8-2008

Exploring Expression-Based Apprehension in Online and Traditional Sections of a General Education, Introductory Communication Course.

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A thesis
presented to
the faculty of the Department of Communication
East Tennessee State University

In partial fulfillment
of the requirements for the degree
Master of Arts in Professional Communication

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by
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August 2008

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Keywords: Communication Apprehension, Receiver Apprehension, Writing Apprehension, Computer Apprehension, Online Education, Basic Communication Course

ABSTRACT

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Apprehension negatively impacts student learning. As online and hybrid communication courses continue to be offered it is important to expand and update research regarding the following constructs: communication apprehension, receiver apprehension, writing apprehension, and computer apprehension. This study examines correlations between and among these constructs, differences by gender and course format, and changes between pre- and posttest results. Students enrolled in traditional and online sections of a basic communication course completed pre- and posttests consisting of a demographic survey, the Personal Report of Communication Apprehension, the Receiver Apprehension Test, the Writing Apprehension Test, and the Computer and Web Attitude Scale. Results suggest positive and negative correlations between and among various constructs, differences in apprehension levels based on gender and format, and various changes between pre- and posttests. Research on expression-based apprehension is important to improve pedagogical practices and encourage the development of communication skills regardless of course format.

DEDICATION

This thesis is dedicated to the following people:

My mother, Elizabeth M. Bailey, and my father, Kenneth R. Bailey, for their love and support through every step I take. I am blessed to have such wonderful parents, role models, guides, and friends all in one. I love you!

And to Dr. Patti Cutspec for all her devotion and dedication to getting me through the process, especially in those times when I questioned myself. It has been a pleasure working with you, and I couldn't have asked for a better mentor, instructor, or friend. As always Patti, thank you for everything you do!

ACKNOWLEDGEMENTS

I wish to offer my sincerest thanks and appreciation to (and for) the following individuals, without whom I would never have made it this far.

Sherry L. Dale, my good friend and roommate, for putting up with me all these years and for all her patience and support in completing this thesis.

My committee, Dr. Karin Bartszuk, for all her assistance and patience with data analysis and statistics; Dr. Wesley Buerkle, for his guidance and editing/(re)vision; and Dr. Patti Cutspec, for her support and guidance in all ways. Without the three of you I would never have made it this far – thank you!

The instructors of General Speech, especially the SPCH 1300 online crew during the fall 2006 – Ashlee, Danielle, Miriam, Sherry, and Wes; the 1300 classroom teachers who let me "borrow" their students and class time – Angie, Carl, John, Stacy. Adriane for your experience and advise during spring 2007 and beyond. All of the students help me out with this thesis by participating despite the length – many thanks!

My professors and colleagues in both departments (Professional Communication and Counseling) for a wonderful and eye opening experience at ETSU. And a special thank you to Dr. Roberts, for your belief in me and the opportunity to be a part of the department, and Dr. Mooney for all you do to take care of students in the department.

My family and friends (especially Shane, Kaylon, and Allison) for all their patience and understanding – I love you! My Father for the opportunities and countless other blessings in my life.

And last but not least, Elly (Ellywick) for holding me in my computer chair at points and allowing much needed hugs at others, and Otter for putting up with me.

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CHAPTER 1

INTRODUCTION

Various research has been conducted to examine the effects of anxiety on student learning, and the field of communication is no exception. Knowledge of student anxiety may be useful in modifying courses and instruction to increase student learning and improve class outcomes. However, contemporary research seems to be at a standstill as to where to go next with this information, and little information is available in relation to how various communication-related apprehensions relate to online courses.

This study examines the constructs of communication apprehension, receiver apprehension, writing apprehension, and computer apprehension in online and traditional (classroom-based) communication class formats. Little research has been done to connect these potential variables; however, this thesis is an effort to bridge the gap through an examination of the following: (1) communication apprehension (McCroskey, 1977a, 1977b, 1997; Richmond & McCroskey, 1997), (2) receiver apprehension (Ayres, Wilcox, & Ayres, 1995; Wheeless, 1975), (3) writing apprehension (Daly & Miller, 1975b; Mabrito, 2000), (4) computer apprehension (Chua, Chen, & Wong, 1999; Liaw, 2002; Thompson, Higgins, & Howell, 1991; Weil, Rosen, & Wugalter, 1990), (5) online education environments (Clark & Jones, 2001; Ko & Rossen, 2004), and (6) traditional education environments (El Mansour & Mupinga, 2007; Kelsey, 2000; Mattes, Nanney, & Coussons-Read, 2003).

Literature Review

Communication Apprehension

Communication apprehension (CA) is sometimes referred to or linked with reticence (Phillips, 1977, 1980; Phillips & Sokoloff, 1979), shyness (Zimbardo, 1977; Zimbardo, Pilkonis,

& Norwood, 1975), willingness to communicate (Burgoon, 1976), stage fright (McCroskey, 1977b), or speech anxiety (Ayers & Hopf, 1993). However, for the purpose of this investigation, CA is defined as "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons" (McCroskey, 1977b, p. 78). Despite McCroskey's intended expansion from spoken to all forms of communication, research and measurements of communication apprehension – including McCroskey's own Personal Report of Communication Personal Report of Communication Apprehension (PRCA-24) – are "restricted to oral" communication apprehension (McCroskey, 1997, p. 83).

Oral communication is considered in terms of four different communication contexts – small groups, meetings, interpersonal dyads, and public speaking – with subscores from each situational context considered in total to create an overall level of apprehension (McCroskey, Beatty, Kearney, & Plax, 1985; McCroskey & Richmond, 1982). Thus, when measuring CA, investigators look for predispositions within individual situations and across all contexts. These four contexts are considered most relevant to communication apprehension, although not presumed exhaustive (McCroskey et al.; McCroskey & Richmond, 1982).

Different Types of Communication Apprehension

History and development. The conceptualization of the communication apprehension construct over the past 30 years has changed from seeing CA as a personality trait to points along a continuum, back to an emphasis on trait-like CA, and even into psychobiological terms. In 1977, communication apprehension was first defined by McCroskey as "a trait of the individual which has many implications for the person's everyday life" (McCroskey, 1977b, p. 79), although the construct was expanded to incorporate a state version of apprehension based on the situation.

Trait-like and state-like communication apprehension. Distinctions between and among CA are thought of as a continuum of four different types of communication apprehension: trait-like, generalized-context, person-group, and situational (McCroskey, 1997). On one end of the continuum is trait-like communication apprehension, which is based on the premise that the origin of the apprehension is a person's predisposition for communication, whether this predisposition is toward or away from communicating (McCroskey, 1977b, 1997; McCroskey & Richmond, 1982). Thus, regardless of the context or circumstance, the individual will display a "relatively enduring, personality-type orientation" (McCroskey, 1997, p. 85) and generally communicate in a similar pattern. For example, a person may feel as anxious and have trouble verbalizing thoughts when speaking one-on-one as he or she feels speaking in front of a class.

Generalized-context communication apprehension. The next point on the continuum is generalized-context communication apprehension. Generalized-context CA is where a person displays apprehension based on a particular situational context (McCroskey, 1977b, 1997; McCroskey & Richmond, 1982). A common example of generalized-context communication apprehension is public speaking, where the individual feels apprehension in a public context, regardless of the surrounding factors.

Person-group communication apprehension. The third point is person-group, where a person is prone to apprehension when facing the "situational constraints" of a particular audience (McCroskey, 1997, p. 87). For example, a teacher may not feel apprehension when speaking to students yet becomes apprehensive when speaking to a principle or superintendent. Thus, from this perspective, it is the particular audience which introduces the limits and stress of the situation, which in turn creates communication apprehension, rather than the communicator's general predisposition.

Situational communication apprehension. Finally, situational communication apprehension is the most state-like context on the continuum (McCroskey, 1977b, 1997; McCroskey & Richmond, 1982). In this case, communicating to a specific audience at a specific time creates the anxiety and fear, which may fluctuate based on changes in factors. An example of situational CA provided by McCroskey (1997) is a student who has no trouble asking a question in class but becomes apprehensive when the teacher requires him or her to stay after class to talk.

Ultimately it is still beneficial to think of the construct as a trait-like construct, as more recent views of communication apprehension emphasize trait-like conceptualizations of CA (McCroskey & Beatty, 1998). Likewise, the PRCA-24 and other methods of measuring communication apprehension are trait-conceptualization specific. Trait-like communication apprehension should predict generalized CA across many contexts and thus is not concerned necessarily with individual, single situations or events (McCroskey, 1997; McCroskey & Beatty, 1998; McCroskey et al., 1985).

Causes

Some level of apprehension is naturally present in all individuals; CA becomes a problem once the apprehension is to the degree that it creates "nonadaptive, non-responsive, or nonfunctional" behavior (McCroskey & Beatty, 1998, p. 221). Individuals with high levels of apprehension are unable to pick up on the demands of the environment and adopt an appropriate response behavior, and thus their reaction is not the expected norm. Earlier conceptualizations marked communication apprehension as a learned trait, often associated with inadequate language and skills (McCroskey, 1977b). Later interpretations have emphasized the trait characteristics of the individual, focusing on general, genetic-based predispositions. Even

situational apprehension can be viewed through a trait-centered perspective, wherein individuals interpret situations to match their overall trait CA disposition (McCroskey & Beatty, 1998).

Communibiology is the term coined (Beatty & McCroskey, 2000a, 2000b, 2000c; McCroskey & Beatty, 1998) to describe a paradigm from which communication is viewed in terms of neurobiological underlying causes of both trait choices and psychological experiences of individuals related to communication (Beatty, McCroskey, & Heisel, 1998). This biology creates a consistent pattern of behavior and preference, adding a "nature" element to the idea of "nurture" created inadequacy or anxiety (e.g., learned helplessness). Thus, Beatty and McCroskey (2000a) shift from social learning to a psychobiological basis for emotional traits like anxiety, calling for an inclusion of biology in the interpretation of the CA construct. However, this is not to say "that students cannot or should not expect intellectual growth through college courses" (Beatty & McCroskey, 2000c, p. 43). An absolutist approach to "intellectual and emotional forces" as the sole cause of communication apprehension should be avoided (Beatty & McCroskey, 2000c, p. 43); instead, communication apprehension should be considered as the possible result of both biological pre-determination and learned reactions to situations.

Effects and Patterns of Communication Apprehension

Based on completion of the Personal Report of Communication Apprehension (PRCA-24), research suggests, "20 percent of the population falls into each extreme category" (Richmond & McCroskey, 1998, p. 44). Thus 20% of the population report little to no anxiety across communication contexts while 20% is anxious in all communication situations. CA has an effect on the everyday life of these apprehensive individuals, and the frequency of

communication apprehension in the college classroom may suggest the overall seriousness of this problem.

An individual who may be defined as apprehensive (i.e., shows more than one standard deviation above the mean on the PRCA-24), experiences "an internally experienced feeling of discomfort" (McCroskey, 1997, p. 99). Physiological and other external signs are "indirect evidence of CA" at best (McCroskey & Beatty, 1998, p. 224), especially as individuals behave uniquely and may not exactly fit the common mold.

Even with the specific effects and behaviors of communication apprehension varying from person to person, there are still overarching patterns of communication (McCroskey, 1977b). High levels of communication apprehension affect communication behavior and the learning of skills (McCroskey & Beatty, 1998). CA lowers affect through discomfort and fear and interrupts everyday learning through skewing observed communication; communication apprehension also interferes with formal study, development, and practice of skills through avoidance and mental blocks (McCroskey, 1997; McCroskey & Beatty, 1998). Likewise, McCroskey defines three general and one atypical pattern: Communication avoidance, withdrawal, disrupted communication styles and patterns, and over-communication (McCroskey, 1977b).

Communication avoidance and withdrawal. McCroskey's (1997) findings support the logic that people who experience fear and anxiety when communicating would seek to avoid situations placing them in such a position. Yet, there are times when avoiding communication is not an option for the apprehensive individual. In this case, the individual may continue attempting to withdraw, through either silence or very minimal responding. Avoidance and minimum interaction extends into, and thus affects, a number of areas, from job choices, living

situations, choices in seating, and "avoid[ing] social settings" in general (McCroskey, 1997, p. 101).

Disrupted communication. When avoidance and withdraw do not work, the apprehensive individual often turn to a third general archetype of actions, disrupted communication patterns (McCroskey, 1997). Disrupted patterns may be considered "poor choices of communication strategies," or "disfluencies in verbal presentation or unnatural nonverbal behaviors" (McCroskey, 1997, p. 101). Oftentimes after such disruptions, the person later wishes he or she had spoken or acted differently. The disrupted communication patterns of apprehensive individuals are similar to the behaviors of individuals lacking communication skills, which may be of little surprise considering the earlier mentioned effects of CA on perceptions and the overall withdraw from practice.

Over-communicating. While it is less common, a fourth possible pattern can be observed in apprehensive individuals: over-communicating (McCroskey, 1997). The apprehensive individual overcompensates when forced into a communication situation and thus becomes the center of communicating. Someone who is over-communicating and highly apprehensive may even come across as having very low apprehension to those in the role of receiver (McCroskey & Beatty, 1998, p. 226).

Although the focus of most research is on those with high apprehension, it is important to note that individuals who are classified as low apprehension (i.e., more than one standard deviation below the mean on the PRCA-24) may exhibit similar characteristics through communication disruption (e.g., using filler words) or by over-communicating (McCroskey & Beatty, 1998). It is the average population that shows variance in patterns and unpredictable behavior because the trait is not a significant part of the disposition one way or another (i.e.,

other factors may come into play such as preparation for a speech, stressing over a grade, and so on).

Traditional communication apprehension. In traditional courses, learning outcomes are hindered by communication apprehension and the behavioral avoidance of peer and instructor interaction by the apprehensive individual (Kelsey, 2000). Apprehensive students prefer a "voyeuristic posture" in class, watching and listening to others rather than interacting, even when the students were just as motivated and interested (Kelsey, 2000 p. 12). In order to compensate, students may cope by focusing on reading books, using the library for additional research, and seeking Internet sources. The tendency toward using written information to overcome interpersonal connections may suggest a natural fit between apprehensive individuals and the online format.

Communication apprehension online. A link between communication apprehension and lower scores of intended used for phone-based technology (e.g., cell phones, speakerphones, and conference calls) offers support for Scott and Rockwell's (1997) expansion of communication apprehension beyond face-to-face situations. If it involves personalized communication, apprehensive individuals seem to be leery, despite the medium. Schwartzman (2006) suggested online group work may be hindered through communication apprehension, as group members fear communicating in groups, in addition to the effects of information overload through discussion boards and the Internet.

Likewise, Kelsey (2000) examined the effects of CA on video-based distance education to see if the strong negative correlation between CA and classrooms expanded over distance; her study suggested apprehension played a large part in choosing not to speak in a classroom, with or

without a camera, regardless of offered training. Communication apprehension levels were also found to relate specifically with use of "vocal-based tools" (Scott & Timmerman, 2005, p.710).

Potential Treatments

Due to the trait-based nature of communication apprehension, McCroskey and Beatty (1998) find CA difficult to wholly change on an individual basis. However, a speech course may help individuals who are classified as low apprehension to improve skills while also offering help to those who are moderately apprehensive through the explanation of apprehension and how to better control CA. From a trait-based, hereditary perspective, apprehension comes from an individual's predisposition, and thus the goal becomes learning to manage tendencies rather than do away with apprehension altogether (Beatty & McCroskey, 2000b). Courses may be able to raise awareness and offer suggestions to understanding further, and working with, personality orientations and temperament of self and other to improve communication. Likewise, if the apprehension is based on state-based apprehension (i.e., influenced by the situational context), training may be able to help build the skills needed and offer practice to provide missing exposure.

Ultimately systematic desensitization and cognitive restructuring may be beneficial in creating a cognitive treatment for communication apprehension (McCroskey & Beatty, 1998). Systematic desensitization is a technique that deals with the physiological response to anxiety through teaching an individual deep muscle relaxation and allowing the individual to return to a relaxed state of being while moving through increasingly anxiety-provoking situations (Ayres & Hopf, 1993; Dwyer, 2005; Richmond & McCroskey, 1998). Desensitization is the most widely used procedure for help with public speaking anxiety (Ayres & Hopf). Cognitive restructuring, on the other hand, deals with identifying irrational thoughts and believes and then strives to

replace these thoughts with more appropriate and beneficial ones (Ayres & Hopf; Dwyer; Richmond & McCroskey). Mental rehearsal and visualization of the moments leading up to, completing, and following the communication process may also be useful (Ayres & Hopf; Dwyer; Richmond & McCroskey).

Yet, treatment still occurs through the process of interaction and practice, and apprehensive individuals characteristically avoid communication when possible. By taking online classes, students may be opting to perpetuate avoidance of face-to-face communication even within communication courses.

Receiver Apprehension

Wheeless's (1975) receiver apprehension (RA) focuses on the role of being a receiver of information, another related fear of communication. Receiver apprehension may be defined as anxiety over the receiver's role that includes "the fear of misinterpreting, inadequately processing, and/or not being able to adjust psychologically to messages sent by others" (Wheeless, p. 263). Research and information about receiver apprehension is less prevalent than the literature related to communication apprehension, especially regarding treatment, but this construct may still be common enough among the population to play a part in expression-based apprehension. While individuals have been found to be significantly less apprehensive as a receiver than as a source (i.e., the sender) of communication, 10% of the subjects in Wheeless's study were found to score more than one standard deviation above the mean, thus being classified as highly apprehensive when it comes to decoding and responding to a message, as compared to 12% of the same sample with the PRCA-24.

