do not know exactly when you will receive your results, but I plan to have my thesis complete by spring 2009.

Thank you for your participation. It is much appreciated! If you have any questions about this research project, please reply to this email or email jennifer.bruns-1@mnsu.edu . I look forward to working with you!

With thanks, Jennifer

jennifer.bruns-1@mnsu.edu

Appendix 3. Screen View of Desire to Learn[20]

[20] Image from Minnesota State University, Mankato (2005).

Appendix 4. Research Coding Scheme

Substantive: messages that relate to the discussion content or topic

A1. Structuring/Leading: Statements which initiate a discussion and focus attention on the topic of the discussion and take control of the conversation. These statements are often made by the discussion leader. (e.g., "Let's move onto the next question." "Who will be the recorder." "Here is the assignment again for everyone.").

A2. Soliciting: Any content-related question or request, which attempts to solicit a response or draw attention to something and start a discussion. (e.g., "What task should we do first?" "Anything else?" "Should we start with things we thought were done well?").

A3. Responding: A statement in direct response to a solicitation (e.g., answers to questions, commands or requests). Generally, these are the first response to a question by a given individual.

A4. Reacting: A reaction to either a structuring statement, to another person's comments, but not a direct response to the question. (e.g., "I guess I'm doing the bar graph." "I think we covered it all fairly well.").

A6. Answer to class question: (e.g., "Microsoft has a lot of business links." "I'd say the first step is location.").

A8. Answer to class question with opinion: An answer with opinionated interpretation. (e.g., "I guess apple website is just simple and bold." "Apple even posts links to some of its commercials to keep that coolness theme going.").

A9. Personal comments: Personal comments to class questions or the class (e.g., "Seriously I have never gotten such bad grades, I don't get it" "It's the last assignment and I just want to be done with it.").

A/B7. Demands/Decision in chat: (e.g., "I'll do the table." "I vote scan." "I can be the recorder." "We need to create a flow chart." "Start with apartment.").

Non-Substantive: messages that do not relate to the discussion topic or content

B1. Procedural: Scheduling information, announcements, logistics, listserv membership procedures, etc. (e.g., "I will send you the table." "What's your emails?").

B2. Technical: Computer-related questions, content, suggestions of how to do something, not related to the topic directly. (e.g., "is there a function on the chart wizard?" "does it have to be excel or can we just scan a drawing?" "I cannot get the comment to insert into the document").

B3. Chatting: Personal statements, jokes, introductions, greetings, etc. (e.g., "bye" "thanks everyone" "toodles").

B4. Supportive: Statements that although similar to chatting, there is an underlying positive reinforcement in the comment (e.g., “Sounds good.” “ thanks”).

B5. Uncodable: Statements that consist of too little information or unreadable to be coded meaningfully.

C Substantive or Non-Substantive: other CMC-based items

C3. Use of emoticons e.g., ☺ or emotional language (haha umm ahh oops oh)

C4. Containing “!”

C5. Containing slang or cyberspace acronyms (lol)

C6. Containing CAPPED words

C7. Containing put-downs, insults, curse words, or crude language

C8. Containing “Thanks” or “Thank You”

C10. Questions asked (with or without “?”)

C12. Containing “…”

C13. Containing “Okay,” “yea,” “yes,” or “yep”

C14. Containing “sorry”

Appendix 5. Communication Styles Q-Set Directions[21]

For this survey, you will use the online card-sorting tool, OptimalSort. To use OptimalSort for this survey, go to:

http://communication.optimalsort.com/csqs/

Simply follow the directions for the Communication Styles Q-Set (CSQS) (which are **ALSO** included in this document) to complete the card sort.

You will need to place 100 communication descriptors into 1 of 9 categories using OptimalSort (the communication descriptors start on page 3). Quickly read each descriptor (1-100) and think about yourself with respect to the descriptor.

The nine categories will range from category 1, "Least Characteristic of Self," to category 9, "Most Characteristic of Self." You can think of it as a scale—if the descriptor is CHARACTERISTIC of your communication behavior, place the descriptor towards category 9. If the statement is NOT CHARACTERISTIC of your communication behavior, place the descriptor towards category 1. If you are not sure about a statement, place the descriptor towards the MIDDLE, around category 5.

[21] CSQS directions adapted from Dr. Tim Stephen, personal email, April 1, 2008.

Least Characteristic of Self **Most Characteristic of Self**

1 2 3 4 5 6 7 8 9

Only a certain amount of communication descriptors are allowed for each category of 1-9. The communication descriptors allowed for each category are the following:

Least Characteristic of Self

1 category: **5 Descriptors**

2 category: **8 Descriptors**

3 category: **12 Descriptors**

4 category: **16 Descriptors**

5 category: **18 Descriptors**

6 category: **16 Descriptors**

7 category: **12 Descriptors**

8 category: **8 Descriptors**

Most Characteristic of Self

9 category: **5 Descriptors**

Always remember that the more you find the descriptor to be CHARACTERISTIC of your communication, the closer you should place the descriptor towards category 9. The more you find the descriptor to be UNCHARACTERISTIC of your communication, the closer you should place the descriptor towards category 1.

As you sort the descriptors, you need to make quick judgments; there is no need to linger on a descriptor. It also does not matter which order the descriptors are placed within their categories. All that matters is which categories you end up placing the descriptors.

You will use OptimalSort to place the descriptors into each category. Use your mouse to drag and drop each descriptor into the category. OptimalSort will allow you to place more than the listed descriptors allowed for each category, so please be careful when you do your sorting.

Appendix 6. Communication Styles Q-Set Communication Descriptors[22]

Q1. Controls what gets talked about.

Q2. Dominates others in conversation.

Q3. Tells jokes frequently or injects humor into the conversation.

Q4. Laughs frequently.

Q5. Likes to tell stories or anecdotes.

Q6. Keeps people at a distance; avoids close interpersonal relationships.

Q7. Starts conversations.

Q8. Gives advice to others.

Q9. Talks while others are talking.

Q10. Has a loud voice.

Q11. Gossips.

Q12. Smiles frequently.

Q13. Explains by using examples, analogies, or stories.

Q14. Avoids talking about personal problems.

Q15. Overstates ideas or exaggerates them to emphasize a point.

Q16. Tells the same events or stories again and again.

Q17. Appears drained of energy and listless.

Q18. Gestures dramatically.

Q19. Shows attention by directing his/her body toward the speaker.

[22] Communication descriptors are taken directly from Stephen and Harrison (1986).

Q20. Uses facial expressions and/or meaningful gestures.

Q21. Avoids talking about emotions.

Q22. Intellectualizes and tries to reason through a topic.

Q23. Treats the other person as an equal.

Q24. Is forceful with people of lower rank or status.

Q25. Communicates by acting out the message, both physically and verbally.

Q26. Shows sensitivity to the feelings of others when conversing with them.

Q27. Interrupts.

Q28. Behaves in ways that are appropriate to his/her sex.

Q29. Winks at others during conversation.

Q30. Expresses ideas well, speaks easily and smoothly.

Q31. Insists that terms be carefully defined.

Q32. Chooses words carefully.

Q33. Nods head frequently while listening.

Q34. Smells pleasant.

Q35. Is quick to challenge or object.

Q36. Picks up details in others' conversation.

Q37. Brings up topics in the right time and place.

Q38. Recognizes and verbally acknowledges other's contribution to the conversation.

Q39. Behaves in a sympathetic or considerate manner.

Q40. Realizes when people don't understand, and tries to clarify.

Q41. Is the sort of person who will admit to being wrong.

Q42. Is sociable—likes to be with others.

Q43. Behaves in a masculine way.

Q44. Makes frequent and appropriate eye contact.

Q45. Appears confident and sure that he/she is right.

Q46. Speaks abruptly with a staccato rhythm.

Q47. Attempts to impress others or manipulate them through deception.

Q48. Mumbles and blends words together.

Q49. Touches others during conversation.

Q50. Has a soft voice which may be hard to hear at times.

Q51. Reacts to basically simple and clear-cut situations in complicated ways.

Q52. Has a whining tone of voice.

Q53. Listens intently and carefully.

Q54. Stares at others for unusually long periods of time.

Q55. Behaves in a feminine way.

Q56. Hints at deeper meaning that may be unclear to all but the speaker.

Q57. Is inflexible; relates to everyone in the same way.

Q58. Does not match facial expressions to the emotional content of the message.

Q59. Gives vague answers—does not take a stand.

Q60. Blushes easily.

Q61. Uses sarcasm.

Q62. Often asks questions.

Q63. Has social poise and presence; appears socially at ease.

Q64. Holds back in conversation.

Q65. Complains or criticizes more often than most people.

Q66. Seems to say the first thing that comes to mind.

Q67. Plays with clothes, hair, hands, or objects while talking or listening.

Q68. Shakes or shows nervousness when speaking.

Q69. Disagrees frequently.

Q70. Expresses hostile feelings directly.

Q71. Is thin-skinned and sensitive to criticism.

Q72. Takes the initiative; offers suggestions, information, or plans.

Q73. Changes topic abruptly.

Q74. Uses terms of endearment or pet names when talking with others.

Q75. Answers a question with another question.

Q76. Limits responses to few words; answers questions with a simple "yes" or "no."

Q77. Chooses words which fit the subject and are appropriate for the audience.

Q78. Behaves assertively.

Q79. Behaves in a fast-paced way; acts quickly.

Q80. Occasionally contributes irrelevant comments during a conversation.

Q81. Uses threats to gain compliance or cooperation form others.

Q82. Asks for other people's opinions, ideas, and comments.

Q83. Talks for long periods of time; chatters.

Q84. Is likely to blame or accuse.

Q85. Likes to follow rather than lead; accepts authority.

Q86. Uses repetitive phrases such as "you know."

Q87. Is calm and relaxed in manner.

Q88. Tells personal fantasies, daydreams, and speculations.

Q89. Paraphrases or restates what other people say.

Q90. Compliments others.

Q91. Seems to be aware of the impression he/she makes on others.

Q92. Can be judgmental.

Q93. Uses suggestions or vague hints to create an emotional response in others.

Q94. Finishes sentences for other people.

Q95. Blurts out sentences.

Q96. Lets people make their own decisions.

