SELF ADMINISTERED TACTILE THERAPY: A PROPOSED INTERVENTION FOR THE TREATMENT OF PUBLIC SPEAKING APPREHENSION

By

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The members of the Committee appointed to examine the dissertation of NANCY LI SCHMIDT find it satisfactory and recommend that it be accepted.

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Abstract

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This study is designed to examine a new therapy, Self Administered Tactile Therapy (SATT), in the reduction of public speaking apprehension. Using an experimental pre/post test design, SATT was compared with the well established Visualization (VIS) intervention and a treatment that combined both SATT and VIS. Seventy-three undergraduate students enrolled in an introductory public speaking class at a western states research university were selected based on a score indicating high public speaking apprehension. They were randomly assigned to one of the three treatments and given the appropriate intervention. Results indicate the SATT intervention helped reduce public speaking apprehension pre to post. The VIS group and the combination group also helped reduce apprehension pre to post. There were no significant differences across groups indicating SATT was just as effective as the VIS group. These findings and their implications are discussed in the following dissertation.

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CHAPTER ONE

INTRODUCTION AND LITERATURE REVIEW

Scholars have long been interested in examining the feelings of anxiety people experience when communicating with others. This area of research has addressed anxiety about both oral and written communication in a variety of contexts (Ayres, 1997). The Communication Apprehension (CA) construct was developed as a direct result of this work. McCroskey defines CA as "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons" (1984, p. 13).

CA has been associated with a variety of consequences. For instance, individuals with high CA tend to be seen as relatively unassertive, and are less satisfied with their abilities to express themselves, to meet people, to lead and to make decisions (Daly, Caughlin, & Stafford, 1997). People afraid of communicating get lower grades than people not afraid of communicating (Bourhis & Allen, 1992). Those with high CA tend to earn less money and are promoted less often than those with low CA (Richmond & McCroskey, 1985). With approximately twenty percent of U.S. citizens experiencing high levels of CA (Richmond & McCroskey, 1995), it is no wonder that research on CA has been so prolific.

In particular, the fear of public speaking is a big concern to many people. Whether in an educational, professional, or personal situation, most individuals will speak in a public forum at some point in their lives. Surveys report 70 to 75 percent of the adult population fears public speaking (Richmond & McCroskey, 1995) and approximately 85% of the population have experienced stage fright while giving a speech (Motley, 1997). It is not surprising that scholars have focused on examining barriers to effective public speaking and how to overcome them. For example, an extensive amount of research has been conducted

on interventions designed for CA in public speaking situations (Allen, Hunter, & Donahue, 1989). Interventions created combine behavioral, cognitive, and affective approaches to alleviating CA (Phillips, 1977; Ayres & Hopf, 1985; Wolpe, 1958). Many interventions require multiple sessions (Phillips, 1977), must be facilitated by an expert (Ellis, 2001), or necessitate the use of video/audio scripts (Ayres & Hopf, 1985). Additionally, people with high CA are reticent in seeking out treatment (Hopf, Crosby, & Ayres, 1997). One remedy is to offer an intervention that people can administer easily on themselves at any time needed. Therefore, this paper proposes the use of an easy to use, portable, self administered intervention involving self hand massage techniques.

LITERATURE REVIEW

This review will present literature related to the communication apprehension (CA) construct. In particular, the review will detail the development of the construct and available interventions for reducing CA, in particular public speaking apprehension (PSA). Massage Therapy will also be reviewed as a potential intervention for reducing PSA. The review will end with proposed hypotheses for this study.

Communication Apprehension

Since the time of Greek rhetoricians, scholars have been interested in issues surrounding fear and anxiety associated with oral communication (Ayres, 1997). The concern at that time focused primarily on stage fright experienced by those who were giving a public address (McCroskey, 1997). Over the years, research has been conducted under a variety of labels including stage fright (Clevenger, 1959), reticence (Phillips, 1968), unwillingness to communicate (Burgoon, 1976), and Communication Apprehension (CA) (McCroskey, 1970). Clevenger's (1959) classic article summarizing the first twenty-five years of stage fright research set the tone for further studies in the area of public speaking. Stage fright simply refers to anxiety in a public speaking situation (McCroskey, 1970). Eventually, scholars like Phillips (1965) began to examine communication beyond the public speaking realm. He believed that some people avoid communication if they think they benefit more from staying silent. Phillips coined the term "reticence," which refers to a behavior characterized by avoiding communication situations when possible and inept performance in communication situations that cannot be avoided (Phillips, 1968, 1977). He focused on behaviors generated from the perception one has about communication, and suggested that although anxiety may be present, lack of communication skills is the major