Wheeless (1975) suggests the difference may be related to the emphasis of the instrument to measure speaking, the Personal Report of Communication Apprehension-24, on formal

speaking, whereas the instrument for looking at receiver apprehension, the Receiver Apprehension Test, focuses more on interpersonal communication. Thus, the situations involved in communication may weigh differently on people.

Causes

With receiver apprehension conceptualized as a dimension of communication apprehension, RA is viewed as a trait-like disposition (i.e., shows across various situations) (Rubin, Palmgreen, & Sypher, 1994; Wheeless, 1975). However, receiver apprehension has also been defined as "a state or trait condition" (Ayres et al., 1995, p. 224), thus allowing for differences in response between individuals and by situation. Conceptualized as an offshoot of communication apprehension, receiver apprehension may also be viewed as both biologically innate to a point and further learned through reinforcement.

A number of factors have been suggested to influence receiver apprehension, including fear of social evaluation, complexity of the message, and motivation of the listener to comprehend. Wheeless (1975) makes a distinction between fears in receiver apprehension and communication apprehension, stating that RA focuses on fear of interpretation and processing of receiving a message, while CA is related to social disapproval based on sending a message. However, Ayres et al. (1995) view both constructs as related to social evaluation, with communication apprehension focusing on more immediate evaluation and receiver apprehension dealing with a different time and nature of judgment.

Complexity of the message and the receiver's cognitive ability likewise play a role in receiver apprehension (Ayres et al. 1995; Preiss & Wheeless, 1989). If a listener is able to comprehend more complex materials, then he or she will overall be more comfortable while processing information. On the other hand, if the content is easy to comprehend, logically more

people will be comfortable in processing and be more confident in the understanding of said content, and fewer people will be comfortable (e.g., people will experience more anxiety) with more complex materials.

Motivation is also suggested as a factor in receiver apprehension, wherein the individual's concern with understanding affects whether he or she feels apprehensive in listening. A clear example presented by Ayres et al. (1995) is that of a student who knows he or she is failing a course and may no longer be motivated to pay close attention to lectures. Regardless of the complexity or social expectations of the receiving the material, he or she will not experience the same anxiety of students trying to retain the information to pass the next test.

Ultimately research by Ayres et al. (1995) has suggested "processing demand [i.e., complexity of both the receiver's cognition and the message], high motivation, and high evaluation [i.e., expected ability and use of information afterwards]" (Ayres et al., pp. 232-233) are associated with higher levels of receiver apprehension. It should be noted, however, that although evaluation was significant in the second study, results of the first study by Ayres et al. did not account for significant variances in apprehension through evaluation. This suggests evaluation may play a lesser part in certain situations.

Effects

Traditional receiver apprehension. Apprehensive individuals fail to process received information accurately and effectively (Preiss & Wheeless, 1989); this in turn affects the ability to respond and even communicate as a whole. As with communication apprehension, Beatty (1981) found receiver apprehension creates a general tendency of avoidance when possible and exhibit a variety of anxiety reactions if forced into the role of receiver. Clark (1989) also suggests fear of listening may logically result in problems with listening wherein the individual's

focus on anxiety would interfere with the intake of information. Roberts (1986) reported similar results with a correlation between receiver apprehension and overall listening ability and between RA and long-term memory. However, Preiss and Wheeless's meta-analysis suggests poor perception of a message may not be the main outcome, as listening has been found to be only impacted on small levels.

A study conducted by Clark (1989) suggests receiver apprehension may play a part in both overall message comprehension and paralanguage cues (e.g., tone of voice, word emphasis). Through associating apprehension as a sign of low confidence, Clark's study of 101 students suggests gender may play a role in the effect of apprehension and confidence on message comprehension. Women who were deemed confident based on lower Receiver Apprehension Test scores were better at overall comprehension when compared to their apprehensive counterparts. Men, on the other hand, were found to be more competent at comprehension when more apprehensive at listening.

Similarly, those individuals of both genders who exhibit receiver apprehension were better at picking up on emotional meanings than those who were lower in receiver apprehension (Clark, 1989). Clark suggests, "self-confidence may serve as an inhibitor" (p. 247) when it comes to picking up on implied information, and individuals who are more self-conscious in their listening ability may be more sensitive to picking up feelings and underlying meanings.

Receiver apprehension online. The asynchronous environment of the online class may offer apprehensive students the opportunity to analyze and interpret a conversation or statement according to their own level of comfort and at their own pace, thus removing some of the pressures of receiver apprehension found in social circumstances (Mattes, Nanney, & Coussons-Read, 2003). Instead of being concerned with social presence, conversation over-analysis, and

"thinking about what they should have said but didn't" (Mattes et al., p. 99), cautious or timid individuals may benefit by the removal of traditional classroom pressures. Thus, online courses may be perceived as friendlier for apprehensive individuals in terms of RA as well as CA.

Potential Treatments

Research on receiver apprehension is limited; however, as noted above, receiver apprehension is derived from the communication apprehension construct and thus has a related background. Therefore, treatment of this type of expression-based apprehension may be similar, with emphasis placed on the role of the receiver instead of that of the sender. Preiss and Wheeless (1989) recommend a combination approach to maximize effectiveness in dealing with receiver apprehension by focusing on both apprehension (i.e., anxiety) and skills. Skills training in critical thinking, the ability to respond and argue, and practice in evaluating massages – the foci of training when approaching reticence – should supplement training on relaxation, such as systematic desensitization and cognitive restructuring, in order to provide maximum assistance to the apprehensive receiver.

Writing Apprehension

Another apprehension derived from (oral) communication apprehension is writing apprehension (WA) where the emphasis becomes apprehension due to communicating messages through writing. Writing apprehension is fear or anxiety experienced in association with writing or, more specifically, with the evaluation of written messages (Daly & Miller, 1975b). Highly apprehensive individuals, as with the previously discussed dimensions of apprehension, avoid the source of their anxiety, in this case writing, and experience high anxiety when forced into writing. As with receiver apprehension, writing apprehension has received less research attention

than the oral-based communication apprehension over the past 3 decades, and thus information is limited.

Causes

Writing apprehension is considered a trait characteristic by Daly and Miller (1975a), although negative experiences and evaluations in writing situations teaches an individual to respond apprehensively to the context of writing. As with apprehension in speaking, inadequate skills and a lack of practice are both a result and cause of writing apprehension. Negative feedback leads to a desire to avoid writing, and avoidance creates a lack of experience and practice that results in a lack of development in writing skills, leading to negative results when forced, and so on (Daly & Miller, 1975a; Daly, 1978).

Vielhaber (1983) offers an expansion on potential causes of writing apprehension. In addition to the lack of practice and fear of evaluation, which she frames in terms of "fear of self-exposure" (Vielhaber, p. 22) to critique, she suggests possible frustration and lowered confidence during the writing process through simultaneous editing. If an individual continuously starts and stops to edit while writing, he or she may be limiting progress and self-evaluating even before the work can be evaluated by others.

Effects

Traditional writing apprehension. An individual's skills and choices in writing are impacted through apprehension. Daly (1978) suggests a continuum of writing apprehension and competency (i.e., proper mechanics, grammar, and elements of a composition), wherein highly apprehensive writers experience low writing competency compared to those individuals with low apprehension, with the average apprehension group falling between the levels of writing

competency. Language intensity (Daly & Miller, 1975a), composition length, message quality, and the overall structure of writing may all be impacted by writing apprehension (Daly).

Beyond the effects on writing performance, writing apprehension may impact an individual's choice of career or major in a fashion similar to communication apprehension (Daly & Shamo, 1976). Apprehensive individuals show a preference for careers and fields that require less writing, and thus may make life goal choices based on the trend of writing avoidance.

Writing apprehension online. Surprisingly, a correlation analysis between self-reported writing apprehension and the likelihood of future use for various forms of technology, even those that were writing-intensive (e.g., an online communication course that included a lot of writing assignments) showed no significant correlation (Scott & Rockwell, 1997). Similarly, McDowell (1998) did not find significant links through correlational analyses between writing apprehension, technology experience, and predicted technology use.

Writing apprehension was also found to be "generally unrelated" (Scott & Timmerman, 2005, p.710) in terms of variance of frequency to predictions of text-based technology usage. Scott and Timmerman suggest computer apprehension plays a larger role than writing apprehension, claiming that computer-mediated-communication is considered less formal may make writing apprehension lower. Perhaps the writing style and expectations of computer-mediated communication has a different feel and effect on individuals, lessening their self-described apprehension, or perhaps writing apprehension becomes overshadowed by other forms of expression-based apprehension, such as communication apprehension.

Potential Treatments

For treatment, Daly and Miller (1975b) recommend avoiding forced exposure and instead focusing on confidence building. Much like with communication and receiver apprehension,

skills training may be beneficial for the apprehensive writer, and desensitization may be an important part of overcoming communication apprehensions.

Expanding on this notion, Vielhaber (1983) suggests creating and reinforcing a positive, comfortable work environment and then relying on organization skills and practice to help apprehensive individuals in building the confidence necessary to overcome the blocks of apprehension. Such writing strategies and practices include emphasis on early preparation, writing in stages, encouraged use of unevaluated practice forums such as personal journals, and emphasis on writing before editing. Vielhaber also addresses the need to shed light on myths about writing, normalizing writing anxiety in the process.

Again, perhaps many students are enabling avoidance by opting out of traditional classroom contexts in which they may have to do impulsive writing. Scott and Timmerman (2005) suggest the difference between apprehension and use of writing technologies may lie in the perceived formality of computer-mediated-communication writing. It may be important to consider individuals writing for the purpose of submitted class assignments may still consider the writing more formal and thus relate experience higher levels of writing apprehension. Also, students in an online class may have more or less experience with text-based communication tools than the professionals from numerous organizations sampled in the Scott and Timmerman piece, which may in turn impact apprehension levels and trends.

Due to the various forms of apprehension that may be involved with communicating in a class – or more specifically, the classroom – such as orally communicating, receiving information, and writing, students who are apprehensive in one or more areas may be more inclined to take online classes to continue the pattern of avoidance, or at least to minimize the

direct feedback involved in communicating face-to-face. However, in taking online classes, a new source of apprehension is brought into the picture: the computer.

Computer Apprehension

When reviewing the literature about online classes, there is a necessary use of technology, thus it is important to examine another type of apprehension, computer apprehension, also known as computer anxiety. Computer anxiety is fear or nervousness that comes from the use or potential use of a computer (Chua et al., 1999). The construct of apprehension in dealing with computers has numerous other names as well, including "computerphobia, cyberphobia, technophobia," and "negative computer attitudes" (Weil, Rosen, & Wugalter, 1990, p. 362).

Overall computer attitude is affected by an individual's anxiety, confidence, and how much he or she likes working with computers (Thompson et al., 1991). An investigation by Scott and Rockwell (1997) concluded that experience and apprehension may both play a role in predicting future use of technology, and computer apprehension has a negative correlation with technology use although there is not a strong connection between computer apprehension and programming or word-processing. Likewise, Liaw (2002) suggests a strong correlation between computer attitudes and attitudes regarding the Internet that will come into play when discussing distance learning and the Internet as a tool in education.

Causes

Research suggests early experiences influence computer apprehension more so than personality (Weil et al., 1990). The individual who serves as a role model by introducing computers to a given individual may also have an influence on developing attitudes regarding use of the medium. Those individuals who were introduced to technology by an apprehensive

person, most commonly the mother in the research results, picked up on the apprehension and in turn came to view technology from an apprehensive perspective.

Weil et al. (1990, p. 376) also suggest the "most significant computer experience" is not necessarily the same as a "first computer experience." Often, people experience computers and technology as entertainment, but later exposure involves differing forms of evaluation. The stress of critique, when added to computer exposure, may create a lasting impression and a foundation for anxiety.

Effects

Apprehension and future use of technology. Similar to fears associated with different forms of oral and written communication, an individual's attitudes toward and anxieties based on computers may affect his or her willingness to use technology. As with previous discussions of apprehension, those who experience computer apprehension will avoid computers when possible, and experience discomfort when avoidance is impossible (Weil et al., 1990). Individuals with high computer anxiety also exhibit lower computer skills and thus lower overall performance (Barbeite & Weiss, 2004). For example, individuals with higher computer apprehension may have lower achievement in computer classes at the university level (Marcoulides, 1989). Computer apprehension has also been shown to predict future technology use (McDowell, 1998; Scott & Rockwell, 1997).

Computer-mediated communication apprehension. Focusing on the change in technology use in a work environment over a 5-year period, Scott and Timmerman (2005) expanded on Scott and Rockwell's (1997) work by adding a fourth apprehension, computer-mediated communication apprehension. Again, a connection was established between apprehension and future use of technology, although more correlation was found through a combination of

constructs, rather than any distinct form of apprehension. Computer apprehension relates to programming specifically, and significantly predicts use of the World Wide Web. Scott and Timmerman's study also suggested little overall change in apprehension levels over a period of 5 years, yet a general increase in use of technology. Because their study related to the work office, Scott and Timmerman hypothesize about employees, stating the difference in use patterns may come not from a decrease in apprehensions but rather an increase in opportunities for choice. With more technology options available, said employees may begin to choose based on personal, apprehension-based preferences. Thus it may not be a surprise to find students who choose to take online sections have different apprehension scores from those in a classroom setting.

Potential Treatment

Computer apprehension is not simply a lack of practice. Harris and Grandgenett (1992) suggests use of telecommunication tools may lower computer apprehension overall; however, Weil et al. (1990) suggest exposure alone may build stress and negative experiences, thus encouraging avoidance rather than forcing the apprehensive individual into compliance and use. Instead, as with other forms of apprehension discussed earlier, relaxation and skills training may help individuals manage and overcome their anxiety.

Online Education

Characteristics of Online Education

Online courses (a channel of distance education) are a growing trend in higher education as more and more colleges offer online courses in order to save money, appeal to student and faculty preferences, and stay on the cutting edge in order to compete with other institutions (Allen, 2006; Clark & Jones, 2001; Ko & Rossen, 2004). The field of communication is no different, and oral communication courses are also making the transition to the Internet. Despite

concerns of lowering student success and retention through the possibility of limiting social connections and school-related experiences via enrollment in online courses (Allen), student outcomes in terms of achievement are considered equal across the formats, thus removing success reasons from the argument for one format over the other and suggesting that enrollment in either format may be best considered as a matter of personal preference and necessity (Clark & Jones).

Online courses generally focus on the use of Internet-based learning programs or websites to convey information from instructor to student and back. Asynchronous learning is a major component of online courses, allowing students and instructors to connect from different locations at different times yet still interact and learn from one another (Ko & Rossen, 2004). Online courses often use discussion boards and email to foster collaborative learning, although sometimes more synchronous methods, like chat-rooms or programs, are used in addition to discussion boards. This allows for convenience in scheduling, but it also allows individuals the opportunity to take more time in receiving and processing a message, and in crafting a response as well (Ko & Rossen; Stritzke, Nguyen, & Durkin, 2004).

Online courses may also pull in other media sources and pedagogical techniques, which may benefit diverse learning styles. Likewise, students can individualize their experience and learning, set their own pace, collaborate using different methods and formats than classroom time and requirements may allow, and thus have more independence and new experiences to those who are capable of taking advantage of, or even prefer, the online environment (Al-Bataineh, Brooks, & Bassoppo-Moyo, 2005).

Reasons to Select Online Sections

Students on and off campus are enrolling in general education communication courses for a number of potential reasons, but the most often cited reason is the convenience of more flexible timing and the degree of freedom asynchronous education offers students to handle other responsibilities (Clark & Jones, 2001; Ko & Rossen, 2004). More than flexibility, apprehension may be another factor that comes into play when choosing to take an online or in-person oral-intensive course. Shy individuals may select the Internet and computer-mediated communication to escape the potential negative feedback and scrutiny of face-to-face interpersonal communication (Stritzke et al., 2004). The asynchronous nature of online communication allows individuals the opportunity to have more control over self-presentation through the construction and editing of messages via text, and communicating through text messages can offer anonymity. Likewise, the lack of visual and auditory cues may shield those who are afraid of rejection or judgment from an attack that seems personal. The individual remains "faceless" and thus protected (Mattes et al., 2003, p. 99). Overall, Stritzke et al. suggested online communication may reduce differences overall between apprehensive individuals, reducing inhibiting fears and concerns, and thus granting more freedom to practice and develop communication skills.

Traditional Education

Characteristics of Traditional Education

Traditional (classroom-based) courses incorporate face-to-face communication, normally encouraging, and even requiring, class participation through communication (Mattes et al., 2003). Such interactions can include classroom discussions and interactions, question and answers, group work, and public speaking (Kelsey, 2000). In both classroom and hybrid (a format blending face-to-face and distance education) courses, students may receive instructor

prompting and be directly drawn into active learning through interaction (El Mansour & Mupinga, 2007). Students likewise have the availability of being able to ask questions in a real-time environment and see demonstrations in person in order to gain more knowledge, and face-to-face interactions give a personalized feeling, along with nonverbal cues to clarify and expand on communication.