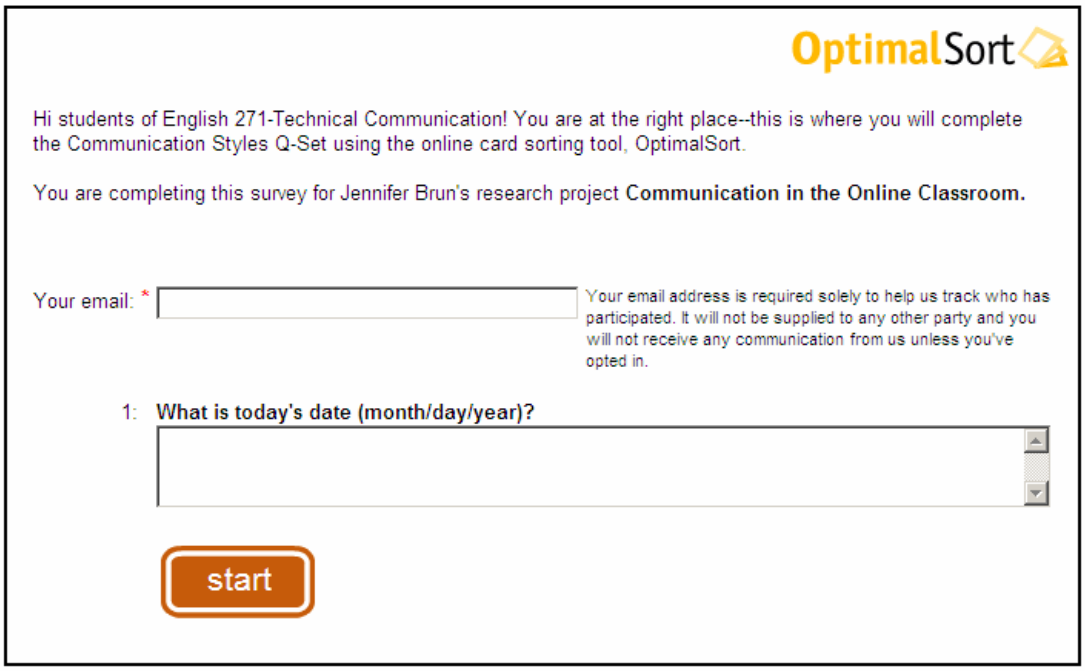
Q97. Reminds others to follow through with their duties and obligations.

Q98. Attends to other things such as TV or work, while involved in a conversation.

Q99. Agrees with others in a conversation to make a good impression on them.

Q100. Tends to be liked and accepted by others.

Appendix 7. Communication Styles Q-Set in OptimalSort



OptimalSort

You will need to place 100 communication descriptors into one of nine categories using OptimalSort. Quickly read each descriptor (1-100) and think about yourself with respect to the descriptor. (You also received these directions with the 100 communication descriptors in the mail)

The nine categories will range from category 1, "Least Characteristic of Self," to category 9, "Most Characteristic of Self." You can think of it as a scale--if the descriptor is CHARACTERISTIC of your communication behavior, place the descriptor towards category 9. If the statement is NOT CHARACTERISTIC of your communication behavior, place the descriptor towards category 1. If you are not sure about a statement, place the descriptor towards the MIDDLE, around category 5.

Only a certain amount of communication descriptors are allowed for each category of 1-9. The communication descriptors allowed for each category are the following:

1 category: 5 Descriptors
2 category: 8 Descriptors
3 category: 12 Descriptors
4 category: 16 Descriptors
5 category: 18 Descriptors
6 category: 16 Descriptors
7 category: 12 Descriptors
8 category: 8 Descriptors
9 category: 5 Descriptors

Always remember that the more you find the descriptor to be CHARACTERISTIC of your communication, the closer you should place the descriptor towards category 9. The more you find the descriptor to be UNCHARACTERISTIC of your communication, the closer you should place the descriptor towards category 1.

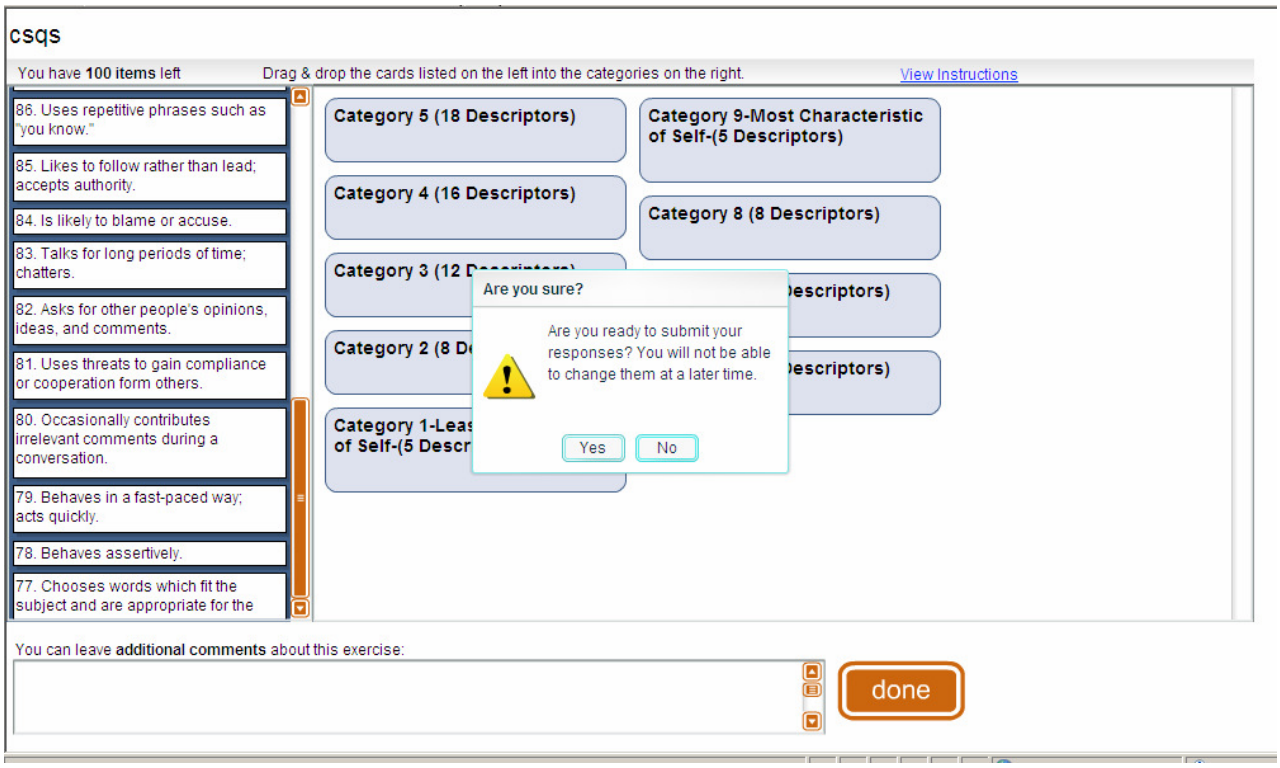
As you sort the descriptors, you need to make quick judgments; there is no need to linger on a descriptor. It also does not matter which order the descriptors are placed within their categories. All that matters is which categories you end up placing the descriptors.

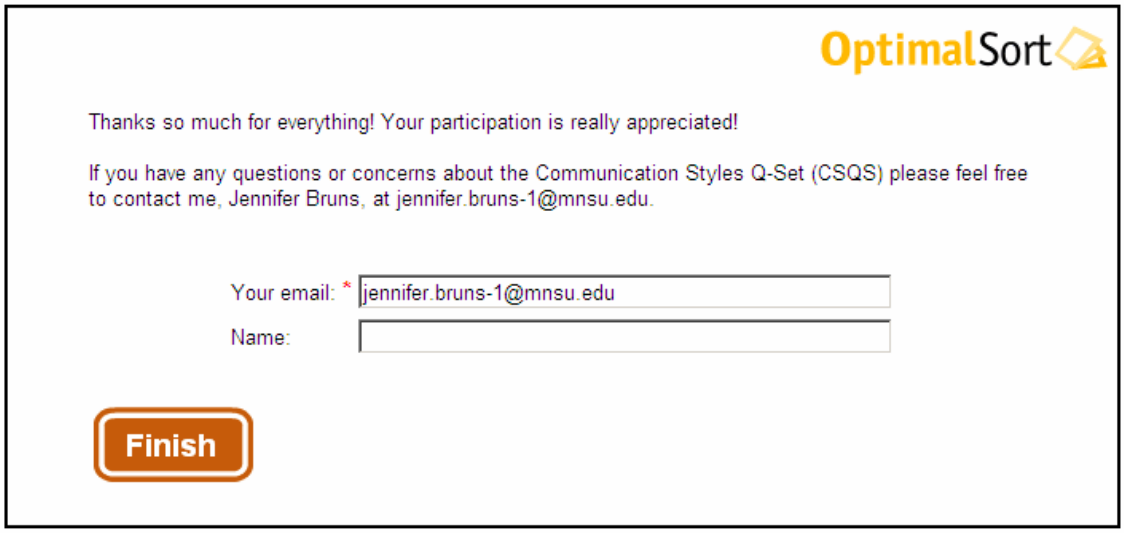
You will use OptimalSort to place the descriptors into each category. Use your mouse to drag and drop each descriptor into the category. OptimalSort will allow you to place more than the listed descriptors allowed for each category, so please be careful when you do your sorting.

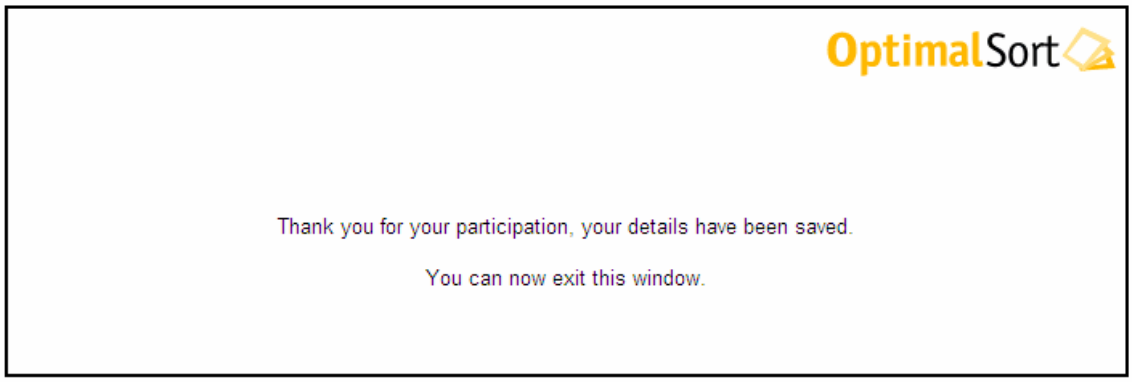
To view these instructions at any time during the card sort, click the 'View instructions' link at the top of the page.

To begin, click Continue.

continue


csqs
You have 100 items left
Drag & drop the cards listed on the left into the categories on the right.
View Instructions
86. Uses repetitive phrases such as "you know."
85. Likes to follow rather than lead; accepts authority.
84. Is likely to blame or accuse.
83. Talks for long periods of time; chatters.
82. Asks for other people's opinions, ideas, and comments.
81. Uses threats to gain compliance or cooperation form others.
80. Occasionally contributes irrelevant comments during a conversation.
79. Behaves in a fast-paced way; acts quickly.
78. Behaves assertively.
77. Chooses words which fit the subject and are appropriate for the
Category 5 (18 Descriptors)
Category 9-Most Characteristic of Self-(5 Descriptors)
Category 4 (16 Descriptors)
Category 8 (8 Descriptors)
Category 3 (12
escriptors)
Category 2 (8
escriptors)
Category 1-Leas
of Self-(5 Descr
Are you sure?
Are you ready to submit your responses? You will not be able to change them at a later time.
Yes
No
You can leave additional comments about this exercise:
done


OptimalSort
Thanks so much for everything! Your participation is really appreciated!
If you have any questions or concerns about the Communication Styles Q-Set (CSQS) please feel free to contact me, Jennifer Bruns, at jennifer.bruns-1@mnsu.edu.
Your email: *
jennifer.bruns-1@mnsu.edu
Name:
Finish


OptimalSort
Thank you for your participation, your details have been saved.
You can now exit this window.