cause of reticence (Phillips, 1977). Burgoon (1976) developed a construct she called "unwillingness to communicate." She defined this construct as a predisposition to avoid and/or devalue oral communication. The cause of this predisposition is rooted in concepts like introversion, self-esteem, and alienation. All of this work served as the foundation for the creation of the CA construct (McCroskey, 1977).

Originally, CA was narrowly defined by McCroskey (1970) as anxiety one has toward oral communication. CA was later expanded to include concepts like writing apprehension (Daly & Miller, 1975), singing apprehension (Anderson, Anderson, & Garrison, 1978), receiver apprehension (Wheeless, 1975), interpersonal communication apprehension (Ayres, 1989) and nonverbal communication apprehension (McCroskey, 1976). To more broadly represent a variety of communication situations, McCroskey redefined the CA construct as "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons" (1977, p. 78). He suggests that people with high levels of CA avoid and/or withdraw from communication.

At first glance, it may seem that the constructs of reticence (Phillips, 1968), unwillingness to communicate (Burgoon, 1976), and CA (McCroskey, 1970) are interchangeable. However, the supposed causal elements are different. While McCroskey posits that people with high levels of CA avoid and/or withdraw from communication, he also specifies that fear and/or anxiety is the only causal element. This creates a distinction between the CA construct and the reticence and unwillingness to communicate constructs. McCroskey (1977) recognizes that there are other constructs from psychology, such as audience sensitivity, that are similar to CA. He also admits that differences in construct name are more a "function of academic discipline in which they were formulated than any

theoretical or empirical distinctions" (McCroskey, 1977, p. 79). Since the CA construct evolved from research conducted in the speech communication arena, this study follows the norms of the discipline and focuses on CA as the construct of interest.

Instrument Development

Around the same time that work in the area of CA was expanding, scholars were influenced by the field of psychology in the creation of better research methodologies and instruments (McCroskey, 1997). Three major approaches to measurement were started including self-report measures (Gilkensen, 1942), observer ratings (Henning, 1935), and physiological measures (Redding, 1936). A review of the measurement approaches revealed that all three yielded highly reliable scores but the scores were not related to each other (Clevenger, 1959). During the time McCroskey was deciding on which approach to use, he made several observations (1970). He concluded that not only were reliable observer ratings difficult to obtain, but observed behaviors related to communication apprehension were very difficult to identify across individuals. Additionally, McCroskey wanted to find a measurement tool that could be easily distributed to a number of subjects at a low cost. Due to the expense of collecting physiological data at the time, McCroskey ruled out the use of physiological measures. Hence, he settled on self-report measures as the method of choice for measuring CA (McCroskey, 1970). McCroskey then developed, tested, and refined the Personal Report of Communication Apprehension (PRCA) and variations of the PRCA to measure trait-like CA which is further explained in the next section. Over the years, the PRCA has been used in numerous studies examining CA in a variety of contexts (Daly et al., 1997).

In addition to trait-like CA, McCroskey identifies three other types of CA (1984). The next section introduces a model that discusses all four types.

Types of Communication Apprehension

McCroskey (1984) advanced a model influenced by Cattell and Scheier's (1958) factor analytic work resulting in two distinct factors called trait anxiety and state anxiety. McCroskey's (1984) model describes four types of CA that exist along a continuum ranging from one extreme pole to the other. At one extreme pole sits trait CA and at the other extreme pole sits state CA although "neither the pure trait pole nor pure state pole probably exists as a meaningful construct" (McCroskey, 1997, p. 84). Trait CA refers to a relatively enduring personality characteristic. State CA refers to characteristic that can fluctuate from situation to situation. The four points along the continuum represent Trait-like CA, Generalized-Context CA, Person-Group CA, and Situational CA. Trait-like CA is "a relatively enduring personality orientation toward a given mode of communication across a wide variety of contexts" (McCroskey, 1997, p. 85). Generalized-Context CA is a "relatively enduring personality orientation toward communication in a given type of context" (McCroskey, 1997, p. 86). This may include a general "trait-like" fear of public speaking. Person-Group CA is a "relatively enduring orientation toward communication with a given person or group of people" (McCroskey, 1997, p. 86). Finally, Situational CA is viewed as a temporary state or "orientation toward communication with a given person or group of people" (McCroskey, 1997, p.87). McCroskey suggests that every person, at some point in time, will experience one type of CA to a greater or lesser degree. The reason a person experiences CA can be answered through the discussion of proposed theories. First, the

biological underpinnings of learning will be presented. Then, CA theories will be examined along with influential theories of learning.