Reasons to Choose Traditional Sections

Personality traits such as extroversion, preference for concrete reasoning and thus preference for less change and fluxuation, and varying levels of self-reliance and motivation may affect students' preference for traditional sections (Mattes et al., 2003). Traditional face-to-face classroom sections may also be selected in order to stick with the familiar – and thus more comfortable – format when a compelling reason to sign up for online sections is absent or unknown (Clark & Jones, 2001; Robinson & Doverspike, 2006). In fact, some students with a lack of experience in the online format expect to learn more in the classroom, although overall results may be "nearly identical" (Clark & Jones, p. 122). Students may fear a lack of instructor interaction and availability, and may be concerned with computer and technology use and dependency (Robinson & Doverspike). Likewise, the feeling of the less social and more anonymous online environment may have the opposite effect on some individuals, steering them toward the classroom. Some individuals may also prefer the classroom in order to have set time schedules for class meetings as opposed to the more flexible, open-ended nature of online (Al-Bataineh et al., 2005).

Clark and Jones's (2001) study stands at odds with the work of Strizke, Nguyen, and Durkin (2004) through suggesting a lack of significant difference between students enrolled in an online or traditional public speaking course regarding access and comfort with computer use;

self-reported communication apprehension with the subscale constructs of group, interpersonal, or public speaking; or self-reports of skill in public speaking. Yet, the use of an abbreviated version of the Personal Report of Communication Apprehension (PRCA-24) and the removal of a subsection of the instrument altogether may alter results, as some individuals may conceive of a classroom discussion in similar terms as that of a meeting. Likewise, current research has not examined the correlation between oral communication apprehension and numerous other types of apprehension, such as receiver, writing, and computer anxiety, in the choice between online and traditional sections.

Thus online classes introduce the concept of computer apprehension to the mix of expression-based apprehension potentially faced by students. Comfort with computers and the Internet would logically play a major role in how comfortable a student is in taking an online course or even if he or she chooses to enroll in an online section. With the wide variety of possible sources of apprehension on each individual student enrolled in the course, it becomes important to try for a clearer picture of how these types of apprehension may appear or interact in populations of students so that instructors may be more aware of challenges faced by their students and better able to offer the assistance needed.

Purpose of this Study

Expanding on the research by Scott and Rockwell (1997), McDowell (1998) examined the relationships between gender, technology experience, computer anxiety, communication apprehension, and writing apprehension. His study found a significant relationship between gender and use with several forms of technology and apprehension scores. McDowell's study suggests females have more experience in public presentations, writing of poetry and stories, and cell phone use, while males have more experience in computerized discussion groups,

videogames, and computer or video-based conferencing. Females in the study were likewise found to have significantly more computer anxiety than males but significantly lower communication apprehension. However, participants were mostly higher-level students enrolled in a scientific and technical communication course studying rhetoric, which may affect the study's results in different ways than general education, introductory communication courses. Scott and Rockwell on the other hand suggested only minimal gender differences in prediction of technology use.

Scott and Timmerman's (2005) study focused on the workplace, although parallels may be created to students in higher education. More directly related to students, Scott and Rockwell's (1997) sample consisted of 178 students enrolled in traditional general public speaking courses. As previous research is based in the traditional classroom setting, it is important to consider possible differences in populations of students enrolled in online versus traditional communication courses that may lead to further information on format preferences.

Research Questions

Various oral and written apprehensions may be present in students simultaneously, and at varying levels, and these constructs have numerous effects on individual behavior and choices. With online education becoming more prevalent, it is important to consider the reason behind students' preference of the online format to help instructors create courses that will not only play up the strengths of the format but allow students to overcome potentially debilitating anxiety or anxieties. In order to better examine the role of apprehension in choosing to take an introductory oral communication course in an online or traditional section, the following research questions are proposed:

RQ_1: Are there interactions between levels of various expression-based apprehension (communication apprehension and subcontexts of group, meeting, dyadic, and public speaking; receiver apprehension; writing apprehension; overall computer and web attitude and subcontexts of computer experience, computer attitude, and web attitude) for students enrolled in online or traditional sections of a general speech course?

RQ_2: Do male and female students enrolled in online sections of a general speech course exhibit different levels of expression-based apprehension (communication apprehension and subcontexts of group, meeting, dyadic, and public speaking; receiver apprehension; writing apprehension; overall computer and web attitude and subcontexts of computer experience, computer attitude, and web attitude) as compared to students enrolled in traditional sections of the course?

RQ_3: Do students beginning a general speech course have different levels of various expression-based apprehension (communication apprehension and subcontexts of group, meeting, dyadic, and public speaking; receiver apprehension; writing apprehension; overall computer and web attitude and subcontexts of computer experience, computer attitude, and web attitude) as compared to students enrolled at the end of the course?

CHAPTER 2

METHOD

The purpose of this study is to investigate correlations between and among various types of apprehension related to communicating – such as (oral) communication apprehension, receiver apprehension, writing apprehension, and computer apprehension – gender, and enrollment in traditional or online sections of a general speech course. Such correlations may relate to reasoning behind a student's choice of format for the class and are thus important for considering the approach and needs of students within either the physical classroom or the online environment.

Sample

The pretest sample for this study included 229 students enrolled in one of eight traditional or eight online sections of a general education, introductory oral communication course. The course selected is considered oral intensive and includes interpersonal communication, classroom discussions, work in small groups, and public speaking. Because the class focuses on various communication contexts in addition to written work, it serves as a general education requirement for students of all majors and is offered both in the traditional and online format, it serves as an ideal course for examining the potential interplay of expression-based apprehensions.

The posttest sample included 160 students from the same eight traditional sections or seven of the original eight online sections. In order to have as large an online sample as possible, all eight sections being offered by the department at the time were asked to participate. An even number of traditional sections was chosen at random through the drawing of numbers and subsequent agreement of the instructors to allow their section(s) to participate.

Procedures

Traditional Pretest

Traditional students were introduced to the study by their instructors followed by personal contact from the investigator during the first 2 weeks of classes during the fall semester of 2006. During these introductions, participants learned about the study and were able to ask any questions before being handed a letter of intent and a survey packet. Packets consisted of a demographics survey and four data collection instruments. All sections of the packet are described in detail later in the chapter and a copy of the instruments in their original and modified (if applicable) format can be found in the Appendices in the following order:

1. Demographics (Please see Appendix B)
2. Personal Report of Communication Apprehension (PRCA-24) (Please see Appendix C)
3. Receiver Apprehension Test (RAT) (Please see Appendix D)
4. Writing Apprehension Test (WAT) (Please see Appendix E)
5. Computer and Web Attitude Scale (CWAS) (Please see Appendix F)

Students in all sections were offered extra credit for completing the demographics and survey instruments by their instructor. Eight sections taught by four instructors completed the traditional pretest during the first weeks of the semester.

Traditional Posttest

The investigator returned to the same eight sections (that originally completed the pretests) during the last 3 weeks of class and presented the posttest. The students were reminded of the study and allowed to ask additional questions before receiving the posttest, which consisted of a demographics section and four instruments in the same order and fashion as the

pretest. As with the pretest, instructors offered students in all sections extra credit for completing the packet.

Online Pretest

Online students were contacted via email and announcement to their course Blackboard – a web-based course management tool – site by course instructors and the investigator and directed to the letter of intent on their course site. Students were also invited to ask any questions via email response to the investigator prior to volunteering to complete the survey. As with traditional sections, online students were offered extra credit for completing the packet. The survey packet consisted of a demographics section and the same four data collection instruments, which were made accessible through their Blackboard sites.

The participants asked to complete the packet during the first week of class were enrolled in one of eight online sections taught by seven instructors. Two of the sections were taught by the investigator and due to a conflict of interest were not included in the other sample count.

Online Posttest

Students online were contacted through email and an announcement during the last week of class by instructors. These reminders were followed announcements by the investigator to reacquaint participants about the study, welcome any further questions, and direct them to complete the posttest. Posttests for online students consisted of the demographics section if not completed earlier (unlike traditional, online students' pre- and posttests could be linked and thus only one demographic section was necessary) and the four data collection instruments. Once again, students were offered extra credit by their instructor for completing the packet. However, due to changes in enrollment and primarily the late nature of the announcement and the difficulty

in directing students back to the course site after submitting their last assignments for the semester, the sample size dropped.

Participant Consent and Anonymity

The East Tennessee State University Institutional Review Board granted this study an exemption from informed consent. A letter of introduction took the place of an informed consent document, informing participants of the purpose of the study, participant requirements, investigator contact, and so forth (see Appendix A).

The investigator distributed and collected study packets in order to maintain the confidentiality of answers, and all results are reported only in aggregate form. The only names collected were in the interest of awarding extra credit when extra credit was offered, but individual information and results were not shared in the interest of protecting participant rights.

Data Collection Instruments

Demographics

In addition to identifying the section number of their course, students were asked to complete basic information such as gender, age, and if they had ever enrolled in a public speaking course before. The demographics section consisted of 14 items (see Appendix B). However, for the purpose of this study, gender is the only demographic information of importance.

Personal Report of Communication Apprehension

Instrument Introduction

The Personal Report of Communication Apprehension (PRCA-24) consists of 24 items related to apprehension during the process or possibility of oral communication (McCroskey, 1982). Participants respond using a Likert scale ranging from 1 = strongly disagree to 5 =

strongly agree, to statements such as "I am afraid to express myself at meetings" or "I feel relaxed while giving a speech" (see Appendix C). The total score of apprehension, considered a communication trait, is based on the sum of four (state) subscales, consisting of four speech-related contexts: group, meeting, dyadic (interpersonal), and public speaking. The higher the total score, the more apprehension the person experiences during oral communication. The original Cronbach's alpha for the PRCA-24 was .094 (McCroskey). Due to the use of an equation to score this instrument, an alpha could not be obtained for this study.

Subscores

The PRCA-24 consists of four subscores, each of which consists of six items (for example, the Group statements focus on communicating in groups, such as "I dislike participating in group discussions"). Running a factor analysis on the PRCA-24 data clearly shows the results center around four divisions, supporting the creation of the four subscales.

Scoring Groups and Norms

Scores for McCroskey's (1982) PRCA-24 range from 24 to 120 with a mean total score of 65.6 and a standard deviation 15.3. Thus, participants may be categorized into one of three groups – high, average, or low apprehension – based on deviation from the mean, where 24-50 is low, 51-80 is average, and 81-120 is highly apprehensive. For the results of this study, the PRCA-24 was found to have a mean of 66.4 and a standard deviation of 16.1. In order to score the instrument, the following formula is used: Group + Meeting + Dyad + Public Speaking, where Group = 18 - (items 2 + 4 + 6) + (items 1 + 3 + 5); Meeting = 18 - (items 8 + 9 + 12) + (items 7 + 10 + 11); Dyad = 18 - (items 14 + 16 + 17) + (items 13 + 15 + 18); and Public Speaking = 18 - (items 19 + 21 + 23) + (items 20 + 22 + 24).

Receiver Apprehension Test

Instrument Introduction

The Receiver Apprehension Test (RAT) is a self-report instrument using a Likert scale focusing on apprehension related to receiving information. The original instrument features 20 items, such as "I have no fear of being a listener as a member of an audience" and "I often have difficulty concentrating on what others are saying" (Rubin et al., 1994), and has a split-half reliability of .91 (Wheeless, 1975) and a Cronbach's alpha of .81 (Beatty, Behnke, & Henderson, 1980; see Appendix G).

To better suite the purpose of this study, a modified version of the RAT was used. Changes in wording of two items reflect a modernization of the instrument ("to people I am attracted to" in place of "members of the opposite sex" and "videos" rather than "television programs"), and seven new statements were inserted to better represent situations participants may face specifically in an introductory oral communication course; new statements were introduced as either positively or negatively worded (e.g., "I often become tense during classroom discussions" and "I have no fear of being a listener as a member of an audience"). The modified version of the instrument therefore used 27 statements and resulted in an alpha of .90 (see Appendix D).

Scoring Groups and Norms

In order to score the RAT, negatively worded items are reverse coded and then all scores are added; scores within one standard deviation of the mean are considered average, with those more than one standard deviation denoting high apprehension and those scores lower than one standard deviation denoting low apprehension. As designed by Wheeless (1975), the RAT has a standard mean of 46.93 and a standard deviation of 12.67. Thus, scores of less than 34 are

considered low apprehension, 35-59 average, and over 60 as highly apprehensive. For the purposes of this study, the mean was found to be 59.5, with a standard deviation of 12.1, making the range 27-38.3 for low, 38.4-71.6 for average, and 71.7-135 for high levels of receiver apprehension.

Writing Apprehension Test

Instrument Introduction

The Writing Apprehension Test (WAT), as designed for a classroom sample (Daly & Miller, 1975b), consists of 26 self-report, Likert scale items focused around levels of comfort or anxiety experienced in relation to writing, such as "I avoid writing" and "People seem to enjoy what I write" (Daly & Miller, 1975b; see Appendix H). The original WAT featured a Cronbach's alpha of .940. For the purpose of this study, a modified version of the WAT was used featuring the same number and intent of items, yet the wording was updated to better suit a modern college sample. Such changes primarily focused around the use of "paper" or "writing assignment" in place of the term "composition" (see Appendix E). Due to the use of an equation to score this instrument, an alpha could not be obtained for this study.

Scoring Groups and Norm

Scoring of the Writing Apprehension Test range from 26 to 130, with a reported mean score of 79.28 and a standard deviation of 18.86 (Daly & Miller, 1975b). Thus subjects will be considered to have low writing apprehension if scoring below one standard deviation of the mean, within the range of 26-60, average if between 61-98, and highly apprehensive if between 99 and 130. For the purpose of this study, the mean was 81.2 and the standard deviation 6.0. In order to score the instrument, the following formula is used: 78 + Positive Scores – Negative Scores.

Computer and Web Attitude Scale

Instrument Introduction

Liaw's (2002) Computer and Web Attitude Scale (CWAS) features three self-report sections: computer experience, computer attitude, and web attitude (see Appendix I). Each section features a self-report Likert scale item, with either seven (Computer Experience scale) or five ratings (Computer Attitude, Web Attitude), such as "Experience using computers," "I feel confident using a personal computer," and "I feel confident using E-mail." The scale was chosen for its ability to examine correlations between exposure and confidence with both computer and Internet-use. In Liaw's study, the Cronbach's alpha for the Computer Attitude section was 0.91 and the Web Attitude element alpha was 0.93, with a strongly significant, positive correlation was found between the two attitude sections ($r=0.81$, $P=0.000$).

A modified version of the CWAS was used for this study, where three items were reworded and four items were inserted in order to serve the dual purpose of updating the instrument to show technological advancement and to better suit the potential experience of the subjects in this study (see Appendix F). Technological updates were made, such as "I feel confident using floppy disks to store my data files" to "I feel confident using storage devices to store my data files (e.g., floppy disk, USB flash drive, CD-R/RW, etc.)," and potential advances in computer knowledge and use were checked through the inclusion of items such as Website creation and instant messenger programs, and the inclusion of forums as a form of Internet-based communication was added specifically to reflect experience with features similar to those used in online education through Blackboard.

Another change to the CWAS was a continued numbering pattern through the various sections, chosen both as a way to group the instrument as a whole for subjects to reflect a sense

of continuation throughout the scale, and to help with organization of data within the study due to the use of other instruments. The Cronbach's alpha for the CWAS regarding this investigation was .96, with the Computer Experience having an alpha of .88, the Computer Attitude Scale .94, and the Web Attitude Scale .95.

Scoring Groups and Norms

Within this study a mean score of 174.4 was found for the CWAS, with a standard deviation of 23.1. For the subscores, computer experience had a mean of 28.7 with a standard deviation of 7.3, computer attitude a mean of 69.0 with a standard deviation of 9.1, and web attitude had a mean of 79.5 with a standard deviation of 10.3. Individuals within one standard deviation of the mean are considered in the normal range, with scores below one standard deviation showing lower experience and positive regard and scores above one standard deviation of the mean suggesting higher levels of experience and positive regard.

Data Analysis

The investigator entered all surveys into SPSS for analysis. Surveys were analyzed using the following variables: pretest or posttest, online or traditional, gender (demographics); (oral) communication apprehension (PRCA-24 total), group, meeting, dyad, public speaking (PRCA-24 subscales); receiver apprehension (RAT); writing apprehension (WAT); computer attitude (CWAS total), computer experience, computer attitude, web attitude (CWAS subscales). A general linear model was used to compare differences between men and women online and offline on the various scales.

CHAPTER 3

DATA ANALYSIS

The following analyses were based on the data collected from students enrolled in traditional and online sections of a general education, introductory communication course as a pre- and posttest. Research questions were investigated to search for differences in apprehension levels in both formats of the course in order to consider apprehension as related to demographic characteristics and as a possible factor in course format selection. This chapter includes a demographic summary of participants in the study, followed by qualitative data analysis depending on the research question.

Demographic Information

Two hundred twenty-nine students completed the pretest, with 163 (71.2%) enrolled in traditional classes and 66 (28.8%) enrolled in online classes in the fall 2006 semester. Of the total pretest sample, 93 (40.6%) were male and 136 (59.4%) female. From the traditional course format sample, 69 were male, 94 female; in the online course format sample, 24 were male and 42 female.