Appendix 8. Demographic Survey

Please complete this survey to the best of your knowledge.

Today's Date: _____ Your Name: _____

1. Your Age: _____

2. Your Gender: ☐ Male ☐ Female

3. Your 271-Course Instructor: ☐ Dr. MacKenzie and/or Dr. Nord ☐ Dr. Tesdell

4. Your Education Level: ☐ Undergraduate Student ☐ Graduate Student

5. If you are an Undergraduate Student, please indicate your class ranking:

   ☐ Freshman ☐ Sophomore ☐ Junior ☐ Senior

6. Your Declared Major: _____

7. Your Level of Comfort with Technology/Computers:

   ☐ Very comfortable ☐ Somewhat comfortable ☐ Not very comfortable

8. Is English 271 your first online course: ☐ yes ☐ no

9. If your answer was “no” to question 8, please indicate how many online courses you have already completed:

   ☐ 1 course

   ☐ 2-3 courses

   ☐ 4-5 courses

   ☐ More than 5

10. If your answer was “no” to question 8, please indicate what “type” of software the online courses you completed used:

    ☐ Used only Desire to Learn (D2L)

    ☐ Used only Acrobat Connect Professional (“Breeze”)

    ☐ Used both Desire to Learn and Acrobat Connect Professional

    ☐ Used some other type of software for class meetings

Please indicate the software type: _____

Appendix 9. Table of Femininity and Masculinity Scores

Participant	Gender	Femininity	Masculinity	Difference
Participant One	Women	5.70	5.10	0.60
Participant Two	Woman	4.05	3.60	0.45
Participant Three	Man	4.15	5.45	1.30
Participant Four	Woman	4.85	3.95	0.90
Participant Five	Man	4.20	5.65	1.45
Participant Six	Man	4.15	5.30	1.15
Participant Seven	Man	4.10	4.95	0.85
Participant Eight	Man	5.30	5.55	0.25
Participant Nine	Man	4.25	5.85	1.60
Participant Ten	Man	4.85	4.40	0.45
Participant Eleven	Man	4.05	6.00	1.95
Participant Twelve	Man	4.30	4.85	0.55
Participant Thirteen	Man	3.65	4.30	0.65
Mean Score	**Total: 3 Women; 10 Men**	**4.43**	**4.99**	**0.93**

Appendix 10. Table of Communication Descriptors Mean Scores

Communication Descriptor	Mean Score
1. Controls what gets talked about.	**4.69**
2. Dominates others in conversation.	**3.63**
3. Tells jokes frequently or injects humor into the conversation.	**5.46**
4. Laughs frequently.	**6.46**
5. Likes to tell stories or anecdotes.	**5.08**
6. Keeps people at a distance; avoids close interpersonal relationships.	**3.62**
7. Starts conversations.	**5.62**
8. Gives advice to others.	**6.38**
9. Talks while others are talking.	**3.15**
10. Has a loud voice.	**3.54**
11. Gossips.	**2.62**
12. Smiles frequently.	**6.62**
13. Explains by using examples, analogies, or stories.	**6.54**
14. Avoids talking about personal problems.	**4.62**
15. Overstates ideas or exaggerates them to emphasize a point.	**4.08**
16. Tells the same events or stories again and again.	**3.62**
17. Appears drained of energy and listless.	**2.77**
18. Gestures dramatically.	**3.92**
19. Shows attention by directing his/her body toward the speaker.	**6.46**
20. Uses facial expressions and/or meaningful gestures.	**6.15**
21. Avoids talking about emotions.	**4.54**
22. Intellectualizes and tries to reason through a topic.	**7.08**

Communication Descriptor	Mean Score
23. Treats the other person as an equal.	**7.85**
24. Is forceful with people of lower rank or status.	**2.46**
25. Communicates by acting out the message, both physically and verbally.	**5.31**
26. Shows sensitivity to the feelings of others when conversing with them.	**6.69**
27. Interrupts.	**2.23**
28. Behaves in ways that are appropriate to his/her sex.	**5.85**
29. Winks at others during conversation.	**2.46**
30. Expresses ideas well, speaks easily and smoothly.	**6.08**
31. Insists that terms be carefully defined.	**5.69**
32. Chooses words carefully.	**5.85**
33. Nods head frequently while listening.	**6.77**
34. Smells pleasant.	**7.54**
35. Is quick to challenge or object.	**4.77**
36. Picks up details in others' conversation.	**5.92**
37. Brings up topics in the right time and place.	**6.46**
38. Recognizes and verbally acknowledges other's contribution to the conversation.	**6.23**
39. Behaves in a sympathetic or considerate manner.	**5.77**
40. Realizes when people don't understand, and tries to clarify.	**5.85**
41. Is the sort of person who will admit to being wrong.	**6.15**
42. Is sociable—likes to be with others.	**7.31**
43. Behaves in a masculine way.	**5.92**
44. Makes frequent and appropriate eye contact.	**6.54**
45. Appears confident and sure that he/she is right.	**6.31**
46. Speaks abruptly with a staccato rhythm.	**3.85**
47. Attempts to impress others or manipulate them through deception.	**2.31**

Communication Descriptor	Mean Score
48. Mumbles and blends words together.	**3.92**
49. Touches others during conversation.	**2.31**
50. Has a soft voice which may be hard to hear at times.	**3.62**
51. Reacts to basically simple and clear-cut situations in complicated ways.	**3.38**
52. Has a whining tone of voice.	**2.38**
53. Listens intently and carefully.	**6.92**
54. Stares at others for unusually long periods of time.	**2.31**
55. Behaves in a feminine way.	**2.92**
56. Hints at deeper meaning that may be unclear to all but the speaker.	**4.15**
57. Is inflexible; relates to everyone in the same way.	**3.62**
58. Does not match facial expressions to the emotional content of the message.	**3.23**
59. Gives vague answers—does not take a stand.	**3.92**
60. Blushes easily.	**4.15**
61. Uses sarcasm.	**5.00**
62. Often asks questions.	**6.15**
63. Has social poise and presence; appears socially at ease.	**5.69**
64. Holds back in conversation.	**3.85**
65. Complains or criticizes more often than most people.	**3.69**
66. Seems to say the first thing that comes to mind.	**4.15**
67. Plays with clothes, hair, hands, or objects while talking or listening.	**3.92**
68. Shakes or shows nervousness when speaking.	**3.69**
69. Disagrees frequently.	**3.85**
70. Expresses hostile feelings directly.	**3.62**
71. Is thin-skinned and sensitive to criticism.	**3.38**
72. Takes the initiative; offers suggestions, information, or plans.	**5.54**

Communication Descriptor	Mean Score
73. Changes topic abruptly.	**3.38**
74. Uses terms of endearment or pet names when talking with others.	**3.69**
75. Answers a question with another question.	**3.92**
76. Limits responses to few words; answers questions with a simple “yes" or "no."	**3.69**
77. Chooses words which fit the subject and are appropriate for the audience.	**6.15**
78. Behaves assertively.	**5.38**
79. Behaves in a fast-paced way; acts quickly.	**5.85**
80. Occasionally contributes irrelevant comments during a conversation.	**3.92**
81. Uses threats to gain compliance or cooperation form others.	**2.62**
82. Asks for other people's opinions, ideas, and comments.	**5.46**
83. Talks for long periods of time; chatters.	**3.54**
84. Is likely to blame or accuse.	**2.38**
85. Likes to follow rather than lead; accepts authority.	**3.92**
86. Uses repetitive phrases such as “you know.”	**3.92**
87. Is calm and relaxed in manner.	**5.85**
88. Tells personal fantasies, daydreams, and speculations.	**4.15**
89. Paraphrases or restates what other people say.	**4.77**
90. Compliments others.	**5.62**
91. Seems to be aware of the impression he/she makes on others.	**5.92**
92. Can be judgmental.	**4.46**
93. Uses suggestions or vague hints to create an emotional response in others.	**4.69**
94. Finishes sentences for other people.	**3.92**
95. Blurts out sentences.	**3.00**
96. Lets people make their own decisions.	**6.23**
97. Reminds others to follow through with their duties and obligations.	**5.85**

Communication Descriptor	Mean Score
98. Attends to other things such as TV or work, while involved in a conversation.	**3.62**
99. Agrees with others in a conversation to make a good impression on them.	**4.31**
100. Tends to be liked and accepted by others.	**6.23**

Appendix 11. Table of Communication Descriptors with Lowest Mean Scores

Communication Descriptor	Mean Score
27. Interrupts.	**2.23**
47. Attempts to impress others or manipulate them through deception.	**2.31**
49. Touches others during conversation.	**2.31**
54. Stares at others for unusually long periods of time.	**2.31**
52. Has a whining tone of voice.	**2.38**
84. Is likely to blame or accuse.	**2.38**
24. Is forceful with people of lower rank or status.	**2.46**
29. Winks at others during conversation.	**2.46**
11. Gossips.	**2.62**
81. Uses threats to gain compliance or cooperation form others.	**2.62**
17. Appears drained of energy and listless.	**2.77**
55. Behaves in a feminine way.	**2.92**
95. Blurts out sentences.	**3.00**
9. Talks while others are talking.	**3.15**
58. Does not match facial expressions to the emotional content of the message.	**3.23**
51. Reacts to basically simple and clear-cut situations in complicated ways.	**3.38**
71. Is thin-skinned and sensitive to criticism.	**3.38**
73. Changes topic abruptly.	**3.38**
78. Behaves assertively.	**3.38**
10. Has a loud voice.	**3.54**
83. Talks for long periods of time; chatters.	**3.54**
2. Dominates others in conversation.	**3.62**

Communication Descriptor	Mean Score
6. Keeps people at a distance; avoids close interpersonal relationships.	**3.62**
16. Tells the same events or stories again and again.	**3.62**
50. Has a soft voice which may be hard to hear at times.	**3.62**
57. Is inflexible; relates to everyone in the same way.	**3.62**
70. Expresses hostile feelings directly.	**3.62**
98. Attends to other things such as TV or work, while involved in a conversation.	**3.62**
65. Complains or criticizes more often than most people.	**3.69**
68. Shakes or shows nervousness when speaking.	**3.69**
74. Uses terms of endearment or pet names when talking with others.	**3.69**
76. Limits responses to few words; answers questions with a simple “yes” or "no."	**3.69**
46. Speaks abruptly with a staccato rhythm.	**3.85**
64. Holds back in conversation.	**3.85**
69. Disagrees frequently.	**3.85**
18. Gestures dramatically.	**3.92**
48. Mumbles and blends words together.	**3.92**
59. Gives vague answers--does not take a stand.	**3.92**
67. Plays with clothes, hair, hands, or objects while talking or listening.	**3.92**
75. Answers a question with another question.	**3.92**
80. Occasionally contributes irrelevant comments during a conversation.	**3.92**
85. Likes to follow rather than lead; accepts authority.	**3.92**
86. Uses repetitive phrases such as “you know.”	**3.92**
94. Finishes sentences for other people.	**3.92**