The Nervous System

Many believe that the basis of learning lies with the connection of neurons in the brain (Rosenzweig, 1986; Merzenich, 2001). The human nervous system is made up of both the Central Nervous System (CNS) and the Peripheral Nervous System (PNS). The CNS is the coordination center and includes the brain and spinal cord. The PNS is the messenger system that carries messages from receptor cells to the CNS and vice versa. Nerve cells allow for the transmission of messages in the form of electrical impulses (Cohen & Wood, 2000). Recently, scientists have noted that development of new neurons in the brain continues throughout a person's life and appears to be stimulated by learning (Gould, et al., 1999). As areas of the brain are stimulated, more electrical impulses and activity take place (Cohen & Wood, 2000). Areas of the brain stimulated by learning include the hippocampus (Bauer, 2002), the limbic system (LeDoux, 1998), and possibly many other areas like the frontal and parietal lobes of the brain (Cohen & Wood, 2000). Additionally, the PNS is divided into the Somatic Nervous System and the Autonomic Nervous System (ANS). The ANS is best known for its regulation of the sympathetic and parasympathetic systems to maintain homeostasis. The sympathetic system is associated with the flight/fight/fear response. When the sympathetic system is activated by a stimulus, it creates a response. If, for example, a person evaluates a stimulus as negative and at the same time the body's response is an elevated heart rate and sweaty palms, one may learn to associate the stimulus with these responses. Also, some people may be more sensitive to anxiety provoking stimuli which may predispose them to be anxious in certain situations. Nervous system sensitivity is

one aspect of Component Theory, which will be discussed at a later time (Ayres, 1997). While knowledge about human physiology and brain activity gives us some insight into the learning process, it does not begin to tell us everything we need to know about learning. Theories advanced by scholars in psychology and in the field of communication provide more insight into the learning process.

Theories of Communication Apprehension

While McCroskey (1997) acknowledges both hereditary and environmental influences as potential causes of CA, most research in the field to date has focused on environmental influences. To better understand how CA might manifest, we turn to a variety of theories rooted in both the behavioral and cognitive learning camps. Learning is often described by behaviorists as a relatively permanent change in *observable behavior* due to experiences (Skinner, 1938). However, cognitivists define learning as a relatively permanent change in *cognitive processes* due to experiences (Piaget, 1928). Over the years, scientists in both camps have contributed to our understanding of the concept of learning as it relates to the CA construct.

Some scholars in the field are more rooted in the behaviorist perspective and believe that people develop CA because they learn to associate negative outcomes with communication (Beatty et al. 1985; McCroskey, 1984, 1997; Phillips, 1977, 1984). Classical conditioning principles (Pavlov, 1927) provide a plausible explanation for how one learns to be fearful of public speaking. However, the theory alone does not account for why we continue to be fearful even after a stimulus pairing has been removed. Operant conditioning principles (Skinner, 1938) fill this gap but fall short in addressing why people learn to be fearful of public speaking through vicarious experiences like modeling (Bandura, 1977). The

work of communication scholars like Phillips has been influenced by the behaviorist camp. Phillips' (1997) construct of reticence focuses only on behavior associated with avoiding communication situations and his proposed intervention, explained in a later section, focuses purely on skills training. While behaviorists provided the foundation for understanding learning, their view of learning as a change in observable behavior does not explain non-observable phenomena.