The posttest sample consisted of 160 students, with 126 (78.8%) traditional and 34 (21.3%) online, with a total of 65 (40.6%) male and 95 (59.4%) female, making the gender distribution equal percentages between pre- and posttest. The traditional posttest sample consisted of 52 males and 74 females, while the online sample consisted of 13 males and 21 females. Table 1 presents a further breakdown of demographic data in terms of pre- and posttest, gender, and section format (traditional or online).

Table 1
Demographic Characteristics of Participants

	Traditional		Online		Total	
Gender	n	%	n	%	n	%
Pretest (n=229)						
Male	69	42.3	24	36.4	93	40.6
Female	94	57.7	42	63.6	136	59.4
Total	163	71.2	66	28.8		
Posttest (n=160)						
Male	52	41.3	13	38.2	65	40.6
Female	74	58.7	21	61.8	95	59.4
Total	126	78.8	34	21.3		

Note: Represents number of complete instruments submitted by students in voluntary sections of a general education, introductory communication course in the fall of 2006.

Analysis and Interpretation of the Instruments

Participants completed a pre- and posttest of four instruments to examine possible connections between and among differences in various forms of apprehension and enrollment in an online or traditional section of an introductory communication course. In order to examine a variety of potential course-related apprehensions, the survey instruments focused on communicating orally, receiving information, writing, and using a computer and the Internet.

The survey packet consisted of the following instruments: the Personal Report of Communication Apprehension (PRCA-24) total score and four context-based subscores regarding communicating in groups, meetings, dyads, and public speaking; the Receiver Apprehension Test (RAT); the Writing Apprehension Test (WAT); the Computer and Web Attitude Scale (CWAS) total score and three subscores regarding experience, computer attitude, and web attitude. Data from each instrument were analyzed to address each of the research questions.

Bivariate analyses. In order to begin addressing the research questions, bivariate correlations were used to examine the associations between different scales and subscales for this

sample (see Table 2) to see if the same trends and associations were consistent with existing literature. Receiver apprehension, as noted previously, is based on the theory of communication apprehension (Wheeless, 1975), and thus may show correlations. Writing apprehension is also conceptually based on communication apprehension, and development of the Writing Apprehension Test involved the creation of 63 items modeled after those statements used to measure communication apprehension and receiver apprehension, which was then narrowed to 26 items. For this reason, a high correlation is expected between the WAT and the PRCA-24, and the WAT and the RAT because both writing apprehension and receiver apprehension were derived from the communication apprehension construct (Daly & Miller, 1975b; Wheeless).

Liaw (2002) reported computer attitude and web attitude are positively linked, and prior computer experience is a positive factor in perceptions of computers; thus the subtests of the Computer and Web Attitude Scale are correlated. However, no reported studies checking for associations between the CWAS and the express-based apprehensions discussed above were located during numerous literature searches.

Pearson correlation. The results of a Pearson correlation coefficient with a two-tailed test of significance for this sample showed a significant positive correlation between pretest Receiver Apprehension Test scores, the PRCA-24, and its context-based subscores (group, meeting, dyadic, and public speaking), ranging from .353 to .523. Receiver Apprehension Test scores also showed a significant negative correlation with the WAT, the CWAS scores and its subscores (computer experience, computer attitude, and web attitude), ranging from -.190 to -.421. Pretest Writing Apprehension Test scores had a negative correlation, ranging from -.168 to -.421, with the PRCA-24, context-based subscores (group, meeting, dyadic, and public

Table 2
Intercorrelations for Scores of Instruments

Instrument	PRCA-24	Group	Meeting	Dyad	Public	RAT	WAT	CWAS	Experience	Computer	Web
PRCA-24	---										
Group	.870**										
Meeting	.904**	.736**									
Dyad	.850**	.702**	.697**								
Public	.846**	.602**	.691**	.601**							
RAT	.467**	.359**	.407**	.523**	.353**						
WAT	-.295**	-.168*	-.279**	-.271**	-.298**	-.421**					
CWAS	-.073	.005	-.085	-.082	-.088	-.294**	.228**				
Experience	-.060	.027	-.030	-.078	-.121	-.190**	.144*	.780**			
Computer	-.103	-.033	-.114	-.106	-.102	-.305**	.214**	.929**	.586**		
Web	-.037	.018	-.077	-.041	-.026	-.277**	.234**	.926**	.541**	.854**	---

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all others, higher indicates more apprehension.
* $p < .05$. ** $p < .01$
.

speaking), and the RAT, and a significant positive correlation, ranging from .144 to .234, with the CWAS scores and its subscores (computer experience, computer attitude, and web attitude).

Individuals with higher levels of receiver apprehension also had higher levels of communication apprehension, less positive attitudes about computers and the Internet – other potential sources of information, and lower levels of writing apprehension, as compared to individuals with lower levels of receiver apprehension. Those individuals in the pretest sample with higher levels of writing apprehension were less apprehensive about being a sender and a receiver of oral communication but also reported less experience and less positive attitudes about computers and the Internet, as compared to those with lower levels of writing apprehension.

Confirming Trends

As expected, because the PRCA-24 total is derived from its subscores, a strong correlation was confirmed between the overall scores from the Personal Report of Communication Apprehension-24 and its subscores of group, meeting, dyadic, and public speaking. A strong positive correlation also existed between the Computer Web Attitude Scale scores and its subscales of computer experience, computer attitude, and web attitude, which are also compiled to create an overall total score.

Apprehension Level Interactions by Course Format

Research Question One

RQ_1: Are there interactions between levels of various expression-based apprehension (communication apprehension and subcontexts of group, meeting, dyadic, and public speaking; receiver apprehension; writing apprehension; overall computer and web attitude and subcontexts of computer experience, computer attitude, and web attitude) for students enrolled in online or traditional sections of a general speech course?

In order to address the first question, the pretest sample was divided between online and traditional sections for bivariate correlations among the 11 scales and subscales using a Pearson correlation coefficient with a two-tailed test of significance. Results suggested construct correlations differ based on course format, as discussed below.

Correlations for Online Sections

For online students (see Table 3), the Receiver Apprehension Test scores showed a strong, significant positive correlation to the PRCA-24 and its context-based subscores (group, meeting, dyadic, and public speaking), ranging from .385 to .544. Thus, students enrolled in online sections of the course with high levels of receiver apprehension also reported high levels of communication apprehension overall and in terms of all four contexts. The Receiver Apprehension Test scores also showed a significant negative correlation, ranging from -.259 to -.295, with the CWAS, its sub-score of computer experience, and the WAT. The pretest Writing Apprehension Test scores showed a negative correlation, ranging from -.246 to -.354, with the PRCA-24, its context-based subscores of group, meeting, and dyad, and the RAT, but no significant correlation to the CWAS or its subscales. Students in the online format of the course with high receiver apprehension also reported less positive regard for computers and the Internet overall, as well as less computer experience. High receiver apprehension students in online sections also reported low writing apprehension as compared to students in online sections with low receiver apprehension.

The CWAS pretest for students enrolled in online sections of the course also showed a significant negative correlation to not only the RAT but to the apprehension associated with the context of public speaking (-.256), as well as a strong positive correlation to the CWAS subscores, ranging from .731 to .857. Thus students from online sections of the course with high

Table 3
Intercorrelations for Scores of Instruments in Online Sections

Instrument	PRCA-24	Group	Meeting	Dyad	Public	RAT	WAT	CWAS	Experience	Computer	Web
PRCA-24	---										
Group	.885**										
Meeting	.936**	.798**									
Dyad	.881**	.746**	.795**								
Public	.853**	.629**	.729**	.628**							
RAT	.525**	.447**	.502**	.544**	.385**						
WAT	-.301*	-.266*	-.354**	-.246*	-.203	-.295*					
CWAS	-.235	-.213	-.199	-.160	-.256*	-.259*	.019				
Experience	-.150	-.072	-.113	-.143	-.197	-.279*	.017	.731**			
Computer	-.295*	-.253*	-.244*	-.214	-.325**	-.181	-.015	.791**	.316**		
Web	-.149	-.206	-.143	-.053	-.124	-.226	.033	.857**	.354**	.676**	---

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all others, higher indicates more apprehension.
* $p < .05$. ** $p < .01$.

overall positive regard for computers and the Internet reported low receiver apprehension and lower public speaking anxiety, as compared to those online students with lower positive regard for computers.

As expected, students who reported a higher positive regard overall also reported more experience and a more positive regard for computers and the Internet specifically as compared to those students enrolled in online sections who reported less positive regard for computers and the Internet overall. Likewise, the CWAS sub-score of computer attitude showed a significant negative correlation to the PRCA-24, its subscores of group, meeting, and public speaking, ranging from -.244 to -.325. Students enrolled in online sections of the course with higher positive regard for computers reported lower levels of communication apprehension overall and in terms of speaking in groups, meetings, and publically, as compared to online students with less positive regard for computers. The PRCA-24 also showed a strong positive correlation to its subscores, ranging from .853 to .936, with overall communication apprehensive students online reporting higher apprehension in all four subcontexts.

Students enrolled in online sections with high receiver apprehension were more apprehensive about communicating in general and in all measured contexts, had a less positive overall computer and web attitude, reported less computer experience, and also had less writing apprehension as compared to those students online with lower receiver apprehension. Students with higher levels of writing apprehension reported significant lower levels of (oral) communication apprehension in all contexts except public speaking, as well as lower amounts of receiver apprehension as compared to online students with lower writing apprehension.

Individuals in the online classes with more positive overall computer and web attitudes (as measured by the CWAS) were more likely to not only have more computer experience and

more positive views of computers and the Internet as measured separately but also to have lower public speaking and receiver apprehension. Students in online sections who reported more positive computer attitudes also showed less communication apprehension overall as well as in contexts of groups, meetings, and public speaking as compared to students with less positive computer attitudes.

Correlations for Traditional Sections

For students enrolled in traditional sections (see Table 4), the RAT showed a strong, significant positive correlation to the PRCA-24 and its context-based subscores (group, meeting, dyadic, and public speaking), ranging from .344 to .532, and a strong negative correlation with the WAT, the CWAS and its subscores of computer attitude and web attitude, ranging from -.259 to -.457. Thus students enrolled in tradition sections of the course reporting high receiver apprehension also reported higher communication apprehension for the overall score, as well as all four subcontexts, as compared to students in traditional sections reporting low receiver apprehension. Receiver apprehensive students in traditional sections also reported lower writing apprehension, and less positive regard for computers and the Internet both overall and in regards to computers and the Internet separately.

The WAT showed a strong negative correlation with the PRCA-24 and its context-based subscores of meeting, dyadic, and public speaking, and the RAT ranging from -.254 to -.457, and a positive correlation with the CWAS and its subscales (computer attitude, web attitude, and computer experience) ranging from .171 to .270. Students in traditional classroom sections who reported high writing apprehension showed lower levels of receiver and (oral) communication apprehension overall and in terms of speaking at meetings, interpersonally, and publically as

Table 4
Intercorrelations for Scores of Instruments in Traditional Sections

Instrument	PRCA-24	Group	Meeting	Dyad	Public	RAT	WAT	CWAS	Experience	Computer	Web
PRCA-24	---										
Group	.862**										
Meeting	.887**	.703**									
Dyad	.833**	.679**	.643**								
Public	.843**	.586**	.670**	.585**							
RAT	.463**	.344**	.377**	.532**	.355**						
WAT	-.306**	-.138	-.254**	-.294**	-.356**	-.457**					
CWAS	-.079	.012	-.098	-.100	-.084	-.267**	.263**				
Experience	-.047	.039	-.015	-.070	-.111	-.130	.171*	.798**			
Computer	-.121	-.045	-.140	-.131	-.099	-.311**	.249**	.934**	.625**		
Web	-.047	.034	-.099	-.069	-.028	-.259**	.270**	.924**	.557**	.853**	---

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all others, higher indicates more apprehension.
* $p < .05$. ** $p < .01$

compared to individuals with lower levels of writing apprehension. Likewise, students enrolled in traditional sections who reported high writing apprehension also showed more positive regard overall and specifically for computer and the Internet as well as more experience.

No significant correlation was found between the CWAS and the PRCA-24 for students in traditional sections, only strong significant positive correlations to subscores and the WAT and the RAT as discussed above. As with other samples, a strong positive correlation was confirmed for the PRCA-24 and its subscores ranging from .833 to .887 and the CWAS and its subscores ranging from .798 to .934.

Students in the traditional classroom with high levels of receiver apprehension showed lower levels of writing apprehension as compared to those with lower levels of receiver apprehension. Likewise, traditional classroom section students with high receiver apprehension had less positive attitudes toward computers and the Internet as a whole (as reported by the CWAS score) and attitudes about computers and the Internet separately as compared to those with lower levels of receiver apprehension. Students who reported high writing apprehension showed low apprehension regarding oral communication (overall and in the contexts of meetings, dyads, and public speaking), low receiver apprehension, and more positive attitudes toward computers and the Internet overall and in each sub-score of experience, computer attitude, and web attitude.

Correlations for Online and Traditional Sections

Students enrolled in both online and traditional sections showed expected significant correlation between the PRCA-24 and its subscores and between the CWAS and its subscores. For both formats a significant positive correlation was found between receiver apprehension and communication apprehension (overall and all four subcontexts), a negative correlation between

receiver apprehension and overall computer and web attitude, and a negative correlation between receiver apprehension and writing apprehension. Writing apprehension showed a significant negative correlation to receiver apprehension, communication apprehension overall, and the communication contexts of groups and meetings for students enrolled in either format.

Students in online sections of the course reported a significant negative correlation between receiver apprehension and computer experience, whereas students in traditional sections reported a significant negative correlation between receiver apprehension and computer attitude and between receiver apprehension and web attitude but no significant relation to computer experience. Students in online sections also reported a negative relationship between writing apprehension and interpersonal communication. Students in traditional sections reported no significant in terms of dyads but showed a significant negative correlation between writing apprehension and public speaking as well as a positive correlation between writing apprehension and the Computer and Web Attitude Scale and its three subscores (experience, computer attitude, and web attitude).

Variations in Apprehension Level by Course Format and Gender

Research Question Two

RQ_2: Do male and female students enrolled in online sections of a general speech course exhibit different levels of expression-based apprehension (communication apprehension and subcontexts of group, meeting, dyadic, and public speaking; receiver apprehension; writing apprehension; overall computer and web attitude and subcontexts of computer experience, computer attitude, and web attitude) as compared to students enrolled in traditional sections of the course?

In order to address the second research question, a general linear model of pretest data was conducted to evaluate the levels of various expression-based apprehensions regarding course format (enrollment in online or traditional sections of the course) and gender. The means and standard deviations of apprehension levels by format are presented in Table 5 and by gender in Table 6.

Results indicated two significant multivariate main effects for course format, $F(1, 225) = 6.13$, $p \leq 0.000$, and gender, $F(1, 225) = 6.86$, $p \leq 0.000$, but no significant interaction effect between format and gender, $F(1, 225) = 1.50$, $p \leq .148$. The format effect indicated significant differences in apprehension scores between students enrolled in traditional or online sections of the course, whereas the gender effect signified differences between men and women enrolled in the course. To determine more information about the differences between students enrolled in various formats and the differences between students based on gender, the between-subject effects are examined in further detail.

Variations by Course Format

Examining between-subject effects revealed further information about the data. A significant between-subject effect for enrollment in online or traditional sections regarding 5 of the 11 different apprehensions: receiver, $F(1, 225) = 6.88$, $p \leq .009$; computer and web, $F(1, 225) = 36.60$, $p < .000$; computer experience, $F(1, 225) = 7.18$, $p \leq .008$; computer attitude, $F(1, 225) = 50.35$, $p < .000$; and web attitude, $F(1, 225) = 34.79$, $p < .000$ (see Table 5).

It appears students enrolled in online sections of a general speech course were less receiver apprehensive than students enrolled in traditional sections. Results also suggest students enrolled in online sections showed higher levels of overall computer and web attitude and higher scores in all three subcontexts of computer experience, computer attitude, and web attitude.

Table 5
Instrument Mean Scores Based on Format

	Traditional		Online	
Instrument	M	SD	M	SD
PRCA-24	66.8	16.1	69.5	18.9
Group	15.3	4.6	16.3	5.0
Meeting	16.8	5.0	17.5	5.7
Dyad	14.8	4.1	15.3	4.7
Public	19.9	5.2	20.5	5.9
RAT	**59.4**	**11.1**	**55.5**	**13.2**
WAT	85.8	19.2	90.0	20.7
CWA	**171.5**	**22.8**	**189.2**	**13.2**
Experience	**28.0**	**7.6**	**30.8**	**6.1**
Computer	**68.4**	**8.1**	**75.7**	**4.3**
Web	**75.0**	**9.9**	**82.7**	**6.3**

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all other scales, higher means indicate higher levels of apprehension.
Results reported in bold are significant.

Variations by Gender

A significant between-subject effect was also found for gender among eight types of apprehension: communication apprehension, $F(1, 225) = 27.39$, $p < .000$; group, $F(1, 225) = 14.66$, $p < .000$; meeting, $F(1, 225) = 20.23$, $p < .000$; dyadic, $F(1, 225) = 6.81$, $p \leq .010$; public speaking, $F(1, 225) = 45.79$, $p < .000$; computer and web attitude, $F(1, 225) = 5.75$, $p \leq .017$; computer experience, $F(1, 225) = 6.18$, $p \leq .014$; and computer attitude, $F(1, 225) = 4.81$, $p \leq .029$ (see Table 6).