Appendix 12. Table of Communication Descriptors with Highest Mean Scores

Communication Descriptor	Mean Score
30. Expresses ideas well, speaks easily and smoothly.	**6.08**
20. Uses facial expressions and/or meaningful gestures.	**6.15**
41. Is the sort of person who will admit to being wrong.	**6.15**
62. Often asks questions.	**6.15**
77. Chooses words which fit the subject and are appropriate for the audience.	**6.15**
38. Recognizes and verbally acknowledges other's contribution to the conversation.	**6.23**
96. Lets people make their own decisions.	**6.23**
100. Tends to be liked and accepted by others.	**6.23**
45. Appears confident and sure that he/she is right.	**6.31**
8. Gives advice to others.	**6.38**
4. Laughs frequently.	**6.46**
19. Shows attention by directing his/her body toward the speaker.	**6.46**
37. Brings up topics in the right time and place.	**6.46**
13. Explains by using examples, analogies, or stories.	**6.54**
44. Makes frequent and appropriate eye contact.	**6.54**
12. Smiles frequently.	**6.62**
26. Shows sensitivity to the feelings of others when conversing with them.	**6.69**
33. Nods head frequently while listening.	**6.77**
53. Listens intently and carefully.	**6.92**
22. Intellectualizes and tries to reason through a topic.	**7.08**
42. Is sociable—likes to be with others.	**7.31**

Communication Descriptor	Mean Score
34. Smells pleasant.	**7.54**
23. Treats the other person as an equal.	**7.85**

Appendix 13. Tables of Coding Scheme Code Categories Mean Scores

"Substantive" Categories

Coding Scheme Code	Mean Score
A9. Personal comments to class questions or class	1.15
A4. Reacting	3.31
A1. Structuring/Leading	5.85
A2. Soliciting	8.23
A8. Answer to class question with opinion	8.23
A3. Responding	12.20
A6. Answer to class question	13.50

"Non-Substantive" Categories

Coding Scheme Code	Mean Score
B5. Uncodable	0.38
A/B7. Demands/Decision in chat	4.54
B2. Technical	4.77
B4. Supportive	7.31
B3. Chatting	8.77
B1. Procedural	9.69

"Other CMC-based" Categories

Coding Scheme Code	Mean Score
C7. Containing put-downs, insults, curse words, or crude language	0.46
C14. Containing "sorry"	0.46
C6. Containing CAPPED words	0.77
C3. Use of emoticons or emotional language	1.77
C5. Containing slang or cyberspace acronyms	1.85
C4. Containing "!"	4.92
C8. Containing "Thanks" or "Thank You"	5.23
C12. Containing "…"	5.77
C10. Questions asked	11.80
C13. Containing "Okay," "yea," "yes," or "yep"	12.00

Appendix 14. Table of Chat Lines by Recorded Week

Participant	Week 3	Week 5	Week 7	Week 8	Week 10	Mean Score
Participant One	20.00	57.00	14.00	9.00	22.00	**24.40**
Participant Two	14.00	28.00	5.00	13.00	10.00	**14.00**
Participant Three	24.00	13.00	8.00	7.00	20.00	**14.40**
Participant Four	19.00	20.00	13.00	15.00	16.00	**16.60**
Participant Five	18.00	24.00	11.00	6.00	14.00	**14.60**
Participant Six	18.00	14.00	8.00	6.00	4.00	**10.00**
Participant Seven	18.00	18.00	10.00	13.00	12.00	**14.20**
Participant Eight	34.00	31.00	10.00	9.00	25.00	**21.80**
Participant Nine	15.00	17.00	10.00	6.00	19.00	**13.40**
Participant Ten	23.00	52.00	9.00	15.00	20.00	**23.80**
Participant Eleven	22.00	13.00	12.00	16.00	12.00	**15.00**
Participant Twelve	20.00	10.00	8.00	10.00	11.00	**11.80**
Participant Thirteen	6.00	9.00	8.00	7.00	8.00	**7.60**
TOTAL	**251.00**	**306.00**	**126.00**	**132.00**	**193.00**	**15.51**

Appendix 15. Table of Learning Style Inventory Modes Mean Scores

Participant	Concrete Experience	Reflective Observation	Abstract Conceptualization	Active Experimentation
Participant One	19.00	31.00	27.00	43.00
Participant Two	21.00	38.00	21.00	40.00
Participant Three	26.00	25.00	36.00	33.00
Participant Four	25.00	31.00	24.00	40.00
Participant Five	28.00	33.00	28.00	41.00
Participant Six	20.00	36.00	29.00	35.00
Participant Seven	22.00	31.00	26.00	41.00
Participant Eight	26.00	27.00	24.00	43.00
Participant Nine	24.00	20.00	28.00	48.00
Participant Ten	34.00	28.00	34.00	24.00
Participant Eleven	24.00	22.00	35.00	39.00
Participant Twelve	19.00	35.00	42.00	24.00
Participant Thirteen	16.00	31.00	44.00	29.00
Mean Score	**23.38**	**29.85**	**30.62**	**36.92**

Appendix 16. Table of Self-Perceived Communication Competence Mean Scores

Participant	**Self-Perceived Communication Competence**
Participant One	89.17
Participant Two	63.33
Participant Three	90.42
Participant Four	80.42
Participant Five	80.00
Participant Six	95.83
Participant Seven	75.00
Participant Eight	85.67
Participant Nine	88.75
Participant Ten	84.58
Participant Eleven	89.75
Participant Twelve	82.58
Participant Thirteen	67.92
Mean Score	**82.57**

Appendix 17. Table of Mean Scores for Communication Descriptors, Female Participants Higher

Communication Descriptor	Women	Men	Difference
9. Talks while others are talking.	4.00	2.90	**1.10**
66. Seems to say the first thing that comes to mind.	5.00	3.90	**1.10**
31. Insists that terms be carefully defined.	6.67	5.40	**1.27**
68. Shakes or shows nervousness when speaking.	4.67	3.40	**1.27**
54. Stares at others for unusually long periods of time.	3.33	2.00	**1.33**
83. Talks for long periods of time; chatters.	4.67	3.20	**1.47**
32. Chooses words carefully.	7.00	5.50	**1.50**
20. Uses facial expressions and/or meaningful gestures.	7.33	5.80	**1.53**
33. Nods head frequently while listening.	7.67	6.50	**1.70**
50. Has a soft voice which may be hard to hear at times.	5.00	3.20	**1.80**
60. Blushes easily.	6.00	3.60	**2.40**
71. Is thin-skinned and sensitive to criticism.	5.33	2.80	**2.53**
6. Keeps people at a distance; avoids close interpersonal relationships.	5.67	3.00	**2.67**
74. Uses terms of endearment or pet names when talking with others.	4.67	3.40	**2.67**
85. Likes to follow rather than lead; accepts authority.	6.33	3.20	**3.13**
55. Behaves in a feminine way.	7.67	1.50	**6.17**

Appendix 18. Table of Mean Scores for Communication Descriptors, Male Participants Higher

Communication Descriptor	Women	Men	Difference
62. Often asks questions.	5.33	6.40	**1.07**
72. Takes the initiative; offers suggestions, information, or plans.	4.67	5.80	**1.13**
58. Does not match facial expressions to the emotional content of the message.	2.33	3.50	**1.17**
86. Uses repetitive phrases such as "you know."	3.00	4.20	**1.20**
12. Smiles frequently.	5.67	6.90	**1.23**
57. Is inflexible; relates to everyone in the same way.	2.67	3.90	**1.23**
81. Uses threats to gain compliance or cooperation form others.	1.67	2.90	**1.23**
42. Is sociable—likes to be with others.	6.33	7.60	**1.27**
99. Agrees with others in a conversation to make a good impression on them.	3.33	4.60	**1.27**
78. Behaves assertively.	4.33	5.70	**1.37**
35. Is quick to challenge or object.	3.67	5.10	**1.43**
46. Speaks abruptly with a staccato rhythm.	2.67	4.20	**1.53**
90. Compliments others.	4.33	6.00	**1.67**
45. Appears confident and sure that he/she is right.	5.00	6.70	**1.70**
39. Behaves in a sympathetic or considerate manner.	4.33	6.20	**1.87**
29. Winks at others during conversation.	1.00	2.90	**1.90**
37. Brings up topics in the right time and place.	5.00	6.90	**1.90**

Communication Descriptor	Women	Men	Difference
41. Is the sort of person who will admit to being wrong.	4.67	6.60	**1.93**
38. Recognizes and verbally acknowledges other's contribution to the conversation.	4.67	6.70	**2.03**
7. Starts conversations.	4.00	6.10	**2.10**
87. Is calm and relaxed in manner.	4.00	6.40	**2.40**
43. Behaves in a masculine way.	3.00	6.80	**3.80**

Appendix 19. Table of Self-Perceived Communication Competence Subscores by Gender

Context or Receiver	Women	Men	Difference
Public	73.89	81.10	**-7.21**
Meeting	71.11	80.13	**-9.02**
Group	82.78	86.20	**-3.42**
Dyad	82.78	88.77	**-5.99**
Stranger	61.67	73.95	**-12.28**
Acquaintance	82.92	88.15	**-5.23**
Friend	94.17	92.93	**1.24**

Appendix 20. Tables of Coding Scheme Code Categories by Gender

"Substantive" Categories by Gender

Coding Scheme Code	Women	Men	Difference
A4. Reacting	4.00	3.10	**0.90**
A3. Responding	13.00	12.00	**1.00**
A9. Personal comments to class questions or class	2.00	0.90	**1.10**
A8. Answer to class question with opinion	9.33	7.90	**1.43**
A1. Structuring/Leading	7.00	5.50	**1.50**
A2. Soliciting	11.00	7.40	**3.60**
A6. Answer to class question	18.70	11.90	**6.77**

"Non-Substantive" Categories by Gender

Coding Scheme Code	Women	Men	Difference
B5. Uncodable	0.00	0.50	**-0.50**
B2. Technical	4.33	4.90	**-0.60**
A/B7. Demands/Decision in chat	5.33	4.30	**1.03**
B3. Chatting	10.00	8.40	**1.60**
B1. Procedural	11.70	9.10	**2.57**
B4. Supportive	11.00	6.20	**4.80**

"Other CMC-based Items" Categories by Gender

Coding Scheme Code	Women	Men	Difference
C5. Containing slang or cyberspace acronyms	1.67	1.90	**-0.20**
C7. Containing put-downs, insults, curse words, or crude language	0.67	0.40	**0.27**
C14. Containing "sorry"	0.00	0.60	**-0.60**
C3. Use of emoticons or emotional language	0.67	2.10	**-1.40**
C8. Containing "Thanks" or "Thank You"	6.33	4.90	**1.43**
C6. Containing CAPPED words	2.00	0.40	**1.60**
C13. Containing "Okay, yea, yes or yep"	14.00	11.40	**2.60**
C12. Containing "…"	9.00	4.80	**4.20**
C4. Containing "!"	9.33	3.60	**5.73**
C10. Questions asked	17.00	10.20	**6.80**

Appendix 21. Table of Supportive CMC and "Thanks" or "Thank you"

Participant	B4. Supportive CMC	C8. "Thanks" or "Thank you."
Participant One	21.00	12.00
Participant Two	2.00	2.00
Participant Three	5.00	5.00
Participant Four	10.00	5.00
Participant Five	3.00	4.00
Participant Six	7.00	4.00
Participant Seven	3.00	3.00
Participant Eight	11.00	5.00
Participant Nine	4.00	2.00
Participant Ten	7.00	4.00
Participant Eleven	6.00	6.00
Participant Twelve	9.00	9.00
Participant Thirteen	7.00	7.00
Mean Score	**7.31**	**5.23**

Appendix 22. Table of Capped Words and "!"

Participant	C4. Capped Words	C6. "!"
Participant One	9.00	1.00
Participant Two	2.00	0.00
Participant Three	0.00	0.00
Participant Four	17.00	5.00
Participant Five	0.00	0.00
Participant Six	2.00	0.00
Participant Seven	2.00	0.00
Participant Eight	8.00	1.00
Participant Nine	0.00	0.00
Participant Ten	14.00	2.00
Participant Eleven	6.00	1.00
Participant Twelve	4.00	0.00
Participant Thirteen	0.00	0.00
Mean Score	**4.92**	**0.77**

Appendix 23. Coding Scheme Codes "High" and "Low" Groups

Structuring/Leading CMC

Participant	Group	A1. Structuring/Leading
Participant One	High	13.00
Participant Two	Low	0.00
Participant Three	Low	3.00
Participant Four	High	8.00
Participant Five	High	7.00
Participant Six	Low	1.00
Participant Seven	High	8.00
Participant Eight	High	10.00
Participant Nine	Low	2.00
Participant Ten	High	15.00
Participant Eleven	High	8.00
Participant Twelve	Low	1.00
Participant Thirteen	Low	0.00
	Total: 7 High; 6 Low	**Mean Score: 5.85**

Chatting CMC

Participant	Group	B3. Chatting
Participant One	Low	6.00
Participant Two	High	8.00
Participant Three	High	10.00
Participant Four	High	16.00
Participant Five	Low	8.00
Participant Six	Low	4.00
Participant Seven	Low	8.00
Participant Eight	Low	8.00
Participant Nine	Low	8.00
Participant Ten	Low	6.00
Participant Eleven	High	14.00
Participant Twelve	High	11.00
Participant Thirteen	Low	7.00
	Total: 5 High; 8 Low	**Mean Score: 8.77**

Supportive CMC

Participant	Group	B4. Supportive
Participant One	High	21.00
Participant Two	Low	2.00
Participant Three	Low	5.00
Participant Four	High	10.00
Participant Five	Low	3.00
Participant Six	Low	7.00
Participant Seven	Low	3.00
Participant Eight	High	11.00
Participant Nine	Low	4.00
Participant Ten	Low	7.00
Participant Eleven	Low	6.00
Participant Twelve	High	9.00
Participant Thirteen	Low	7.00
	Total: 4 High; 9 Low	**Mean Score: 7.31**

Put-downs, Insults, Curse Words or Crude Language CMC

Participant	**Group**	**C7. Put-downs, etc.**
Participant One	Low	0.00
Participant Two	High	2.00
Participant Three	Low	0.00
Participant Four	Low	0.00
Participant Five	Low	0.00
Participant Six	Low	0.00
Participant Seven	Low	0.00
Participant Eight	Low	0.00
Participant Nine	High	2.00
Participant Ten	Low	0.00
Participant Eleven	High	2.00
Participant Twelve	Low	0.00
Participant Thirteen	Low	0.00
	Total: 3 High; 10 Low	**Mean Score: 0.46**

Appendix 24. Table of High versus Low Groups of Structuring/Leading for Communication Descriptors

Communication Descriptor	High	Low	Difference
24. Is forceful with people of lower rank or status.	2.00	3.00	**-1.00**
2. Dominates others in conversation.	3.14	4.17	**-1.03**
11. Gossips.	2.14	3.17	**-1.03**
50. Has a soft voice, which may be hard to hear at times.	3.14	4.17	**-1.03**
30. Expresses ideas well, speaks easily and smoothly.	6.57	5.50	**1.07**
18. Gestures dramatically.	3.43	4.50	**-1.07**
67. Plays with clothes, hair, hands, or objects while talking or listening.	3.43	4.50	**-1.07**
91. Seems to be aware of the impression he/she makes on others.	5.43	6.50	**-1.07**
94. Finishes sentences for other people.	3.43	4.50	**-1.07**
59. Gives vague answers—does not take a stand.	4.43	3.33	**1.10**
33. Nods head frequently while listening.	7.29	6.17	**1.12**
12. Smiles frequently.	7.14	6.00	**1.14**
19. Shows attention by directing his/her body toward the speaker.	7.00	5.83	**1.17**
13. Explains by using examples, analogies, or stories.	6.00	7.17	**-1.17**
77. Chooses words which fit the subject and are appropriate for the audience.	5.57	6.83	**-1.26**
54. Stares at others for unusually long periods of time.	1.71	3.00	**-1.29**
34. Smells pleasant.	8.14	6.83	**1.31**

Communication Descriptor	High	Low	Difference
21. Avoids talking about emotions.	3.86	5.33	**-1.47**
87. Is calm and relaxed in manner.	5.14	6.67	**-1.53**
74. Uses terms of endearment or pet names when talking with others.	4.43	2.83	**1.60**
25. Communicates by acting out the message, both physically and verbally.	4.57	6.17	**-1.60**
92. Can be judgmental.	3.71	5.33	**-1.62**
8. Gives advice to others.	7.14	5.50	**1.64**
43. Behaves in a masculine way.	5.14	6.83	**-1.69**
29. Winks at others during conversation.	3.29	1.50	**1.79**
83. Talks for long periods of time; chatters.	2.71	4.50	**-1.79**
56. Hints at deeper meaning that may be unclear to all but the speaker.	3.29	5.17	**-1.88**
44. Makes frequent and appropriate eye contact.	7.43	5.50	**1.93**
82. Asks for other people's opinions, ideas, and comments.	4.57	6.50	**-1.93**
55. Behaves in a feminine way.	3.86	1.83	**2.03**
10. Has a loud voice.	2.57	4.67	**-2.10**
9. Talks while others are talking.	2.14	4.33	**-2.19**

Appendix 25. Table of High versus Low Groups of Chatting for Communication Descriptors

Communication Descriptor	High	Low	Difference
57. Is inflexible; relates to everyone in the same way.	3.00	4.00	**-1.00**
89. Paraphrases or restates what other people say.	5.40	4.38	**1.02**
25. Communicates by acting out the message, both physically and verbally.	6.00	4.88	**1.12**
65. Complains or criticizes more often than most people.	3.00	4.13	**1.13**
93. Uses suggestions or vague hints to create an emotional response in others.	4.00	5.13	**-1.13**
1. Controls what gets talked about.	5.40	4.25	**1.15**
31. Insists that terms be carefully defined.	6.40	5.25	**1.15**
3. Tells jokes frequently or injects humor into the conversation.	6.20	5.00	**1.20**
37. Brings up topics in the right time and place.	7.20	6.00	**1.20**
56. Hints at deeper meaning that may be unclear to all but the speaker.	3.40	4.63	**-1.23**
62. Often asks questions.	5.40	6.63	**-1.23**
78. Behaves assertively.	4.60	5.88	**-1.28**
11. Gossips.	1.80	3.13	**-1.33**
81. Uses threats to gain compliance or cooperation form others.	1.80	3.13	**-1.33**
100. Tends to be liked and accepted by others.	5.40	6.75	**-1.35**

Communication Descriptor	High	Low	Difference
77. Chooses words which fit the subject and are appropriate for the audience.	7.00	5.63	**1.37**
10. Has a loud voice.	4.40	3.00	**1.40**
76. Limits responses to few words; answers questions with a simple yes" or "no.""	2.80	4.25	**-1.45**
5. Likes to tell stories or anecdotes.	6.00	4.50	**1.50**
59. Gives vague answers—does not take a stand.	3.00	4.50	**-1.50**
86. Uses repetitive phrases such as "you know."	3.00	4.50	**-1.50**
32. Chooses words carefully.	6.80	5.25	**1.55**
66. Seems to say the first thing that comes to mind.	3.20	4.75	**-1.55**
14. Avoids talking about personal problems.	3.60	5.25	**-1.65**
29. Winks at others during conversation.	1.40	3.13	**-1.73**
82. Asks for other people's opinions, ideas, and comments.	6.60	4.75	**1.85**
88. Tells personal fantasies, daydreams, and speculations.	3.00	4.88	**-1.88**
12. Smiles frequently.	5.40	7.38	**-1.98**
36. Picks up details in others' conversation.	7.20	5.13	**2.07**
28. Behaves in ways that are appropriate to his/her sex.	4.40	6.75	**-2.35**
13. Explains by using examples, analogies, or stories.	8.00	5.63	**2.37**
48. Mumbles and blends words together.	2.40	4.88	**-2.48**

Appendix 26. Table of High versus Low Groups of Supportive for Communication Descriptors

Communication Descriptor	High	Low	Difference
68. Shakes or shows nervousness when speaking.	3.00	4.00	**-1.00**
34. Smells pleasant.	8.25	7.22	**1.03**
29. Winks at others during conversation.	1.75	2.79	**-1.04**
37. Brings up topics in the right time and place.	5.75	6.79	**-1.04**
83. Talks for long periods of time; chatters.	2.75	3.89	**-1.14**
74. Uses terms of endearment or pet names when talking with others.	4.50	3.33	**1.17**
25. Communicates by acting out the message, both physically and verbally.	4.50	5.67	**-1.17**
54. Stares at others for unusually long periods of time.	1.50	2.67	**-1.17**
15. Overstates ideas or exaggerates them to emphasize a point.	3.25	4.44	**-1.19**
77. Chooses words which fit the subject and are appropriate for the audience.	7.00	5.78	**1.22**
8. Gives advice to others.	7.25	6.00	**1.25**
81. Uses threats to gain compliance or cooperation form others.	1.75	3.00	**-1.25**
73. Changes topic abruptly.	2.50	3.78	**-1.28**
48. Mumbles and blends words together.	3.00	4.33	**-1.33**
4. Laughs frequently.	5.50	6.89	**-1.39**
19. Shows attention by directing his/her body toward the speaker.	5.50	6.89	**-1.39**

Communication Descriptor	High	Low	Difference
26. Shows sensitivity to the feelings of others when conversing with them.	7.75	6.22	**1.53**
31. Insists that terms be carefully defined.	6.75	5.22	**1.53**
63. Has social poise and presence; appears socially at ease.	6.75	5.22	**1.53**
69. Disagrees frequently.	2.75	4.33	**-1.58**
51. Reacts to basically simple and clear-cut situations in complicated ways.	4.50	2.89	**1.61**
43. Behaves in a masculine way.	4.75	6.44	**-1.69**
65. Complains or criticizes more often than most people.	2.50	4.22	**-1.72**
93. Uses suggestions or vague hints to create an emotional response in others.	3.50	5.22	**-1.72**
89. Paraphrases or restates what other people say.	3.50	5.33	**-1.83**
36. Picks up details in others' conversation.	7.25	5.33	**1.92**
71. Is thin-skinned and sensitive to criticism.	4.75	2.78	**1.97**
2. Dominates others in conversation.	2.25	4.22	**-1.97**
6. Keeps people at a distance; avoids close interpersonal relationships.	5.00	3.00	**2.00**
40. Realizes when people don't understand, and tries to clarify.	7.25	5.22	**2.03**
44. Makes frequent and appropriate eye contact.	8.00	5.89	**2.11**
3. Tells jokes frequently or injects humor into the conversation.	4.00	6.11	**-2.11**
10. Has a loud voice.	2.00	4.22	**-2.22**
61. Uses sarcasm.	3.00	5.89	**-2.89**