Men tended to have higher overall computer and web attitudes, as well as more computer experience and more positive computer attitude than women. The men in the study reported more comfort with computer technology as a whole. Women, on the other hand, tended to be more apprehensive in terms of overall communication, and in terms of all four subcontexts (group, meeting, dyadic, and public speaking). Thus, the women in the study were not only less

Table 6
Instrument Mean Scores Based on Gender

	Male		Female	
Instrument	M	SD	M	SD
PRCA-24	**61.7**	**14.1**	**71.6**	**17.5**
Group	**14.6**	**3.9**	**16.3**	**5.1**
Meeting	**15.3**	**4.3**	**18.1**	**5.4**
Dyad	**14.3**	**3.3**	**15.4**	**4.8**
Public	**17.5**	**4.8**	**21.8**	**5.0**
RAT	58.0	10.4	58.4	12.8
WAT	87.2	18.2	86.8	20.7
CWAS	**180.0**	**23.7**	**174.2**	**20.5**
Experience	**30.4**	**8.1**	**27.7**	**6.5**
Computer	**71.5**	**8.5**	**69.9**	**7.4**
Web	78.1	9.7	76.7	9.7

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all other scales, higher means indicate higher levels of apprehension.
Results reported in bold are significant.

comfortable with computers and the Internet, they were also more anxious about talking in person than men.

Variations by Course Format and Gender

The general linear model also indicated a significant between-subject interaction effect between enrollment in online or traditional courses and gender regarding three types of apprehension: group, $F (1, 225) = 8.59$, $p \leq .004$; dyadic, $F (1, 225) = 4.40$, $p \leq .037$; and communication apprehension, $F (1, 225) = 6.65$, $p \leq .011$; because the interactions were significant, a post-hoc analysis was conducted (see Table 7 for Dunnett C results).

In terms of overall oral communication apprehension, as reported by the PRCA-24, women in traditional classrooms showed higher apprehension than their male counterparts. Likewise, women in online sections indicated higher levels of communication apprehension as compared with men in either format. For the subcontext of group communication, women

Table 7
Instrument Mean Scores Based on Course Format and Gender

	Male Traditional		Male Online		Female Traditional		Female Online	
Instrument	M	SD	M	SD	M	SD	M	SD
PRCA-24	**63.1_{ab}**	**14.1**	**57.5_{ab}**	**13.8**	**69.5_{cd}**	**17.0**	**76.4_{cd}**	**18.0**
Group	**15.0_{abc}**	**4.0**	**13.4_{abc}**	**3.2**	**15.6_{abcd}**	**5.0**	**18.0_{cd}**	**5.0**
Meeting	15.7	4.3	14.4	4.3	17.6	5.3	19.2	5.7
Dyad	**14.6_{abc}**	**3.3**	**13.4_{ab}**	**3.0**	**14.9_{acd}**	**4.5**	**16.4_{cd}**	**5.2**
Public	17.8	4.7	16.4	5.1	21.4	5.0	21.8	5.0
RAT	60.0	9.9	52.3	9.9	58.9	11.9	57.4	14.5
WAT	86.6	17.9	89.1	19.5	85.2	20.1	90.5	21.6
CWAS	174.8	24.8	194.8	11.0	169.0	21.0	186.0	13.4
Experience	29.8	8.5	32.2	6.8	26.7	6.5	30.0	5.6
Computer	69.3	8.8	77.8	3.1	67.8	7.5	74.6	4.5
Web	75.7	10.0	84.9	4.4	74.6	10.0	81.4	6.8

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all other scales, higher means indicate higher levels of apprehension.
Means in a row not sharing subscripts are significant different at the .05 level. Results reported in bold are significant.

enrolled in online were more apprehensive than women enrolled in traditional sections or men in either format. Likewise, women enrolled in online sections were more apprehensive in terms of dyadic communication as compared to others but especially as compared with men in traditional sections.

Comparison of Apprehension by Course Format and Gender

Students enrolled in online sections of the course reported lower levels of receiver apprehension and higher levels of positive regard in terms of overall computer and web attitude, computer experience, computer attitude, and web attitude, as compared to students enrolled in traditional sections. Men reported higher overall computer and web attitude, more computer experience, and more positive computer attitude as compared to women. Men also reported

lower communication apprehension overall and in all four subcontexts of group, meeting, dyadic, and public speaking.

The significant between-subject interaction of format and gender suggested women enrolled in traditional sections have higher communication apprehension overall as compared to men in the traditional sections, and women online showed higher communication apprehension than men in either format. Women in online sections also reported higher apprehension in terms of communicating in groups and dyads as compared to men in either format, and significantly more apprehensive about group communication than women in traditional sections.

Changes in Apprehension Levels Between Pre- and Posttests

Research Question Three

RQ_3: Do students beginning a general speech course have different levels of various expression-based apprehension (communication apprehension and subcontexts of group, meeting, dyadic, and public speaking; receiver apprehension; writing apprehension; overall computer and web attitude and subcontexts of computer experience, computer attitude, and web attitude) as compared to students enrolled at the end of the course?

Because pre- and posttests samples were not necessarily the same students, an independent-samples t-test was conducted to evaluate changes in levels of apprehension between the pre- and posttest (see Table 8). The test was significant in terms of change for the PRCA-24, $t(371) = 2.85$, $p \leq .005$, and its subscores of group, $t(372) = 3.12$, $p < .002$, and meeting, $t(368) = 2.93$, $p < .004$; and the CWAS sub-score of computer attitude, $t(387) = 2.31$, $p < .021$.

All significant changes indicated a lower score on posttests as compared to pretests. For the PRCA-24 and its subscores this indicates less apprehension by the end of the semester; however, for the CWAS and its subscores, a lower score indicates a less positive regard toward

Table 8
Differences in Instrument Mean Scores By Pre- and Posttests

	Pretest		Posttest		
Instrument	M	SD	M	SD	t
PRCA-24	**67.6**	**16.9**	**63.0**	**14.6**	**2.8***
Group	**15.6**	**4.7**	**14.2**	**4.0**	**3.1***
Meeting	**17.0**	**5.2**	**15.5**	**4.5**	**2.9***
Dyad	14.9	4.3	14.2	3.7	1.8
Public	20.1	5.4	19.1	5.2	1.8
RAT	58.3	11.9	59.1	12.8	-0.6
WAT	87.0	19.7	87.3	21.4	-0.2
CWAS	176.6	22.0	173.6	22.9	1.3
Experience	28.8	7.3	29.6	6.8	-1.1
Computer	**70.5**	**7.9**	**68.5**	**9.4**	**2.3***
Web	77.2	9.7	75.5	10.5	1.7

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all other scales, higher means indicate higher levels of apprehension.
Results reported in bold are significant. * $p < .05$.

computers and the Internet. In order to take a closer look at the changes between pre- and posttest scores, follow-up independent sample t-tests were conducted to look at change within gender groups (see Table 9 and Table 10), format (see Table 11 and 12), and format by gender (see Table 13, Table 14, Table 15, and Table 16).

Changes in Apprehension by Gender

For males overall, a slight significant change occurred in terms of the group oral communication context, $t(156) = 1.99$, $p \leq .048$, with male posttest apprehension lower than male pretest (see Table 9). Thus men reported less apprehension about group communication at the end of the course than men at the beginning of the semester.

For females overall, the significant change was the PRCA-24, $t(220) = 2.69$, $p \leq .008$, and its subscores of group, $t(222) = 2.46$, $p < .015$, meeting, $t(219) = 2.49$, $p \leq .013$, and public speaking, $t(229) = 2.42$, $p \leq .016$ (see Table 10). Women reported less apprehension in terms of

Table 9
Differences in Instrument Mean Scores For Males By Pre- and Posttests

	Pretest		Posttest		
Instrument	M	SD	M	SD	t
PRCA-24	61.7	14.1	58.9	12.9	1.3
Group	**14.6**	**3.9**	**13.4**	**3.5**	**2.0***
Meeting	15.3	4.3	14.2	4.0	1.7
Dyad	14.3	3.3	13.8	3.5	0.9
Public	17.5	4.8	17.4	4.9	0.0
RAT	58.0	10.4	59.2	13.3	-0.6
WAT	87.2	18.2	85.3	19.2	0.6
CWAS	180.0	23.7	175.4	26.4	1.1
Experience	30.4	8.1	31.3	7.5	-0.6
Computer	71.5	8.5	68.7	10.5	1.8
Web	78.1	9.7	75.5	11.8	1.5

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all other scales, higher means indicate higher levels of apprehension.
Results reported in bold are significant. * $p < .05$.

Table 10
Differences in Instrument Mean Scores For Females By Pre- and Posttests

	Pretest		Posttest		
Instrument	M	SD	M	SD	t
PRCA-24	**71.6**	**17.5**	**65.9**	**15.0**	**2.7***
Group	**16.3**	**5.1**	**14.8**	**4.3**	**2.5***
Meeting	**18.1**	**5.4**	**16.4**	**4.7**	**2.5***
Dyad	15.4	4.8	14.4	3.8	1.7
Public	**21.8**	**5.0**	**20.2**	**5.2**	**2.4***
RAT	58.4	12.8	59.0	12.6	-0.3
WAT	86.8	20.7	88.7	22.9	-0.7
CWAS	174.2	20.5	172.4	20.2	0.7
Experience	27.7	6.5	28.5	6.0	-0.9
Computer	69.8	7.4	68.4	8.5	1.4
Web	76.7	9.6	75.5	9.7	0.9

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all other scales, higher means indicate higher levels of apprehension.
Results reported in bold are significant. * $p < .05$.

communication apprehension overall and in the contexts of groups, meetings, and public speaking on the posttest as compared to the pretest.

Changes in Apprehension by Course Format

An independent t-test revealed significant change for students in traditional sections in terms of the PRCA-24, $t(287) = 2.40$, $p \leq .017$, and its subscores of group, $t(287) = 2.39$, $p \leq .017$, and meeting, $t(283) = 2.80$, $p \leq .005$ (see Table 11). Traditional classroom posttests showed significant lower PRCA-24 group and meeting scores as compared to pretest scores. Students enrolled in online sections of the course showed no significant change in scores between pretest and posttest (see Table 12).

Table 11
Differences in Instrument Mean Scores For Students in Traditional Sections

	Pretest		Posttest		
Instrument	M	SD	M	SD	t
PRCA-24	**66.8**	**16.1**	**62.5**	**14.0**	**2.4***
Group	**15.3**	**4.6**	**14.1**	**3.8**	**2.3***
Meeting	**16.8**	**5.0**	**15.2**	**4.3**	**2.8***
Dyad	14.8	4.1	14.0	3.5	1.7
Public	19.9	5.2	19.0	5.3	1.4
RAT	59.4	11.1	60.3	12.7	-0.7
WAT	85.8	19.2	86.5	19.7	-0.3
CWAS	171.5	22.8	169.7	22.8	0.7
Experience	28.0	7.6	29.1	6.6	-1.3
Computer	68.4	8.1	66.9	9.5	1.5
Web	75.0	9.9	73.7	10.6	1.1

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all other scales, higher means indicate higher levels of apprehension.
Results reported in bold are significant. * $p < .05$.

Changes in Apprehension by Gender and Course Format

Males enrolled in traditional sections of the course showed significant change in terms of group, $t(119) = 2.07$, $p \leq .041$ (see Table 13), with male traditional group posttest scores being

Table 12
Differences in Instrument Mean Scores For Students in Online Sections

	Pretest		Posttest		
Instrument	M	SD	M	SD	t
PRCA-24	69.5	18.9	65.1	16.7	1.2
Group	16.3	5.0	14.5	4.7	1.7
Meeting	17.5	5.7	16.6	5.1	0.8
Dyad	15.3	4.7	14.7	4.4	0.6
Public	20.5	5.9	19.2	5.0	1.1
RAT	55.5	13.2	54.3	12.0	0.5
WAT	90.0	20.7	90.4	27.1	-0.1
CWAS	189.2	13.2	188.3	16.6	0.3
Experience	30.8	6.1	31.5	7.2	-0.5
Computer	75.7	4.3	74.4	5.8	1.2
Web	82.7	6.3	82.4	7.0	0.2

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all other scales, higher means indicate higher levels of apprehension.
Results reported in bold are significant. * $p < .05$.

lower than pretest scores.. Males enrolled in online sections of the course showed no significant changes (see Table 14). Females, on the other hand, enrolled in traditional sections of the course showed significant change in terms of the context of meeting, $t\ (164) = 2.18$, $p \leq .031$, with females in traditional classrooms have higher meeting pretest scores as compared to posttest scores (see Table 15). Females in online sections of the course showed significant change with public speaking, $t\ (61) = 2.01$, $p \leq .049$, with females in online classes having higher public speaking apprehension scores in the pretest as compared to the posttest (see Table 16).

Overall Changes Between Pre- and Posttests

Men overall showed a significant decrease in group communication apprehension between pre- and posttests, whereas women showed a decrease in overall, group, meeting, and public speaking communication apprehension. Students enrolled in traditional sections of the course reported a significant decrease in communication

Table 13
Differences in Instrument Mean Scores For Males in Traditional Sections

	Pretest		Posttest		
Instrument	M	SD	M	SD	t
PRCA-24	63.1	14.1	59.4	11.8	1.5
Group	**15.0**	**4.0**	**13.6**	**3.1**	**2.1***
Meeting	15.7	4.3	14.3	3.7	1.9
Dyad	14.6	3.3	14.1	3.3	0.9
Public	17.8	4.7	17.4	4.9	0.5
RAT	60.0	9.9	61.4	12.4	-0.7
WAT	86.6	17.9	84.2	15.5	0.8
CWAS	174.8	24.8	171.4	26.1	0.7
Experience	29.8	8.5	30.8	7.3	-0.6
Computer	69.3	8.8	67.0	10.6	1.3
Web	75.7	10.0	73.6	11.7	1.0

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all other scales, higher means indicate higher levels of apprehension.
Results reported in bold are significant. * $p < .05$.

Table 14
Differences in Instrument Mean Scores For Males in Online Sections

	Pretest		Posttest		
Instrument	M	SD	M	SD	t
PRCA-24	57.5	13.8	56.8	16.9	0.1
Group	13.4	3.2	12.5	4.8	0.7
Meeting	14.4	4.3	13.9	5.0	0.3
Dyad	13.4	3.0	12.8	4.0	0.5
Public	16.4	5.1	17.7	5.1	-0.7
RAT	52.3	9.9	50.4	13.3	0.5
WAT	89.1	19.5	89.8	30.2	-0.1
CWAS	194.8	11.0	191.5	21.5	0.6
Experience	32.2	6.8	33.3	8.2	-0.5
Computer	77.8	3.1	75.3	7.2	1.2
Web	84.9	4.4	82.9	8.9	0.8

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all other scales, higher means indicate higher levels of apprehension.
Results reported in bold are significant.

Table 15
Differences in Instrument Mean Scores For Females in Traditional Sections

	Pretest		Posttest		
Instrument	M	SD	M	SD	t
PRCA-24	69.5	17.0	64.6	15.0	1.9
Group	15.6	5.0	14.5	4.2	1.5
Meeting	**17.6**	**5.3**	**15.9**	**4.6**	**2.2***
Dyad	14.9	4.5	14.0	3.6	1.5
Public	21.4	5.0	20.2	5.3	1.5
RAT	58.9	11.9	59.6	13.0	-0.4
WAT	85.2	20.1	88.2	22.1	-0.9
CWAS	169.0	21.0	168.4	20.3	0.2
Experience	26.7	6.5	28.0	5.9	-1.4
Computer	67.8	7.5	66.8	8.7	0.8
Web	74.6	10.0	73.7	9.8	0.6

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all other scales, higher means indicate higher levels of apprehension.
Results reported in bold are significant. * $p < .05$.

Table 16
Differences in Instrument Mean Scores For Females in Online Sections

	Pretest		Posttest		
Instrument	M	SD	M	SD	t
PRCA-24	76.4	18.0	70.1	14.6	1.4
Group	18.0	5.0	15.8	4.2	1.7
Meeting	19.2	5.7	18.2	4.5	0.8
Dyad	16.4	5.2	16.0	4.3	0.3
Public	**22.8**	**4.9**	**20.2**	**4.9**	**2.0***
RAT	57.4	14.5	56.7	10.8	0.2
WAT	90.5	21.6	90.7	25.7	-0.0
CWAS	186.0	13.4	186.3	12.9	-0.1
Experience	30.0	5.6	30.4	6.4	-0.2
Computer	74.6	4.5	73.9	4.8	0.6
Web	81.4	6.8	82.0	5.6	-0.4

Note. PRCA-24 = Personal Report of Communication Apprehension, Public = Public Speaking, RAT = Receiver Apprehension Test, WAT = Writing Apprehension Test, CWAS = Computer & Web Attitude Scale, Experience = Computer Experience Scale, Computer = Computer Attitude Scale, Web = Web Attitude Scale. For CWAS, Experience, Computer, and Web, higher means indicate higher levels of experience and positive regard. For all other scales, higher means indicate higher levels of apprehension.
Results reported in bold are significant. * $p < .05$.

apprehension overall and in the contexts of groups and meetings between pre- and posttests. Men in traditional settings showed a significant decrease in group communication apprehension between pre- and posttests, whereas women enrolled in traditional sections showed a significant decrease in levels of meeting communication apprehension between pre- and posttests. Students enrolled in online sections of the course did not show significant changes in any of the measures; however, women online reported a significant change in public speaking apprehension.