Communication Descriptor	High	Low	Difference
55. Behaves in a feminine way.	5.00	2.00	**3.00**
5. Likes to tell stories or anecdotes.	3.00	6.00	**-3.00**

Appendix 27. Table of High versus Low Groups of Put-downs/Insults for Communication Descriptors

Communication Descriptor	High	Low	Difference
21. Avoids talking about emotions.	5.33	4.30	**1.03**
72. Takes the initiative; offers suggestions, information, or plans.	6.33	5.30	**1.03**
60. Blushes easily.	3.33	4.40	**-1.07**
23. Treats the other person as an equal.	7.00	8.10	**-1.10**
19. Shows attention by directing his/her body toward the speaker.	7.33	6.20	**1.13**
37. Brings up topics in the right time and place.	7.33	6.20	**1.13**
34. Smells pleasant.	6.67	7.80	**-1.13**
39. Behaves in a sympathetic or considerate manner.	6.67	5.50	**1.17**
27. Interrupts.	1.33	2.50	**-1.17**
94. Finishes sentences for other people.	3.00	4.20	**-1.20**
14. Avoids talking about personal problems.	3.67	4.90	**-1.23**
76. Limits responses to few words; answers questions with a simple yes" or "no.""	2.67	4.00	**-1.33**
2. Dominates others in conversation.	4.67	3.30	**1.37**
84. Is likely to blame or accuse.	1.33	2.70	**-1.37**
53. Listens intently and carefully.	8.00	6.60	**1.40**
91. Seems to be aware of the impression he/she makes on others.	7.00	5.60	**1.40**
13. Explains by using examples, analogies, or stories.	7.67	6.20	**1.47**
83. Talks for long periods of time; chatters.	4.67	3.20	**1.47**

Communication Descriptor	High	Low	Difference
32. Chooses words carefully.	7.00	5.50	**1.50**
69. Disagrees frequently.	5.00	3.50	**1.50**
77. Chooses words which fit the subject and are appropriate for the audience.	7.33	5.80	**1.53**
82. Asks for other people's opinions, ideas, and comments.	6.67	5.10	**1.57**
33. Nods head frequently while listening.	8.00	6.40	**1.60**
93. Uses suggestions or vague hints to create an emotional response in others.	6.00	4.30	**1.70**
95. Blurts out sentences.	1.67	3.40	**-1.73**
54. Stares at others for unusually long periods of time.	3.67	1.90	**1.77**
51. Reacts to basically simple and clear-cut situations in complicated ways.	2.00	3.80	**-1.80**
18. Gestures dramatically.	5.33	3.50	**1.83**
29. Winks at others during conversation.	1.00	2.90	**-1.90**
28. Behaves in ways that are appropriate to his/her sex.	4.33	6.30	**-1.97**
4. Laughs frequently.	8.00	6.00	**2.00**
89. Paraphrases or restates what other people say.	6.33	4.30	**2.03**
25. Communicates by acting out the message, both physically and verbally.	7.00	4.80	**2.20**
74. Uses terms of endearment or pet names when talking with others.	2.00	4.20	**-2.20**
15. Overstates ideas or exaggerates them to emphasize a point.	2.33	4.60	**-2.27**
44. Makes frequent and appropriate eye contact.	4.67	7.10	**-2.43**

Communication Descriptor	High	Low	Difference
5. Likes to tell stories or anecdotes.	7.00	4.50	**2.50**
59. Gives vague answers--does not take a stand.	2.00	4.50	**-2.50**
12. Smiles frequently.	4.67	7.20	**-2.53**
61. Uses sarcasm.	7.00	4.40	**2.60**
10. Has a loud voice.	5.67	2.90	**2.77**
3. Tells jokes frequently or injects humor into the conversation.	8.00	4.70	**3.30**

Appendix 28. Table of Low versus High SPCC scores for Communication Descriptors

Communication Descriptor	Low	High	Difference
11. Gossips.	3.33	2.33	**1.00**
17. Appears drained of energy and listless.	3.33	2.33	**1.00**
52. Has a whining tone of voice.	2.67	1.67	**1.00**
62. Often asks questions.	7.00	6.00	**1.00**
71. Is thin-skinned and sensitive to criticism.	3.33	2.33	**1.00**
80. Occasionally contributes irrelevant comments during a conversation.	4.33	3.33	**1.00**
26. Shows sensitivity to the feelings of others when conversing with them.	5.67	6.67	**-1.00**
46. Speaks abruptly with a staccato rhythm.	3.33	4.33	**-1.00**
58. Does not match facial expressions to the emotional content of the message.	2.33	3.33	**-1.00**
72. Takes the initiative; offers suggestions, information, or plans.	4.67	5.67	**-1.00**
82. Asks for other people's opinions, ideas, and comments.	5.33	6.33	**-1.00**
91. Seems to be aware of the impression he/she makes on others.	5.67	6.67	**-1.00**
99. Agrees with others in a conversation to make a good impression on them.	4.00	5.00	**-1.00**
1. Controls what gets talked about.	5.33	4.00	**1.33**

Communication Descriptor	Low	High	Difference
6. Keeps people at a distance; avoids close interpersonal relationships.	3.33	2.00	**1.33**
57. Is inflexible; relates to everyone in the same way.	4.00	2.67	**1.33**
77. Chooses words which fit the subject and are appropriate for the audience.	5.67	7.00	**-1.33**
20. Uses facial expressions and/or meaningful gestures.	7.67	6.33	**1.34**
24. Is forceful with people of lower rank or status.	3.67	2.33	**1.34**
55. Behaves in a feminine way.	2.67	1.33	**1.34**
94. Finishes sentences for other people.	4.67	3.33	**1.34**
15. Overstates ideas or exaggerates them to emphasize a point.	3.33	4.67	**-1.34**
36. Picks up details in others' conversation.	5.33	6.67	**-1.34**
40. Realizes when people don't understand, and tries to clarify.	5.33	6.67	**-1.34**
41. Is the sort of person who will admit to being wrong.	5.33	6.67	**-1.34**
29. Winks at others during conversation.	3.33	1.67	**1.66**
54. Stares at others for unusually long periods of time.	3.33	1.67	**1.66**
97. Reminds others to follow through with their duties and obligations.	4.67	6.33	**-1.66**
61. Uses sarcasm.	7.00	5.33	**1.67**
74. Uses terms of endearment or pet names when talking with others.	3.67	2.00	**1.67**
75. Answers a question with another question.	4.67	3.00	**1.67**
30. Expresses ideas well, speaks easily and smoothly.	5.00	6.67	**-1.67**

Communication Descriptor	Low	High	Difference
33. Nods head frequently while listening.	5.33	7.00	**-1.67**
56. Hints at deeper meaning that may be unclear to all but the speaker.	5.00	3.00	**2.00**
59. Gives vague answers--does not take a stand.	5.33	3.33	**2.00**
65. Complains or criticizes more often than most people.	5.00	3.00	**2.00**
68. Shakes or shows nervousness when speaking.	5.00	3.00	**2.00**
88. Tells personal fantasies, daydreams, and speculations.	5.67	3.67	**2.00**
8. Gives advice to others.	5.33	7.33	**-2.00**
13. Explains by using examples, analogies, or stories.	5.67	7.67	**-2.00**
16. Tells the same events or stories again and again.	2.33	4.33	**-2.00**
22. Intellectualizes and tries to reason through a topic.	5.67	7.67	**-2.00**
32. Chooses words carefully.	4.67	6.67	**-2.00**
34. Smells pleasant.	6.00	8.00	**-2.00**
44. Makes frequent and appropriate eye contact.	5.67	7.67	**-2.00**
87. Is calm and relaxed in manner.	5.00	7.00	**-2.00**
90. Compliments others.	4.67	6.67	**-2.00**
28. Behaves in ways that are appropriate to his/her sex.	7.33	5.00	**2.33**
67. Plays with clothes, hair, hands, or objects while talking or listening.	6.00	3.67	**2.33**
83. Talks for long periods of time; chatters.	5.00	2.67	**2.33**
98. Attends to other things such as TV or work, while involved in a conversation.	5.00	2.67	**2.33**
35. Is quick to challenge or object.	3.67	6.00	**-2.33**

Communication Descriptor	Low	High	Difference
18. Gestures dramatically.	5.67	3.33	**2.34**
95. Blurts out sentences.	4.67	2.33	**2.34**
45. Appears confident and sure that he/she is right.	4.67	7.33	**-2.66**
85. Likes to follow rather than lead; accepts authority.	5.67	3.00	**2.67**
7. Starts conversations.	5.00	7.67	**-2.67**
4. Laughs frequently.	9.00	6.00	**3.00**
60. Blushes easily.	6.00	3.00	**3.00**
50. Has a soft voice which may be hard to hear at times.	6.33	2.00	**4.33**
48. Mumbles and blends words together.	7.33	1.67	**5.66**

Appendix 29. Learning Style Inventory Mode Groups

Highest Mean Score, Group 1. Active Experimentation

Participant	Highest Mean Score	Lowest Mean Score
Participant One	Active Experimentation	Concrete Experience
Participant Two	Active Experimentation	Concrete Experience and Abstract Conceptualization
Participant Four	Active Experimentation	Abstract Conceptualization
Participant Five	Active Experimentation	Concrete Experience and Abstract Conceptualization
Participant Seven	Active Experimentation	Concrete Experience
Participant Eight	Active Experimentation	Abstract Conceptualization
Participant Nine	Active Experimentation	Reflective Observation
Participant Eleven	Active Experimentation	Reflective Observation

Lowest Mean Score, Group 2. Active Experimentation

Participant	Highest Mean Score	Lowest Mean Score
Participant Ten	Concrete Experience and Abstract Conceptualization	Active Experimentation

Highest Mean Score, Group 3. Abstract Conceptualization

Participant	Highest Mean Score	Lowest Mean Score
Participant Three	Abstract Conceptualization	Reflective Observation
Participant Ten	Concrete Experience and Abstract Conceptualization	Active Experimentation
Participant Twelve	Abstract Conceptualization	Concrete Experience
Participant Thirteen	Abstract Conceptualization	Concrete Experience

Lowest Mean Score, Group 4. Abstract Conceptualization

Participant	Highest Mean Score	Lowest Mean Score
Participant Two	Active Experimentation	Concrete Experience and Abstract Conceptualization
Participant Four	Active Experimentation	Abstract Conceptualization
Participant Five	Active Experimentation	Concrete Experience and Abstract Conceptualization
Participant Eight	Active Experimentation	Abstract Conceptualization

Highest Mean Score, Group 5. Reflective Observation

Participant	Highest Mean Score	Lowest Mean Score
Participant Six	Reflective Observation	Concrete Experience

Lowest Mean Score, Group 6. Reflective Observation

Participant	Highest Mean Score	Lowest Mean Score
Participant Three	Abstract Conceptualization	Reflective Observation
Participant Nine	Active Experimentation	Reflective Observation
Participant Eleven	Active Experimentation	Reflective Observation

Highest Mean Score, Group 7. Concrete Experience

Participant	Highest Mean Score	Lowest Mean Score
Participant Ten	Concrete Experience and Abstract Conceptualization	Active Experimentation

Lowest Mean Score, Group 8. Concrete Experience

Participant	Highest Mean Score	Lowest Mean Score
Participant One	Active Experimentation	Concrete Experience
Participant Two	Active Experimentation	Concrete Experience and Abstract Conceptualization
Participant Five	Active Experimentation	Concrete Experience and Abstract Conceptualization
Participant Six	Reflective Observation	Concrete Experience
Participant Seven	Active Experimentation	Concrete Experience
Participant Twelve	Abstract Conceptualization	Concrete Experience
Participant Thirteen	Abstract Conceptualization	Concrete Experience

Appendix 30. Tables of Lowest and Highest Mean Scores for Active Experimentation

Group 1. Lowest Mean Scores for Communication Descriptors

Communication Descriptor	Mean Score
27. Interrupts.	**2.00**
84. Is likely to blame or accuse.	**2.13**
11. Gossips.	**2.25**
24. Is forceful with people of lower rank or status.	**2.38**
49. Touches others during conversation.	**2.50**
54. Stares at others for unusually long periods of time.	**2.50**
9. Talks while others are talking.	**2.63**
47. Attempts to impress others or manipulate them through deception.	**2.63**
52. Has a whining tone of voice.	**2.75**
58. Does not match facial expressions to the emotional content of the message.	**2.75**
95. Blurts out sentences.	**2.75**

Group 1. Highest Mean Scores for Communication Descriptors

Communication Descriptor	**Mean Score**
8. Gives advice to others.	**6.63**
26. Shows sensitivity to the feelings of others when conversing with them.	**6.63**
37. Brings up topics in the right time and place.	**6.63**
44. Makes frequent and appropriate eye contact.	**6.63**
19. Shows attention by directing his/her body toward the speaker.	**7.25**
4. Laughs frequently.	**7.38**
42. Is sociable—likes to be with others.	**7.38**
33. Nods head frequently while listening.	**7.50**
53. Listens intently and carefully.	**7.63**
23. Treats the other person as an equal.	**7.75**
34. Smells pleasant.	**7.75**

Appendix 31. Tables of Lowest and Highest Mean Scores for Abstract Conceptualization

Group 3. Lowest Mean Scores for Communication Descriptors

Communication Descriptor	Mean Score
55. Behaves in a feminine way.	**1.25**
29. Winks at others during conversation.	**1.50**
47. Attempts to impress others or manipulate them through deception.	**1.50**
52. Has a whining tone of voice.	**1.50**
49. Touches others during conversation.	**1.75**
54. Stares at others for unusually long periods of time.	**2.00**
81. Uses threats to gain compliance or cooperation form others.	**2.00**
27. Interrupts.	**2.50**
6. Keeps people at a distance; avoids close interpersonal relationships.	**2.75**
17. Appears drained of energy and listless.	**2.75**
24. Is forceful with people of lower rank or status.	**2.75**
65. Complains or criticizes more often than most people.	**2.75**
68. Shakes or shows nervousness when speaking.	**2.75**
71. Is thin-skinned and sensitive to criticism.	**2.75**
84. Is likely to blame or accuse.	**2.75**

Group 3. Highest Mean Scores for Communication Descriptors

Communication Descriptor	Mean Score
38. Recognizes and verbally acknowledges other's contribution to the conversation.	**6.25**
39. Behaves in a sympathetic or considerate manner.	**6.25**
43. Behaves in a masculine way.	**6.25**
44. Makes frequent and appropriate eye contact.	**6.25**
77. Chooses words which fit the subject and are appropriate for the audience.	**6.25**
82. Asks for other people's opinions, ideas, and comments.	**6.25**
87. Is calm and relaxed in manner.	**6.25**
37. Brings up topics in the right time and place.	**6.50**
41. Is the sort of person who will admit to being wrong.	**6.75**
12. Smiles frequently.	**7.00**
34. Smells pleasant.	**7.00**
13. Explains by using examples, analogies, or stories.	**7.25**
26. Shows sensitivity to the feelings of others when conversing with them.	**7.25**
42. Is sociable—likes to be with others.	**7.25**
22. Intellectualizes and tries to reason through a topic.	**8.00**
23. Treats the other person as an equal.	**8.00**

Appendix 32. Tables of Lowest and Highest Mean Scores for Reflective Observation

Group 5. Lowest Mean Scores for Communication Descriptors

Communication Descriptor	Mean Score
17. Appears drained of energy and listless.	**2.00**
24. Is forceful with people of lower rank or status.	**2.00**
29. Winks at others during conversation.	**2.00**
50. Has a soft voice which may be hard to hear at times.	**2.00**
54. Stares at others for unusually long periods of time.	**2.00**
55. Behaves in a feminine way.	**2.00**
74. Uses terms of endearment or pet names when talking with others.	**2.00**
95. Blurts out sentences.	**2.00**

Group 5. Highest Mean Scores for Communication Descriptors

Communication Descriptor	Mean Score
40. Realizes when people don't understand, and tries to clarify.	**7.00**
42. Is sociable—likes to be with others.	**7.00**
44. Makes frequent and appropriate eye contact.	**7.00**
45. Appears confident and sure that he/she is right.	**7.00**
77. Chooses words which fit the subject and are appropriate for the audience.	**7.00**
87. Is calm and relaxed in manner.	**7.00**
96. Lets people make their own decisions.	**7.00**
22. Intellectualizes and tries to reason through a topic.	**8.00**
23. Treats the other person as an equal.	**8.00**
34. Smells pleasant.	**8.00**

Appendix 33. Tables of Lowest and Highest Mean Scores for Concrete Experience

Group 7. Lowest Mean Scores for Communication Descriptors

Communication Descriptor	Mean Score
24. Is forceful with people of lower rank or status.	**1.00**
29. Winks at others during conversation.	**1.00**
11. Gossips.	**2.00**
27. Interrupts.	**2.00**
47. Attempts to impress others or manipulate them through deception.	**2.00**
48. Mumbles and blends words together.	**2.00**
52. Has a whining tone of voice.	**2.00**
54. Stares at others for unusually long periods of time.	**2.00**
55. Behaves in a feminine way.	**2.00**
60. Blushes easily.	**2.00**
85. Likes to follow rather than lead; accepts authority.	**2.00**
86. Uses repetitive phrases such as “you know.”	**2.00**

Group 7. Highest Mean Scores for Communication Descriptors

Communication Descriptor	Mean Score
12. Smiles frequently.	**7.00**
13. Explains by using examples, analogies, or stories.	**7.00**
32. Chooses words carefully.	**7.00**
33. Nods head frequently while listening.	**7.00**
34. Smells pleasant.	**7.00**
39. Behaves in a sympathetic or considerate manner.	**7.00**
41. Is the sort of person who will admit to being wrong.	**7.00**
1. Controls what gets talked about.	**8.00**
22. Intellectualizes and tries to reason through a topic.	**8.00**
23. Treats the other person as an equal.	**8.00**
26. Shows sensitivity to the feelings of others when conversing with them.	**8.00**

Appendix 34. Tables of Unique Communication Descriptors for Learning Style Mode Groups, Highest and Lowest Mean Scores

Group 1. Active Experimentation Communication Descriptors

Communication Descriptor	Mean Score
9. Talks while others are talking.	**2.63**
58. Does not match facial expressions to the emotional content of the message.	**2.75**
8. Gives advice to others.	**6.63**
19. Shows attention by directing his/her body toward the speaker.	**7.25**
4. Laughs frequently.	**7.38**
53. Listens intently and carefully.	**7.63**

Group 3. Abstract Conceptualization Communication Descriptors

Communication Descriptor	Mean Score
81. Uses threats to gain compliance or cooperation form others.	**2.00**
6. Keeps people at a distance; avoids close interpersonal relationships.	**2.75**
17. Appears drained of energy and listless.	**2.75**
65. Complains or criticizes more often than most people.	**2.75**
68. Shakes or shows nervousness when speaking.	**2.75**
71. Is thin-skinned and sensitive to criticism.	**2.75**
38. Recognizes and verbally acknowledges other's contribution to the conversation.	**6.25**
43. Behaves in a masculine way.	**6.25**
82. Asks for other people's opinions, ideas, and comments.	**6.25**

Group 5. Reflective Observation Communication Descriptors

Communication Descriptor	Mean Score
17. Appears drained of energy and listless.	**2.00**
50. Has a soft voice which may be hard to hear at times.	**2.00**
74. Uses terms of endearment or pet names when talking with others.	**2.00**
40. Realizes when people don't understand, and tries to clarify.	**7.00**
45. Appears confident and sure that he/she is right.	**7.00**
96. Lets people make their own decisions.	**7.00**

Group 7. Concrete Experience Communication Descriptors

Communication Descriptor	Mean Score
48. Mumbles and blends words together.	**2.00**
60. Blushes easily.	**2.00**
85. Likes to follow rather than lead; accepts authority.	**2.00**
86. Uses repetitive phrases such as “you know.”	**2.00**
32. Chooses words carefully.	**7.00**
1. Controls what gets talked about.	**8.00**
26. Shows sensitivity to the feelings of others when conversing with them.	**8.00**

Appendix 35. Table of Highest Mean Scores for Active Experimentation versus Other Participants

Communication Descriptor	Group 1	Other	Difference
70. Expresses hostile feelings directly.	4.00	3.00	**1.00**
28. Behaves in ways that are appropriate to his/her sex.	6.25	5.20	**1.05**
5. Likes to tell stories or anecdotes.	5.50	4.40	**1.10**
68. Shakes or shows nervousness when speaking.	4.13	3.00	**1.13**
74. Uses terms of endearment or pet names when talking with others.	4.13	3.00	**1.13**
48. Mumbles and blends words together.	4.38	3.20	**1.18**
85. Likes to follow rather than lead; accepts authority.	4.38	3.20	**1.18**
60. Blushes easily.	4.63	3.40	**1.23**
58. Does not match facial expressions to the emotional content of the message.	2.75	4.00	**-1.25**
51. Reacts to basically simple and clear-cut situations in complicated ways.	2.88	4.20	**-1.32**
6. Keeps people at a distance; avoids close interpersonal relationships.	4.13	2.80	**1.33**
9. Talks while others are talking.	2.63	4.00	**-1.37**
97. Reminds others to follow through with their duties and obligations.	6.38	5.00	**1.38**
3. Tells jokes frequently or injects humor into the conversation.	6.00	4.60	**1.40**
29. Winks at others during conversation.	3.00	1.60	**1.40**

Communication Descriptor	Group 1	Other	Difference
22. Intellectualizes and tries to reason through a topic.	6.50	8.00	**-1.50**
61. Uses sarcasm.	5.63	4.00	**1.63**
56. Hints at deeper meaning that may be unclear to all but the speaker.	3.50	5.20	**-1.70**
53. Listens intently and carefully.	7.63	5.80	**1.83**
33. Nods head frequently while listening.	7.50	5.60	**1.90**
19. Shows attention by directing his/her body toward the speaker.	7.25	5.20	**2.05**
4. Laughs frequently.	7.38	5.00	**2.38**
55. Behaves in a feminine way.	3.88	1.40	**2.48**

Appendix 36. Tables of Highest and Lowest Mean Scores for Abstract Conceptualization versus Other Participants