Results overall suggests correlations between various apprehensions, as well as differences in expression-based apprehension as related to both course format and gender. The following chapter further explains data findings, identify limits in the experimental design, and suggest further direction of study.

CHAPTER 4

DISCUSSION

In this study four types of expression-related apprehension were explored: (oral) communication apprehension and its subcontexts of group, meeting, dyadic, and public speaking; (listening) receiver apprehension; writing apprehension; and (technology) computer and web attitude and its subcontexts of experience, computer attitude, and Internet attitude. To explore potential correlations between and among these forms of apprehension and trends based on gender or course format (online or traditional), students within the sample completed a pre- and posttest consisting of a demographic survey and four instruments: the Personal Report of Communication Apprehension (PRCA-24), the Receiver Apprehension Test (RAT), the Writing Apprehension Test (WAT), and the Computer and Web Attitude Scale (CWAS). Data were analyzed using Pearson correlation coefficients, general linear model, post-hoc, and t-tests.

Results suggest correlations not only between and among instruments and subscores but also between and among various manifestations of apprehensions related to communication. Apprehension levels also differed in terms of gender and format (traditional or online sections of the course) enrollment, and changes were found between pre- and posttest results for specific samples. Based on the findings from this study, this chapter addresses the following: (1) conclusions that may be drawn from the research, (2) key limitations of the study, and (3) implications for future research and practice.

Conclusions

Interactions Between Apprehensions

Overall pretest interactions. Correlations were found between various expression-based apprehensions similar to theory and findings of previous literature, such as receiver apprehension

with communication apprehension (Wheeless, 1975) and writing apprehension with communication apprehension (Daly & Miller, 1975b). Receiver apprehension positively relates to communication apprehension overall and in all four contexts of group, meeting, dyadic, and public speaking; this may be expected as oral communication also relates to taking the role of receiver and apprehension in one area may result in avoidance of practice for both roles. Results also show receiver apprehension may negatively relate to writing apprehension, suggesting those who are anxious about communicating orally may be more comfortable with written thoughts and reactions. After all, students who are apprehensive about communicating in class may show a preference toward printed sources such as books and the Internet in order to gain more knowledge (Kelsey, 2000), and students may experience anxiety about evaluation of writing differently than the immediate, face-to-face feedback which accompanies speaking in class.

With the trend between receiver and writing apprehension supported by this research, it may seem surprising to also find a negative relationship between receiver apprehension and computer and web attitude due to the use of written correspondence with computers and the Internet. This difference may potentially be explained through considering the difference between writing expecting a direct response, which may be expected in computer-mediated communication, verses writing as a form of personal expression. Writing apprehension is related to competency as defined through grammar and other mechanics of composition and a concern of critique over elements such as quality and structure of the piece (Daly, 1978).

Previous research reviewed for this study has found little to no relationship between writing apprehension and technology (McDowell, 1998; Scott & Rockwell, 1997; Scott & Timmerman, 2005). Perhaps the informality of computer-mediated communication offers more freedom for writing apprehensive students from the concerns of high standards and required

editing; further exploration regarding student perspectives of differences in writing requirements between traditional and online classes may reveal further insight into this trend. Previous research on writing apprehension may be related strictly to the traditional classroom, and thus further research is needed to look for patterns regarding writing online practices.

Results suggest writing apprehension to be negatively correlated with receiver apprehension, as discussed above, and with communication apprehension (overall and in all four CA contexts). Writing apprehension also showed surprising positive correlations with computer and web attitude and all three subscores, thus as writing apprehension increased, students in the pretest sample had more positive regard for computers and the Internet. Again, perhaps this is related to a different understanding of standards and demands when writing for the classroom, for which a version of the WAT was designed (Daly & Miller, 1975b), verses personal computer use and the Internet. Or perhaps those students who are writing apprehensive feel safer using a computer to help proofread and edit. It is also possible students who do not enjoy writing still enjoy reading information on the Internet or using computers for other experiences, such as multimedia images and videos. More information on student preferences is needed to suggest the reasoning behind the trend.

Online interactions. For students enrolled in online sections of the course, receiver apprehension related positively to communication apprehension overall and in all contexts. As with the overall pretest correlation results, receiver apprehension is also related negatively to both writing apprehension and computer and web attitude overall. Thus results suggest students enrolled in online versions of the course with higher receiver apprehension were also concerned about speaking but felt more comfortable with writing. Students in online sections also showed a significant negative connection between receiver apprehension and computer experience but not

between receiver apprehension and computer attitude or web attitude individually. The students who were apprehensive about receiving information thus showed overall less positive regard toward computers and the Internet and reported less experience with technology compared to those students in online sections with lower receiver apprehension.

This is consistent with the belief that computer experience has an influence on comfort in using and positive regard for computers (Weil et al., 1990). Perhaps those students who are more anxious about receiving information in general are also anxious about using computers and the Internet as this may be a source of information to process, especially when taking courses online; however, more research is needed to understand this trend.

Writing apprehension also negatively related to communication apprehension in terms of overall CA, group, meeting, and dyadic communication, but there was no significant correlation with public speaking although there was a negative trend. Perhaps this is due to the more common prevalence of anxiety associated with public speaking (Ayres & Hopf, 1993). Or perhaps the relationship is not significant because public speaking involves more writing and planning than the other contexts and thus there is still more concern of evaluation of messages originating in writing, the key component of writing apprehension according to Daly and Miller (1975b). Although these findings relate specifically to students in online sections, further research on writing apprehension as related to public speaking may help examine any possible correlations further and thus help instructors offer further support for public speaking skills through preparation and anxiety reduction for courses offered online and in the traditional classroom.

Contrary to possible expectations avoiding face-to-face communication by turning to the Internet, public speaking showed a negative correlation to computer and web attitude overall and

to all three subscores of experience, computer attitude, and web attitude. This result may be explained by students considering the Internet as a new public forum or perhaps because students enrolled in online classes may make the connection between communicating with classmates online and speaking before these classmates during upcoming presentations. Thus computer and Internet attitude becomes intertwined with public speaking anxiety inversely because it is a key component of communication apprehension, which is fear of "real *or anticipated* communication" (McCroskey, 1977b, p. 78, emphasis added).

If both higher apprehension about public speaking and low positive regard for computers is present before the course starts, students may be choosing what they consider the "lesser evil" between taking a class via computer and Internet and facing their public speaking audience in person throughout the semester. Or perhaps students are registering for online sections hoping to avoid speeches all together, misunderstanding how Internet-based versions of an oral intensive course work. It is also possible that time constraints or personal convenience may force students into online sections of the course regardless of experience or attitude regarding computers and the Internet; after all, flexibility of timing is an important aspect of taking online courses (Clark & Jones, 2001; Ko & Rossen, 2004).

Students who are more comfortable with computers and the Internet may also be less anxious about the class as a whole and thus less concerned from the start with receiving information and even the eventual public speaking requirements. Comfort with the course format should help relieve receiver apprehension, as practice and familiarity with computers and the Internet may build confidence and thus relieve anxiety related to the fear of not being able to adequately process or adjust to information (i.e., receiver apprehension) (Wheeless, 1975). Some influencing factors of apprehension are also affected by the format; the fear of social evaluation

may be lessened as the computer provides more anonymity while distancing students from some nonverbal cues (Wheeless).

A positive regard for the online format may also increase motivation to handle information conveyed. Regarding public speaking, the online format of the course may provide a further sense of anonymity regarding the peers students will interact with throughout the semester and to which they will present, or else students are not as focused or reminded of the speech through focusing on other elements. Future research may be able to provide more clarity about how students' attitude regarding computers and the Internet correlates to acting as a receiver or (public) sender as well as providing more insight into student beliefs and opinions about communicating via the online format.

Traditional interactions. Students enrolled in traditional sections of the class also reported a positive correlation between receiver apprehension and communication apprehension overall and regarding all four CA contexts. Results also indicated a negative correlation between receiver apprehension and writing apprehension, as discussed previously, and a negative correlation between receiver apprehension and computer and Internet attitude (overall and individually) but not between receiver apprehension and computer experience. This may suggest the amount of computer experience does not significantly affect how students in traditional sections view their role as receiver when it comes to using computers or the Internet. As Weil et al. (1990) point out, computer exposure may not directly influence apprehension as often computers and the Internet are seen as entertainment; it is a combination of exposure with evaluation and critique that can set up computer apprehension. The amount of experience thus may not be as relevant, rather it is the strength of the impression formed about computers and the Internet that has more impact. Or perhaps receiver and communication apprehension function

differently online than in person. More research into the potential impact of computer apprehension on receiving information may be beneficial to the field of communication as a whole and to instructors of online courses across disciplines.

Writing apprehension for students in traditional sections is negatively correlated to receiver apprehension but also to communication overall and in terms of anxiety about speaking in meetings, dyads, and publically but not in groups. Perhaps this is because students in traditional classrooms do not expect to have their writing critiqued while working in groups the same way they might expect to have writing critiqued in meetings (such as a class) or while discussing an assignment one-on-one, or as related to public speaking such as speech writing or on presentational aides. After all, there is less risk of "self-exposure" in groups (Vielhaber, 1983, p. 22). Or if writing is critiqued in groups perhaps students expect to be shielded and supported by the group and thus receive a different level of criticism and negative feedback.

Writing apprehension for students in traditional sections, however, does correlate positively with computer and web attitude overall and in all three subscores. Again, this may be explained through different perceptions of writing standards and styles involved with computers and the Internet verses class-based writing assignments. For example, spelling and grammar are not common concerns on the Internet, and thus students in traditional courses may view the Internet as separate from writing papers and responses for school. Students with apprehension regarding writing may also spend a lot of time and consideration through continuous editing in the process of writing (Vielhaber, 1983); computers and the Internet may provide extra support in proofreading and answer questions regarding information or writing styles, and thus may be viewed more positively.

Differences between interactions. Overall apprehension correlations for students enrolled in both formats are similar, particularly regarding (1) receiver apprehension with communication apprehension (overall and in all four subcontexts), writing apprehension, and computer and web attitude overall, and (2) writing apprehension with communication apprehension (overall, meeting, and dyads). However, results suggest a few differences also exist. A negative relationship exists between receiver apprehension and computer experience for students enrolled online and between receiver apprehension and computer attitude and web attitude separately for students in traditional sections.

Students enrolled in online sections of the course with more computer and web experience are more likely to be comfortable receiving information, perhaps because those who feel comfortable signing up for online courses are used to the variety of sources and media available, and thus overall complexity of information available via the Internet (Al-Bataineh et al., 2005). This variety of sources may provide practice receiving and processing complex messages and ideas, which in turn influences receiver apprehension by building skills and confidence (Ayres et al., 1995; Preiss & Wheeless, 1989).

For students who chose to enroll in traditional sections, the amount of experience was not as important as having a positive or negative regard for computers and the Internet. Perhaps as discussed regarding students enrolled in online sections, positive regard leads to more practice of receiving complex information and thus more comfort and confidence in being a receiver, yet students in traditional sections do not have as powerful experiences regarding experience with computers and technology as those who choose to sign up for online sections of the course. Future research may help shed more light on the differences between students in traditional and online sections regarding receiving information and computer attitude and experience.

Triangulating research outcomes through including qualitative research may be especially beneficial in receiving more information about the type and impact of computer experience in particular. For example, learning more about students' most powerful experiences with computers and the Internet may reveal patterns of exposure to Internet use that in turn influences anxiety or comfort.

Writing apprehension for online sections negatively relates to group communication but not public speaking, while the opposite is true for traditional sections. Online sections of the course required upcoming group work to be completed via course Blackboard sites, a situation that may be new and thus less comfortable for students who are not experienced in working collaboratively through writing. Because the Internet-based sections meet in person for speeches, it is possible students separate speeches from the rest of the written coursework. Students in traditional sections may view and report things differently, as group work involves face-to-face discussion and collaboration that may allow apprehensive individuals to avoid writing through passing off the task to someone else. Public speaking, however, still requires individual planning and writing for two speeches and the student will be critiqued on how he or she pulls information together in a pattern that mirrors writing.

Results show a positive correlation between writing apprehension and computer and web attitude and between writing apprehension and all three subscores for students in traditional sections but not for students enrolled in online sections. Perhaps students in traditional sections consider computers and the Internet useful in preparing and editing written work, whereas students in online sections are more accustomed to receiver and multimedia uses of computers and thus do not strongly associate the two.

Also, results show a negative correlation for students enrolled in online sections between public speaking and overall computer and web attitude and between public speaking and the sub-score of computer attitude specifically. The same correlation was not found for students in traditional sections. Perhaps through communicating with a broad audience under the anonymity of the Internet builds confidence for public speaking. More research is needed to learn about correlations between public speaking and computer-mediated communication; in particular, student descriptions of differences and similarities between communicating to groups in person and online may be beneficial.

Differences in Apprehension Levels

Apprehension levels by format. Students in traditional sections reported higher levels of receiver apprehension as compared to students enrolled in traditional sections. The face-to-face interaction of the traditional classroom may encourage students to think differently about enacting the role of a receiver as compared to students online. Traditional classrooms provide the opportunity for face-to-face interaction with instructors and classmates that may produce more anxiety about correctly processing information and responding on the spot and thus more receiver apprehension (Wheeless, 1975). Or perhaps students who are already anxious about receiving information may feel more comfortable with more traditional settings and thus not want to test or experience classes in new formats. After all, students may choose traditional courses over online counterparts based on comfort and familiarity (Clark & Jones, 2001; Robinson & Doverspike, 2006).

As may be expected, students who choose to enroll in traditional sections also reported less positive regard for computers and Internet overall and in all three subscores (experience, computer attitude, and web attitude). Students who are less familiar with, and thus may have less

positive regard towards, computers are more likely to think more positively of the traditional courses they are accustomed to and are logically more likely to stay within in their comfort zone (Clark & Jones, 2001; Robinson & Doverspike, 2006).

Apprehension levels by gender. Although there was no overall correlation between communication apprehension and computer and web attitude, significant gender differences suggest a negative trend. Men reported more positive regard for computers and the Internet overall, more positive computer attitude, and more experience with computer technology when compared to women. Women, on the other hand, reported more apprehension regarding communication apprehension overall and regarding all four subscores. With less computer experience overall, women may be less likely to develop positive experiences and thus positive opinions about computers and the Internet. Perhaps a lack of experience and comfort for women is perpetuated, as women from previous generations with less experience may be responsible for showing girls and women computers (Weil et al., 1990) or at least for modeling anxiety which may then be learned.

Regarding communication apprehension, apprehension would lead to avoidance when possible, and a lack of practice in turn would impact skill development and thus lead to less confidence and more apprehension (McCroskey, 1997). CA overall results in discomfort, interrupted skill development, skewed observation and understanding of communication, withdrawal, and disrupted communication patterns (McCroskey, 1997). Yet, if communication apprehension trends parallel those of receiver apprehension, where women are actually better prepared to receive information when apprehension is present compared to women who are less apprehensive (Clark, 1989) and the opposite was found to be true for men, the experience of apprehension may not be all negative for women. Further research and feedback may yield more

information on the impact of apprehension on communication effectiveness (i.e., understanding and interpretation, skill development and practice, and avoidance patterns) in various settings for both genders. Knowledge on these differences would allow instructors to plan ahead to target apprehension for particular populations as necessary to best serve students.

Apprehension levels by format and gender. Results indicated women in traditional classrooms reported significantly higher communication apprehension compared to men in these sections, and women online reported higher CA than men in either format. Likewise, women online reported higher apprehension about communicating in groups than men in either format or women enrolled in traditional sections and more apprehension about communicating in dyads than all others – but especially men in traditional sections. Thus women enrolled in online sections were the most apprehensive about communication.

These results relate to the previously described trend of women overall having higher communication apprehension yet a lower positive regard for computers and the Internet that may also add anxiety. Women may be enrolling in online sections despite lesser regard for computers and the Internet due to other obligations and time constraints such as family and work (Ko & Rossen, 2004). Perhaps communicating with classmates and group members online creates new or builds on existing anxieties for women in online sections, or perhaps women who choose to enroll in online sections of the class are seeking to avoid the discomfort of feedback and criticism face-to-face communication through taking Internet-based courses (Stritzke et al., 2004) and remaining protected through the feeling of anonymity (Mattes et al., 2003).

Changes Between Pre- and Posttests

The t-tests showed significant change between pre- and posttests in terms of lower communication apprehension overall, in groups, and meetings. Posttests overall also showed

lower positive regard for computers specifically. As the course focuses on developing communication skills while managing anxiety and building confidence, results are in line with suggested potential treatments for communication apprehension overall (Beatty & McCroskey, 2000b; McCroskey & Beatty, 1998). The course encourages interaction and practice that may otherwise be avoided by apprehensive individuals, and indeed in the past students have withdrawn from the class or else put it off until the last possible semester due to anxiety. Involvement in the class encourages practice of communicating within class or group settings specifically throughout the semester and thus a stronger change may be found in these two contexts specifically. The lower regard for computers at the end of the course may be related to negative experiences during the semester, but further research would be needed to determine the factors involved in the lower reported mean score.