Group 3. High Abstract Conceptualization versus Other Participants

Communication Descriptor	Group 3	Other	Difference
13. Explains by using examples, analogies, or stories.	7.25	6.22	**1.03**
3. Tells jokes frequently or injects humor into the conversation.	4.75	5.78	**-1.03**
95. Blurts out sentences.	3.75	2.67	**1.08**
82. Asks for other people's opinions, ideas, and comments.	6.25	5.11	**1.14**
47. Attempts to impress others or manipulate them through deception.	1.50	2.67	**-1.17**
59. Gives vague answers--does not take a stand.	4.75	3.56	**1.19**
94. Finishes sentences for other people.	4.75	3.56	**1.19**
9. Talks while others are talking.	4.00	2.78	**1.22**
28. Behaves in ways that are appropriate to his/her sex.	5.00	6.22	**-1.22**
97. Reminds others to follow through with their duties and obligations.	5.00	6.22	**-1.22**
6. Keeps people at a distance; avoids close interpersonal relationships.	2.75	4.00	**-1.25**
52. Has a whining tone of voice.	1.50	2.78	**-1.28**
60. Blushes easily.	3.25	4.56	**-1.31**
88. Tells personal fantasies, daydreams, and speculations.	3.25	4.56	**-1.31**

Communication Descriptor	Group 3	Other	Difference
22. Intellectualizes and tries to reason through a topic.	8.00	6.67	**1.33**
65. Complains or criticizes more often than most people.	2.75	4.11	**-1.36**
68. Shakes or shows nervousness when speaking.	2.75	4.11	**-1.36**
29. Winks at others during conversation.	1.50	2.89	**-1.39**
61. Uses sarcasm.	4.00	5.44	**-1.44**
58. Does not match facial expressions to the emotional content of the message.	4.25	2.78	**1.47**
33. Nods head frequently while listening.	5.75	7.22	**-1.47**
5. Likes to tell stories or anecdotes.	4.00	5.56	**-1.56**
56. Hints at deeper meaning that may be unclear to all but the speaker.	5.25	3.67	**1.58**
51. Reacts to basically simple and clear-cut situations in complicated ways.	4.50	2.89	**1.61**
53. Listens intently and carefully.	5.75	7.44	**-1.69**
4. Laughs frequently.	5.25	7.00	**-1.75**
19. Shows attention by directing his/her body toward the speaker.	5.00	7.11	**-2.11**
55. Behaves in a feminine way.	1.25	3.67	**-2.42**

Group 4. Low Abstract Conceptualization versus Other Participants

Communication Descriptor	Group 4	Other	Difference
25. Communicates by acting out the message, both physically and verbally.	6.00	5.00	**1.00**
63. Has social poise and presence; appears socially at ease.	5.00	6.00	**-1.00**
93. Uses suggestions or vague hints to create an emotional response in others.	4.00	5.00	**-1.00**
10. Has a loud voice.	4.25	3.22	**1.03**
13. Explains by using examples, analogies, or stories.	7.25	6.22	**1.03**
92. Can be judgmental.	3.75	4.78	**-1.03**
33. Nods head frequently while listening.	7.50	6.44	**1.06**
39. Behaves in a sympathetic or considerate manner.	5.00	6.11	**-1.11**
89. Paraphrases or restates what other people say.	4.00	5.11	**-1.11**
4. Laughs frequently.	7.25	6.11	**1.14**
29. Winks at others during conversation.	3.25	2.11	**1.14**
37. Brings up topics in the right time and place.	7.25	6.11	**1.14**
31. Insists that terms be carefully defined.	6.50	5.33	**1.17**
68. Shakes or shows nervousness when speaking.	4.50	3.33	**1.17**
79. Behaves in a fast-paced way; acts quickly.	5.00	6.22	**-1.22**
14. Avoids talking about personal problems.	3.75	5.00	**-1.25**
50. Has a soft voice which may be hard to hear at times.	4.50	3.22	**1.28**
62. Often asks questions.	5.25	6.56	**-1.31**
54. Stares at others for unusually long periods of time.	3.25	1.89	**1.36**
1. Controls what gets talked about.	3.75	5.11	**-1.36**

Communication Descriptor	Group 4	Other	Difference
26. Shows sensitivity to the feelings of others when conversing with them.	5.75	7.11	**-1.36**
83. Talks for long periods of time; chatters.	4.50	3.11	**1.39**
38. Recognizes and verbally acknowledges other's contribution to the conversation.	7.25	5.78	**1.47**
74. Uses terms of endearment or pet names when talking with others.	4.75	3.22	**1.53**
76. Limits responses to few words; answers questions with a simple yes" or "no.""	4.75	3.22	**1.53**
85. Likes to follow rather than lead; accepts authority.	5.00	3.44	**1.56**
22. Intellectualizes and tries to reason through a topic.	6.00	7.56	**-1.56**
60. Blushes easily.	5.25	3.67	**1.58**
98. Attends to other things such as TV or work, while involved in a conversation.	4.75	3.11	**1.64**
91. Seems to be aware of the impression he/she makes on others.	4.75	6.44	**-1.69**
82. Asks for other people's opinions, ideas, and comments.	4.25	6.00	**-1.75**
18. Gestures dramatically.	5.25	3.33	**1.92**
7. Starts conversations.	4.25	6.22	**-1.97**
48. Mumbles and blends words together.	5.50	3.22	**2.28**
55. Behaves in a feminine way.	4.50	2.22	**2.28**
87. Is calm and relaxed in manner.	4.25	6.56	**-2.31**
6. Keeps people at a distance; avoids close interpersonal relationships.	5.25	2.89	**2.36**

Appendix 37. Table of Lowest Mean Scores for Reflective Observation versus Other Participants

Communication Descriptor	Group 6	Other	Difference
21. Avoids talking about emotions.	5.33	4.30	**1.03**
32. Chooses words carefully.	6.67	5.60	**1.07**
46. Speaks abruptly with a staccato rhythm.	4.67	3.60	**1.07**
97. Reminds others to follow through with their duties and obligations.	6.67	5.60	**1.07**
77. Chooses words which fit the subject and are appropriate for the audience.	7.00	5.90	**1.10**
28. Behaves in ways that are appropriate to his/her sex.	5.00	6.10	**-1.10**
19. Shows attention by directing his/her body toward the speaker.	7.33	6.20	**1.13**
44. Makes frequent and appropriate eye contact.	5.67	6.80	**-1.13**
39. Behaves in a sympathetic or considerate manner.	6.67	5.50	**1.17**
93. Uses suggestions or vague hints to create an emotional response in others.	5.57	4.40	**1.17**
30. Expresses ideas well, speaks easily and smoothly.	7.00	5.80	**1.20**
57. Is inflexible; relates to everyone in the same way.	2.67	3.90	**-1.23**
25. Communicates by acting out the message, both physically and verbally.	6.33	5.00	**1.33**
74. Uses terms of endearment or pet names when talking with others.	2.67	4.00	**-1.33**
76. Limits responses to few words; answers questions with a simple yes" or "no.""	2.67	4.00	**-1.33**

Communication Descriptor	Group 6	Other	Difference
70. Expresses hostile feelings directly.	4.67	3.30	**1.37**
90. Compliments others.	6.67	5.30	**1.37**
13. Explains by using examples, analogies, or stories.	7.67	6.20	**1.47**
72. Takes the initiative; offers suggestions, information, or plans.	6.67	5.20	**1.47**
29. Winks at others during conversation.	1.33	2.80	**-1.47**
69. Disagrees frequently.	5.00	3.50	**1.50**
56. Hints at deeper meaning that may be unclear to all but the speaker.	3.00	4.50	**-1.50**
41. Is the sort of person who will admit to being wrong.	7.33	5.80	**1.53**
37. Brings up topics in the right time and place.	7.67	6.10	**1.57**
35. Is quick to challenge or object.	6.00	4.40	**1.60**
5. Likes to tell stories or anecdotes.	6.33	4.70	**1.63**
59. Gives vague answers--does not take a stand.	2.67	4.30	**-1.63**
85. Likes to follow rather than lead; accepts authority.	2.67	4.30	**-1.63**
50. Has a soft voice which may be hard to hear at times.	2.33	4.00	**-1.67**
61. Uses sarcasm.	6.33	4.60	**1.73**
45. Appears confident and sure that he/she is right.	7.67	5.90	**1.77**
71. Is thin-skinned and sensitive to criticism.	2.00	3.80	**-1.80**
43. Behaves in a masculine way.	7.33	5.50	**1.83**
91. Seems to be aware of the impression he/she makes on others.	7.33	5.50	**1.83**
82. Asks for other people's opinions, ideas, and comments.	7.00	5.00	**2.00**

Communication Descriptor	Group 6	Other	Difference
33. Nods head frequently while listening.	8.33	6.30	**2.03**
6. Keeps people at a distance; avoids close interpersonal relationships.	2.00	4.10	**-2.10**
7. Starts conversations.	7.33	5.10	**2.23**
87. Is calm and relaxed in manner.	7.67	5.30	**2.37**
60. Blushes easily.	2.33	4.70	**-2.37**
89. Paraphrases or restates what other people say.	6.67	4.20	**2.47**
48. Mumbles and blends words together.	2.00	4.50	**-2.50**
55. Behaves in a feminine way.	1.00	3.50	**-2.50**
3. Tells jokes frequently or injects humor into the conversation.	7.67	4.80	**2.87**

Appendix 38. Table of Lowest Mean Scores for Concrete Experience versus Other Participants

Communication Descriptor	Group 8	Other	Difference
10. Has a loud voice.	4.00	3.00	**1.00**
83. Talks for long periods of time; chatters.	4.00	3.00	**1.00**
71. Is thin-skinned and sensitive to criticism.	3.86	2.83	**1.03**
7. Starts conversations.	5.14	6.17	**-1.03**
86. Uses repetitive phrases such as "you know."	3.43	4.50	**-1.07**
59. Gives vague answers--does not take a stand.	4.43	3.33	**1.10**
67. Plays with clothes, hair, hands, or objects while talking or listening.	4.43	3.33	**1.10**
85. Likes to follow rather than lead; accepts authority.	4.43	3.33	**1.10**
50. Has a soft voice which may be hard to hear at times.	4.14	3.00	**1.14**
13. Explains by using examples, analogies, or stories.	6.00	7.17	**-1.17**
20. Uses facial expressions and/or meaningful gestures.	6.71	5.50	**1.21**
88. Tells personal fantasies, daydreams, and speculations.	4.71	3.50	**1.21**
65. Complains or criticizes more often than most people.	4.29	3.00	**1.29**
39. Behaves in a sympathetic or considerate manner.	5.14	6.50	**-1.36**
92. Can be judgmental.	5.14	3.67	**1.47**
26. Shows sensitivity to the feelings of others when conversing with them.	6.00	7.50	**-1.50**

Communication Descriptor	Group 8	Other	Difference
56. Hints at deeper meaning that may be unclear to all but the speaker.	4.86	3.33	**1.53**
29. Winks at others during conversation.	3.23	1.50	**1.73**
41. Is the sort of person who will admit to being wrong.	5.29	7.17	**-1.88**
3. Tells jokes frequently or injects humor into the conversation.	4.57	6.50	**-1.93**
48. Mumbles and blends words together.	4.86	2.83	**2.03**
33. Nods head frequently while listening.	5.71	8.00	**-2.29**
60. Blushes easily.	5.29	2.83	**2.46**