Changes by gender. For men, the only significant change was in group communication, with posttests showing lower apprehension, whereas women showed lower overall communication apprehension as well as lower apprehension in three contexts of group, meeting, and public speaking. While pre- and posttests could not be matched and thus course enrollment may have changed somewhat between pre- and posttests, overall it seems the course has the most impact on communication apprehension for women; considering the trend for women to have higher CA overall, it may be of little surprise this population is impacted the most. Ultimately female posttests reported mean scores closer to male pretests, while male posttest means were lower but not significantly lower than male pretests with the exception of groups noted earlier.

Because communication apprehension interferes with understanding communication and developing and practicing the skills necessary to communicate clearly, particularly by avoidance and withdrawal (Beatty & McCroskey, 2000b; McCroskey & Beatty, 1998), women in particular

may benefit from lowering apprehension through course information and especially the exposure to positive experiences and practices in communication offered by a basic communication course. Men reported lower communication apprehension from the beginning, and therefore may have different experiences and approaches to communication as a whole. Results suggest while men may still be able to learn skills and build confidence from taking a communication course, they are less likely to experience a change as large as women, who may be experiencing a new-found opportunity to learn and practice skills through taking the course. The t-test results suggest men are gaining the most new experience in the course through learning about and practicing communicating in groups. Further investigation of gender differences in communication apprehension and contexts may reveal more and help direct communication course structure.

Changes by format. Students enrolled in traditional sections of the course reported lower communication apprehension overall, as well as in the contexts of groups and meetings, on posttests as compared to pretests. Students in online sections while showing lower mean scores, did not report significant change between pre- and posttests. Perhaps the face-to-face practice of communication within the traditional format was beneficial for lowering apprehension in terms of what students think of when asked about comfort or discomfort; as mentioned above, knowledge and practice, particularly in terms of group work and class meetings as a whole, combined may help develop skills and better prepare students to handle anxiety (Beatty & McCroskey, 2000b; McCroskey & Beatty, 1998).

The failure to find significant change between pre- and posttests for online sections of the course may be explained through the fact that oral practice, as the traditional course provides, may build more confidence in dealing with face-to-face situations than discussing and developing skills online. Yet ultimately results from this study counter previous trends of student

achievement for online courses being consistent with traditional courses (Allen, 2006); however, the low number of completed instruments online, and particularly the posttest (N=34), may have skewed the results. Future research with a larger sample size may provide more clarity.

Changes by gender and format. Men enrolled in traditional sections of the course reported a significantly lower level of apprehension regarding group communication, as to be expected based on overall male pre- and posttest changes; however, men in online sections showed no significant change. Perhaps men in traditional sections practiced more group communication skills than men in online sections and thus improved comfort more by the end of the class. Or perhaps men who enroll in online sections start with lower apprehension because they are more familiar with group communication and collaboration to begin with and thus there is not as much room for growth by the end of the course. Any differences in experience and background for men between sections may be further discovered through in-depth interviews, thus providing more detail to the potential difference in needs between men in traditional sections and men in online sections.

Women in traditional classes showed significant change in terms of the context of meetings. This may suggest women in the classroom practice communicating in larger group discussions and thus become more comfortable in meeting type settings. Women online showed significant change for public speaking. Perhaps women enrolling in online sections who reported the highest mean score of public speaking anxiety find the Internet a safer medium to learn about communication and build skills and confidence even while presenting two speeches in person during the semester. Ultimately more questions need to be asked of students to better understand the trends and best serve those students enrolled in either format of a basic communication course.

Limitations

This study included the following limitations that may have an influence on the results and should be taken into consideration with any future research. Limitations include length and design of instrument packet, timing and access to students, and lack of qualitative student feedback. Thus, the triangulating element planned had to be forfeited.

Packet Design

In order to check for a variety of apprehensions full-length, modified versions of the PRCA-24, RAT, WAT, and CWAS were distributed to students in the pre- and posttest packets, along with a demographics survey. In total, students were given 14 questions to answer and 118 Likert-scale items to rate. While students enrolled in online sections of the course were able to complete the packet at their leisure during the first week of class, students in traditional sections were asked to complete the lengthy packet at once which may have lead to less care in completing all items and less overall concern with answers in order to finish quicker. For students online, there was also the possibility of completing only sections of the packet and thus being removed from the sample. Traditional section packets were double sided, which may have caused a few students to overlook items.

Access to the Sample

Timing for the completion of instrument packets was also a concern. For those traditional sections participating, the researcher had to schedule around other classroom activities in order to have packets completed by students. This included collecting results from two sections a couple of weeks earlier than the rest, and having two sections complete packets on the day of a speech, which would not only impact apprehension but also put all students under pressure to complete the packet quickly.

For online sections, announcements and emails by the investigator and instructors were used to contact students and request participation. While online enrollment dropped between pre- and posttests, ultimately the limited number of posttest responses may come from last minute contact with students regarding the posttest. Students in online sections who finished course work early were also less likely to receive announcements or log back into the site in time, thus potentially limiting numbers at the end of the semester.

Qualitative Feedback

While self-report measurements may suggest trends in correlations between various types of apprehension and in choice of format enrollment, ultimately qualitative feedback from students is needed in order to gain further insight into the meaning behind the numbers. In the original design of this study focus groups were planned; however, a lack of student participation resulted in the omission from the end result of this study.

Future research may benefit by allowing students to expand on apprehension score results and comment on various factors involved in course format selection. Between students' reports of apprehension, their personal comments and explanations as to their interpretation of and approach to the apprehension constructs they are reporting, and insights about previous experiences and expectations, future research may benefit through the triangulation of various sources. This would lead to more information and potentially more accurate interpretations of the data rather than taking patterns at face value.

Suggestions for Future Research

To address the limitations of this study, a shorter version of the instruments should be used or else students in traditional sections of the course should be asked to complete the instruments in stages. It is also important to avoid distribution that may conflict with speeches or

other such anxiety-creating and time consuming assignments and to schedule early on and remind instructors and students of upcoming assessments.

Future Implications

In order to further expand understanding of expression-based apprehension and address the limitations of this study, future research is suggested. While communication apprehension has been studied in the traditional classroom, limited research is available on CA in Internet-base courses. Due to the continuing trend of higher education to offer online sections of various courses, including communication, the effects of apprehension online may be very important in planning and implementing classes that best meet the needs of students. Attitude toward and apprehension regarding computers and the Internet is also an important element to consider as computers continue to become an intricate part of education, careers, and everyday life.

Numerous searches have yielded limited results regarding the correlation of various expression-based apprehensions, yet students may operate under a number of pressures and concern, and isolating individual elements may not provide a clear picture of students' experiences. Instructors acting on limited information may simplify the problem and thus fail to take the best course of action to truly address the needs of students in order to encourage learning and foster personal and professional growth.

This study suggests the possible complex interplay of apprehensions, especially as related to differences in both gender and course format. While apprehension has been an important research area in the field of communication, the prevalence of computers within and beyond the classroom call for an expansion and possible redefinition of common expression-based apprehensions. As colleges offer more and more online or hybrid courses, instructors will need to

be knowledgeable and prepared to deal with pedagogical differences in order to provide the best learning opportunity available.

Heuristic Value

In closing, student anxiety impacts learning and class outcomes. As communicating in various forms and formats may create anxiety for students, it is important to consider the possible relationship between various expression-based apprehensions on student learning and performance. With the increase in online and hybrid courses, it is also important to consider the impact of computers on learning, and to consider differences in online and traditional courses. Because communication is a crucial skill in all aspects of life, it is particularly important to learn more about factors that may impact student learning in communication courses so that the knowledge and skills contained in within class can be learned and applied even beyond the classroom.

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APPENDIXES

Appendix A

Letter of Introduction

August 11, 2006

Dear Participant:

My name is Tabitha Bailey, and I am a graduate student at East Tennessee State University. I am working on my master's degree in Professional Communication. I also am an instructor of two online sections of SPCH 1300 under Dr. Cutspec's supervision, and I have a vested interest in making sure the course is as beneficial as possible for students. In order to finish my studies, I need to complete a research project and have chosen to study what characteristics and practices lead to a successful introductory, general education, hybrid communication courses (like General Speech). The name of my study is Exploring Faculty and Student Characteristics for Successful Online and Classroom-Based Introductory, General Education, Hybrid Communication Courses.

The purpose of this study is to identify the evidence-based characteristics of students and instructors of General Speech that lead to positive class outcomes (e.g., a reduction in anxiety and an increase in knowledge and skills) in online and classroom-based formats. Evidence-based characteristics and best practices for self-directed and instructor-directed instruction will be identified on individual, group and class levels by (1) examining the expectations, experience, confidence and apprehension levels of students and instructors, (2) feedback on characteristics and practices that best lead to positive outcomes, and (3) ultimately examine the trends unique to each class format.

I would like to give a brief demographical survey and four self-assessment instruments to students currently enrolled in your section of SPCH 1300. It should only take about 30 minutes to complete. There will also be a posttest at the end of the semester which will consist of just the self-assessment instruments. There are no alternative procedures other than to not participate.

You will be asked questions about your experience and comfort in communicating in different settings, writing, and using a computer and the Internet. Since this project deals with situations that may cause anxiety, it might cause some minor stress. However, as with any self-reflection, you may experience personal growth and development. Also, you will be assisting in an examination of the impact of online sections of SPCH 1300, which may in turn lead to adjustments for the betterment of future students.

Select groups may also be invited to participate in focus group interview/discussion sessions, one toward the beginning of the semester and a follow-up at the end of the semester. During this time, participants will discuss expectations, experiences, and those characteristics and best practices that help or hinder the class. Participants completing the survey may still decline to participate in the focus group.

Your participation will be completely anonymous and confidential. In other words, there will be no way to connect your name with your responses. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the ETSU IRB, and myself and my committee chair Dr. Cutspec will have access to the study records.

If you do not want to fill out the survey or participate in an interview, it will not affect you in any way. Should extra credit be offered for your completion of the pre- and posttest instruments, an equivalently option will be available for the same credit.

Participation in this research experiment is voluntary. You may refuse to participate. You can quit at any time. If you quit or refuse to participate, the benefits or treatment to which you are otherwise entitled will not be affected.

There are also a select number of reasons that a participant may be removed from the study without his or her consent. These include dropping or withdrawing from the initial section of SPCH 1300, reporting to be a minor (under 18), or failing to complete both pre- and posttest instruments. Likewise, students who enroll in a section of the class following the administration of the pretest will not be included in the sample.

If you have any research-related questions, you may contact me (ztlb63@imail.etsu.edu, or via phone at (423)439-4170). I am working on this project together under the supervision of Dr. Patricia A. Cutspec. Also, the chairperson of the Institutional Review Board (IRB) at East Tennessee State University is available at (423)439-6055 if you have questions about your rights as a research subject. If you have any questions or concerns about the research and want to talk to someone independent of the research team or you can't reach the study staff, you may call an IRB Coordinator at (423)439-6055 or (423)439-6002.

Sincerely,

Tabitha L. Bailey

Appendix B

Demographics

In order to help look for trends in the data, please provide the following information.

1. Section number: ____

2. Are you taking this class while living on ETSU's main campus (Johnson City, TN)?
   [ ] Yes [ ] No

3. If you are not living on the main campus (Johnson City, TN) of ETSU, in what city and state or country are you located? _____

4. What is your gender? [ ] Male [ ] Female

5. What is your age? ____

6. Is English your native language? [ ] Yes [ ] No

7. If no, please list your native language: _____

8. Number of completed semesters in college: ____

9. Major/Intended Major: _____

10. Have you taken any other public speaking related course at the college level?
    [ ] Yes [ ] No

11. Have you ever registered for SPCH 1300 at ETSU before? [ ] Yes [ ] No

12. If yes, would you be willing to participate in an interview to help us improve the course?
    [ ] Yes [ ] No

13. Have you ever taken an online class before? [ ] Yes [ ] No

14. Please list any factors that influenced your decision not to take SPCH 1300 online:

_____

_____

_____

_____

_____

Thank you for your participation! ☺

Appendix C

Personal Report of Communication Apprehension (PRCA-24)

The PRCA-24 is an assessment tool designed by Dr. James C. McCroskey to test the level of comfort or apprehension experienced within certain communication settings.

Please note your "score" on this "test" will NOT affect your grade.

1. I dislike participating in group discussions.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. Generally, I am comfortable while participating in group discussions.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. I am tense and nervous while participating in group discussions.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. I like to get involved in group discussions.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. Engaging in a group discussion with new people makes me tense and nervous.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. I am calm and relaxed while participating in group discussions.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. Generally, I am nervous when I have to participate in a meeting.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. Usually, I am comfortable when I have to participate in a meeting.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. I am very calm and relaxed when I am called on to express an opinion at a meeting.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. I am afraid to express myself at meetings.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. Communicating at meetings usually makes me uncomfortable.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

(Over)

12. I am very relaxed when answering questions at a meeting.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

13. While participating in a conversation with a new acquaintance, I feel very nervous.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

14. I have no fear of speaking up in conversations.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

15. Ordinarily I am very tense and nervous in conversations.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

16. Ordinarily I am very calm and relaxed in conversations.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

17. While conversing with a new acquaintance, I feel very relaxed.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

18. I'm afraid to speak up in conversations.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

19. I have no fear of giving a speech.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

20. Certain parts of my body feel very tense and rigid while giving a speech.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

21. I feel relaxed while giving a speech.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

22. My thoughts become confused and jumbled when I am giving a speech.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

23. I face the prospect of giving a speech with confidence.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

24. While giving a speech, I get so nervous I forget facts I really know.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Appendix D

Receiver Apprehension Test (RAT) (Modified)

The following is a modified version of Dr. Lawrence R. Wheeless's RAT, created to examine the level of comfort or apprehension an individual experiences when listening to messages.

Please note your "score" on this "test" will NOT affect your grade.

1. I feel comfortable when listening to others on the phone.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. It is often difficult for me to concentrate on what others are saying.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. Discussions that try to sway my opinion make me uncomfortable.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. When listening to people I am attracted to, I find it easy to concentrate on what is being said.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. I have no fear of being a listener as a member of an audience.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. I feel relaxed when listening to new ideas.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. I generally become uneasy when reading messages that expect a response.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. I would rather not have to listen to other people at all.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. I am generally overexcited and rattled when others are speaking to me.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. I often feel uncomfortable when listening to others.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. Lectures are easy for me to follow and comprehend.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

12. My thoughts become confused and jumbled when reading important information.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

(Over)

13. I often have difficulty concentrating on what others are saying.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

14. I enjoy being a part of an audience when I will be giving the speaker feedback.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

15. Receiving new information makes me feel nervous.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

16. Watching television makes me nervous.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

17. When on a date I find myself tense and self-conscious when listening to my date.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

18. I find my thoughts are jumbled when following a discussion to which I know I am expected to respond.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

19. I enjoy being a good listener.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

20. I generally find it easy to concentrate on what is being said.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

21. I often become tense during classroom discussions.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

22. I seek out the opportunity to listen to new ideas.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

23. I have difficulty concentrating on instructions others give me.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

24. I generally find it easy to take in information when listening to an audio recording.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

25. It is hard to listen or concentrate on what other people are saying unless I know them well.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

26. I feel tense when listening as a member of a social gathering.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

27. Videos that attempt to change my mind about something make me nervous.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Appendix E

Writing Apprehension Test (WAT) (Modified)

The following is a modified version of Dr. John A. Daly and Michael D. Miller's WAT, created to examine the level of comfort or apprehension an individual experiences with writing.

Please note your "score" on this "test" will NOT affect your grade.

1. I avoid writing.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

2. I have no fear of my writing being evaluated.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

3. I look forward to writing down my ideas.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

4. I am afraid of writing when I know they will be evaluated.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

5. Taking a class that requires a lot of writing is a very frightening experience.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

6. Handing in a writing assignment makes me feel good.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

7. My mind seems to go blank when I start to work on a writing assignment.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

8. Expressing ideas through writing seems to be a waste of time.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

9. I would enjoy submitting my writing to newspapers or magazines for evaluation and publication.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

10. I like to write my ideas down.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

11. I feel confident in my ability to clearly express my ideas in writing.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

12. I like to have my friends read what I have written.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

(Over)

13. I'm nervous about writing.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

14. People seem to enjoy what I write.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

15. I enjoy writing.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

16. I never seem to be able to clearly write down my ideas.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

17. Writing is a lot of fun.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

18. I expect to do poorly in writing-based classes even before I enter them.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

19. I like seeing my thoughts on paper.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

20. Discussing my writing with others is an enjoyable experience.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

21. I have a terrible time organizing my ideas in a written assignment.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

22. When I hand in a writing assignment, I know I'm going to do poorly.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

23. It's easy for me to write a good paper.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

24. I don't think I write as well as most other people do.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

25. I don't like my writing assignments to be evaluated.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

26. I'm no good at writing.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Appendix F

Computer and Web Attitude Scale (CWAS) (Modified)

The following is a modified version of Dr. Shu-Sheng Liaw's CWAS, used to examine and compare computer experience and individuals' attitudes about using both computers and the Internet.

Please note your "score" on this "test" will NOT affect your grade.

Computer Experience:

1. Experience using computers:

1	2	3	4	5	6	7
No Experience	Well Below Average Experience	Below Average Experience	Average Experience	Above Average Experience	Well Above Average Experience	Highly Experienced

2. Experience using the Internet/World Wide Web (WWW):

1	2	3	4	5	6	7
No Experience	Well Below Average Experience	Below Average Experience	Average Experience	Above Average Experience	Well Above Average Experience	Highly Experienced

3. Experience with any word processors (e.g., Microsoft Word, WordPad):

1	2	3	4	5	6	7
No Experience	Well Below Average Experience	Below Average Experience	Average Experience	Above Average Experience	Well Above Average Experience	Highly Experienced

4. Experience with any database packages (e.g., Oracle, Microsoft Access):

1	2	3	4	5	6	7
No Experience	Well Below Average Experience	Below Average Experience	Average Experience	Above Average Experience	Well Above Average Experience	Highly Experienced

5. Experience with website creation (e.g., HTML, Adobe Dreamweaver, Google Page Creator, etc.):

1	2	3	4	5	6	7
No Experience	Well Below Average Experience	Below Average Experience	Average Experience	Above Average Experience	Well Above Average Experience	Highly Experienced

6. Experience with any multimedia or file editing programs (e.g., Macromedia Flash, Adobe Photoshop, etc.):

1	2	3	4	5	6	7
No Experience	Well Below Average Experience	Below Average Experience	Average Experience	Above Average Experience	Well Above Average Experience	Highly Experienced

7. Experience with any computer programming languages (e.g., Java, C++, Perl, etc.):

1	2	3	4	5	6	7
No Experience	Well Below Average Experience	Below Average Experience	Average Experience	Above Average Experience	Well Above Average Experience	Highly Experienced

Computer Attitude Scale:

8. I feel confident using a personal computer.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

(Over)

9. I feel confident using storage devices to store my data files (e.g., floppy disk, USB flash drive, CD-R/RW, etc.).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. I feel confident using word processors (e.g., Microsoft Word, Wordpad).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. I feel confident learning new computer skills.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

12. I like to use computers.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

13. I enjoy talking with others about computers.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

14. I like to have a computer in my home/dorm.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

15. I feel comfortable using a computer in my daily life.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

16. I believe using a computer is necessary in my school life.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

17. I believe using computers is worthwhile.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

18. I use computers multiples ways (e.g., doing word processing, using e-mail, surfing the Web) in my daily life.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

19. An increased use of computers can enhance my academic performance.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

20. The use of computers is helpful for my studying.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

21. The use of computers can increase my job possibilities.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

22. I believe that computers can serve as tools for learning.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

23. I believe that knowing how to use computers is worthwhile.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Web Attitude Scale:

24. I feel confident using the Internet/World Wide Web (WWW).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

25. I feel confident using e-mail.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

26. I feel confident using WWW browsers (e.g., Internet Explorer, Mozilla Foxfire).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

27. I feel confident using search engines (e.g., Yahoo, Google).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

28. I like to use e-mail to communicate with others.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

29. I like to use forums to communicate with others (e.g., discussion boards, message boards, blogs, etc.).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

30. I like to use messaging online to communicate with others (e.g., Yahoo!Messenger, AIM, ICQ, etc.).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

31. I enjoy talking with others about the Internet.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

32. I like to work with the Internet/WWW.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

33. I like to use the Internet from home.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

33. I believe using the Internet/WWW is worthwhile.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

34. The Internet/WWW helps me to find information.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

(Over)

35. I believe the Internet makes communication easier.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

36. The multimedia environment of WWW (e.g., text, image) is helpful to understand online information.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

37. I believe the Internet/WWW has potential as a learning tool.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

38. I believe that the Internet/WWW is able to offer online learning activities.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

39. I believe that learning how to use the Internet/WWW is worthwhile.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

40. Learning the Internet/WWW skills can enhance my academic performance.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Appendix G

Receiver Apprehension Test (RAT) (Unmodified)

Scoring: Items 1, 3, 4, 5, 14, 15, and 16 are reverse coded before the items are summed.

1. I feel comfortable when listening to others on the phone.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. It is often difficult for me to concentrate on what others are saying.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. When listening to members of the opposite sex I find it easy to concentrate on what is being said.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. I have no fear of being a listener as a member of an audience.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. I feel relaxed when listening to new ideas.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. I would rather not have to listen to other people at all.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. I am generally overexcited and rattled when others are speaking to me.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. I often feel uncomfortable when listening to others.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. My thoughts become confused and jumbled when reading important information.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. I often have difficulty concentrating on what others are saying.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. Receiving new information makes me feel nervous.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

12. Watching television makes me nervous.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

13. When on a date I find myself tense and self-conscious when listening to my date.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

14. I enjoy being a good listener.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

15. I generally find it easy to concentrate on what is being said.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

16. I seek out the opportunity to listen to new ideas.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

17. I have difficulty concentrating on instructions others give me.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

18. It is hard to listen or concentrate on what other people are saying unless I know them well.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

19. I feel tense when listening as a member of a social gathering.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

20. Television programs that attempt to change my mind about something make me nervous.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Appendix H

Writing Apprehension Test (WAT) (Unmodified)

Scoring: Writing Apprehension = 78 + Positive Scores – Negative Scores.

1. I avoid writing.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

2. I have no fear of my writing being evaluated.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

3. I look forward to writing down my ideas.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

4. I am afraid of writing essays when I know they will be evaluated.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

5. Taking a composition course is a very frightening experience.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

6. Handing in a composition makes me feel good.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

7. My mind seems to go blank when I start to work on a composition.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

8. Expressing ideas through writing seems to be a waste of time.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

9. I would enjoy submitting my writing to magazines for evaluation and publication.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

10. I like to write my ideas down.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

11. I feel confident in my ability to clearly express my ideas in writing.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

12. I like to have my friends read what I have written.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

13. I'm nervous about writing.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

14. People seem to enjoy what I write.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

15. I enjoy writing.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

16. I never seem to be able to clearly write down my ideas.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

17. Writing is a lot of fun.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

18. I expect to do poorly in composition classes even before I enter them.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

19. I like seeing my thoughts on paper.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

20. Discussing my writing with others is an enjoyable experience.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

21. I have a terrible time organizing my ideas in a composition course.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

22. When I hand in a composition I know I'm going to do poorly.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

23. It's easy for me to write good compositions.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

24. I don't think I write as well as most other people do.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

25. I don't like my compositions to be evaluated.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

26. I'm no good at writing.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Appendix I

Computer and Web Attitude Scale (CWAS) (Unmodified)

Computer Experience:

1. Experience using computers:

1	2	3	4	5	6	7
No Experience	Well Below Average Experience	Below Average Experience	Average Experience	Above Average Experience	Well Above Average Experience	Highly Experienced

2. Experience using the Internet/World Wide Web (WWW):

1	2	3	4	5	6	7
No Experience	Well Below Average Experience	Below Average Experience	Average Experience	Above Average Experience	Well Above Average Experience	Highly Experienced

3. Experience with any word processors (e.g., Microsoft Word, WordPad):

1	2	3	4	5	6	7
No Experience	Well Below Average Experience	Below Average Experience	Average Experience	Above Average Experience	Well Above Average Experience	Highly Experienced

4. Experience with any database packages (e.g., Oracle, Microsoft Access):

1	2	3	4	5	6	7
No Experience	Well Below Average Experience	Below Average Experience	Average Experience	Above Average Experience	Well Above Average Experience	Highly Experienced

5. Experience with any computer programming languages (e.g., C, HTML):

1	2	3	4	5	6	7
No Experience	Well Below Average Experience	Below Average Experience	Average Experience	Above Average Experience	Well Above Average Experience	Highly Experienced

Computer Attitude Scale:

1. I feel confident using a personal computer.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. I feel confident using floppy disk to store my data files.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. I feel confident using word processors (e.g., Microsoft Word, Wordpad).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. I feel confident learning new computer skills.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. I like to use computers.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. I enjoy talking with others about computers.

1	2	3	4	5

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. I like to have a computer in my home.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. I feel comfortable using a computer in my daily life.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. I believe using a computer is necessary in my school life.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. I believe using computers is worthwhile.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. I use computers multiples ways (e.g., doing word processing, using e-mail, surfing the Web) in my daily life.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

12. An increased use of computers can enhance my academic performance.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

13. The use of computers is helpful for my studying.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

14. The use of computers can increase my job possibilities.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

15. I believe that computers can serve as tools for learning.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

16. I believe that knowing how to use computers is worthwhile.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Web Attitude Scale:

1. I feel confident using the Internet/World Wide Web (WWW).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. I feel confident using e-mail.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. I feel confident using WWW browsers (e.g., Internet Explorer, Netscape Communicator).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. I feel confident using search engines (e.g., Yahoo, Excite, and Lycos).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. I like to use E-mail to communicate with others.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. I enjoy talking with others about the Internet.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. I like to work with the Internet/WWW.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. I like to use the Internet from home.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. I believe using the Internet/WWW is worthwhile.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. The Internet/WWW helps me to find information.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. I believe the Internet makes communication easier.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

12. The multimedia environment of WWW (e.g., text, image) is helpful to understand online information.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

13. I believe the Internet/WWW has potential as a learning tool.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

14. I believe that the Internet/WWW is able to offer online learning activities.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

15. I believe that learning how to use the Internet/WWW is worthwhile.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

16. Learning the Internet/WWW skills can enhance my academic performance.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Appendix J

Institutional Review Board Approval

ETSU

East Tennessee State University
Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707 • (423) 439-6053
Fax: (423) 439-6060

APPROVAL - Initial Review (Exempt)

August 4, 2006

Tabitha Bailey
150 Hicks McAbee Rd
Mill Springs, NC 28756

Re: Exploring Faculty and Student Characteristics for Successful Online and Classroom-Based Introductory, General Education, Hybrid Communication Courses
IRB#: c05-279e
ORSPA #: None

The following items were reviewed and approved on August 3, 2006:

- Form 103
- Narrative
- resume
- Conflict of Interest Form
- Questionnaire for Offline
- Questionnaire for Online
- Blackboard Announcement
- Letter to Participants- (ver date 7/31/06) use for both offline and online questionnaires
- Interview Questions

On August 3, 2006, a final approval was granted. It is understood this project will be conducted in full accordance with all applicable sections of the IRB Policies. No continuing review is required. The exempt approval will be reported to the convened board on September 7, 2006.

I reviewed the above-referenced study and find that it qualifies as exempt under category:
45 CFR 46.101(b)(2)
Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior on subjects 18 years of age or older, unless:
(a) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and
(b) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Full AAHRPP Accreditation

Accredited Since December 2005

Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Proposed changes in approved research can not be initiated without IRB review and approval. The only exception to this rule is that a change can be made prior to IRB approval when necessary to eliminate apparent immediate hazards to the research subjects [21 CFR 56.108 (a)(4)]. In such a case, the IRB must be promptly informed of the change following it's implementation (within 10 working days) on Form 109 (www.etsu.edu/irb). The IRB will review the change to determine that it is consistent with ensuring the subject's continued welfare.

Sincerely,

Andrea Clements, Ph.D., Chairperson
ETSU Campus Institutional Review Board

Appendix K

Institutional Review Board Modification Approval #1

East Tennessee State University
Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707 • (423) 439-6053
Fax: (423) 439-6060

IRB APPROVAL – Minor Modification

August 31, 2006

Tabitha Bailey
379 Cherokee Mtn Rd
Jonesborough, TN 37659

Re: Exploring Faculty and Student Characteristics for Successful Online and Classroom-Based Introductory, General Education, Hybrid Communication Courses
IRB#: c05-279e

On August 30, 2006, a final approval was granted for the minor modification listed below by Andrea Clements, Ph.D., Chair- ETSU IRB.

- Modification - Minor
  I would like to include a larger target sample (both online and off) in order to make the study stronger (160 instead of 100, with 200 invited instead of 125). Likewise, I would like to include a larger target focus group to make things stronger (50 online and 50 offline instead of 20 students each). The faculty sample may be closer to 15.
  I would also like to include the exact same demographics again with the offline posttest to help look for data trends.

The minor modification will be reported to the convened board on October 5, 2006.

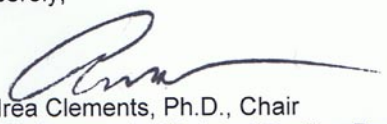
Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Proposed changes in approved research can not be initiated without IRB review and approval. The only exception to this rule is that a change can be made prior to IRB approval when necessary to eliminate apparent immediate hazards to the research subjects [21 CFR 56.108 (a)(4)]. In such a case, the IRB must be promptly informed of the change following it's implementation (within 10 working days) on Form 109 (www.etsu.edu/irb). The IRB will review the change to determine that it is consistent with ensuring the subject's continued welfare.

Full AAHRPP Accreditation

Accredited Since December 2005

Sincerely,



Andrea Clements, Ph.D., Chair
ETSU Campus Institutional Review Board

Appendix L

Institutional Review Board Modification Approval #2

East Tennessee State University
Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707 • (423) 439-6053
Fax: (423) 439-6060

IRB APPROVAL – Minor Modification

November 6, 2006

Tabitha Bailey
150 Hicks McAbee Rd
Mill Springs, NC 28756

Re: Exploring Faculty, Student and Individual Characteristics for Success in Online and Classroom-Based Hybrid General Education, Communication Courses
IRB#: c05-279e

The following modification was submitted for approval:

- Narrative (ver 10/20/2006)
- Student Assessment of Learning Gains
- Modification - Minor

I would like to change the project tile to, "Exploring Faculty, Student and Individual Characteristics for Success in Online and Classroom-Based Hybrid General Education, Communication Courses". The new title better reflects the focus of the study.

Due to limited participation in the pre-test focus groups, especially in comparison to the surveys, I would like to include a way to gather feedback about characteristics through a brief survey added to the post-test packet in addition to any focus group discussions. The survey will ask participants to assess the importance of various characteristics and interactions, which will then be used to compare data between different roles (students and faculty) and settings (online and classroom-based).

In order to determine some characteristics and interactions deemed appropriate by participants to generate such a survey, I would like to use results of a mid-semester Stduent Assessment of learning Gains developed by the committee chair for general program use among all sections of the course.

On November 1,2006, a final approval was granted for the above mentioned minor modification.

The minor modification will be reported to the convened board on December 4, 2006.

Full AAHRPP Accreditation

Accredited Since December 2005

Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Proposed changes in approved research can not be initiated without IRB review and approval. The only exception to this rule is that a change can be made prior to IRB approval when necessary to eliminate apparent immediate hazards to the research subjects [21 CFR 56.108 (a)(4)]. In such a case, the IRB must be promptly informed of the change following it's implementation (within 10 working days) on Form 109 (www.etsu.edu/irb). The IRB will review the change to determine that it is consistent with ensuring the subject's continued welfare.

Sincerely,

Andrea Clements, Ph.D., Chair
ETSU Campus Institutional Review Board

Appendix M

Institutional Review Board Modification Approval #3

East Tennessee State University
Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707 • (423) 439-6053
Fax: (423) 439-6060

IRB APPROVAL – Minor Modification

April 4, 2008

Tabitha Bailey
150 Hicks McAbee Rd
Mill Springs, NC 28756

Re: Exploring Expression-Based Apprehension in Online and Traditional Sections of a General Education, Introductory Communication Course
IRB#: c05-279e

The following modification was submitted for approval:

- Modification - Minor
  I would like to change the project title to "Exploring Expression-Based Apprehension in Online and Traditional Sections of a General Education, Introductory Communication Course". The new title better reflects the focus of the study.

On April 2, 2008, a final approval was granted for the above mentioned minor modification. The minor modification will be reported to the convened board on May 1, 2008.

Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Proposed changes in approved research can not be initiated without IRB review and approval. The only exception to this rule is that a change can be made prior to IRB approval when necessary to eliminate apparent immediate hazards to the research subjects [21 CFR 56.108 (a)(4)]. In such a case, the IRB must be promptly informed of the change following it's implementation (within 10 working days) on Form 109 (www.etsu.edu/irb). The IRB will review the change to determine that it is consistent with ensuring the subject's continued welfare.

Sincerely,

Gail Gerding, Ph.D., Chair
ETSU Campus Institutional Review Board

Full AAHRPP Accreditation

Accredited Since December 2005

VITA

TABITHA L. BAILEY

Personal Data:	Date of Birth: April 1, 1982 Place of Birth: Rutherfordton, North Carolina Mother: Elizabeth Ann McAbee Bailey Father: Kenneth Ray Bailey
Education:	Public Schools, Polk County, North Carolina B.A. Mass Communication, B.A. Multimedia: Arts & Sciences, University of North Carolina – Asheville, Asheville, North Carolina 2005 M.A. Professional Communication, East Tennessee State University, Johnson City, Tennessee 2008
Professional Experience:	Adjunct Instructor, East Tennessee State University, Department of Communication, Summer 2008 Teaching Assistant, East Tennessee State University, Department of Communication, 2005-2008
Honors and Awards:	Outstanding Contribution by a Graduate Student, Department of Communication, 2007 & 2008. Graduate President, Lambda Delta Alpha chapter of Lambda Pi Eta (National Communication Honors Society), 2006-2007. Member, Lambda Delta Alpha chapter of Lambda Pi Eta, 2007-2008. Co-President, Eta Tau Sigma chapter of Chi Sigma Iota (National Counseling Honors Society), 2007-2009. Member, East Tennessee State University chapter of Phi Kappa Phi (National Honor Society), 2006-2009. Member, National Scholars Honors Society, 2007-2009.