Bandura (1965) found that people did not have to be directly reinforced in order to produce a behavior. His work directly challenged the behaviorist views of learning and introduced a cognitive element to the mix. Social Cognitive Theory stresses the notion that a person learns through observation (Bandura, 1977). A person gains knowledge and beliefs by directly or vicariously observing "models." As one watches others and observes the consequences of the model's behavior, they learn to modify their own behavior based on observations made. However, the behavior is not necessarily expressed right away but may be expressed at a later time (Bandura, 1977). According to Social Cognitive Theory, a person could develop CA merely by observing another person going through a bad speaking experience. This observation may cause the observer to create certain expectations about their own speaking skills or even influence them to form perceptions about their abilities to perform a speech (Bandura, 1997). Perceptions of one's ability to make a desired impression, is called "self-efficacy" (Bandura, 1997). Self-efficacy has been shown to be related to the CA construct (Hopf & Colby, 1992) and is believed to be a crucial element in the communication apprehension experience (Ayres, 1997).

The desire, or motivation, to make a good impression may also play an important part in the development of CA. Lazarus' (1991) theory of emotion is comprised of relational,

cognitive, and motivational components. The relational component of his theory is based on the principles of reciprocal determinism (Bandura, 1977) under which people, environment, and behaviors are interdependent. Lazarus (1991) offered that interactions between people and environment were constantly changing and these changes might lead to negative or positive emotional response. Emotional responses are influenced via the cognitive and motivational components of this theory. The cognitive component focuses on knowledge and the appraisal process. We acquire knowledge on an ongoing basis and the information we gain is about how things are in the world. This information allows us to then evaluate, or appraise, various situations. The motivational component is essential for one to react or not react to various situations. It allows us to evaluate the situation as good or bad and thus, emotional. Similar to Lazarus, Schlenker and Leary (1982) focus on motivation. They hypothesize that communication anxiety is produced if people are motivated to impress others but doubt they can do so. In other words, people may experience CA if they have a negative self evaluation towards impressing someone that they want to impress (Schlenker & Leary, 1982).

Green and Sparks (1983) also take a more cognitive approach to CA with Action-assembly Theory (AAT). They speculate CA develops because people are unable to identify appropriate tactics for reaching a communication goal. For example, suppose a person is not able to identify and engage in effective communication. They then develop negative expectations about the communication event and hence experience CA (Green & Sparks, 1983). Similar to this, is McCroskey's (1984; 1997) focus on the learned helplessness component of expectancy learning (Seligman, 1977) to help explain CA. He believes that a person develops expectations about people and situations. When these expectations are met we

develop confidence but when these expectations are not met we must develop new expectations. If we cannot develop appropriate expectations we may experience anxiety. When expectations are met with negative consequences we may develop fear.

While these theories propose that CA is a process that is mostly learned, current discussion on the genetic nature of CA suggests that the ratio of genetic to environmental contribution is more like 80/20 (Beatty, McCroskey, & Heisel, 1998). The Theory of Communibiology states that CA is primarily a predisposition. Beatty et al. (1998) believe that CA is rooted in genetic structures and suggest that much of it cannot be changed (Beatty, McCroskey, & Heisel, 1998).

The only holistic theory that takes all of the perspectives previously discussed into account is one proposed by Ayres (1997). Component Theory states that CA manifests itself due to the interplay between negative evaluation, motivation, competence, and nervous system sensitivity. It is suggested that in order for a person to experience high levels of CA, they must be motivated to do well, have low communication competence, be fearful of negative evaluation, and have moderate to high levels of nervous system sensitivity (Ayres, 1997). Nervous system sensitivity is considered a genetic factor that may be present at different levels depending on the individual. All variables, except nervous system sensitivity, may change in intensity from situation to situation. However, they all must be present to a certain degree in order for one to experience CA. Component Theory is an attempt to bring all facets of CA development together.

Communication Apprehension Interventions

A range of interventions have been found to be successful in the alleviation of CA. Historically, CA intervention development has been categorized into one of three domains: behavioral, cognitive, and affective (Ayres, 1997).

Behavioral interventions stem from the idea that behaviors like stammering, repeating of oneself, avoiding eye contact, and shaking manifest because people do not possess the appropriate communication skills or competence to accomplish their goals. This lack of skill leads to negative feelings and thoughts about the situation. Interventions like Rhetoritherapy (Philips, 1977) highlight the importance of skills training. Rhetoritherapy involves skills training presented over the course of a public speaking class. Skills taught include goal-setting, content gathering, organization, delivery, and evaluation. During the class students learn how to improve communication skills with regard to public speaking, small group, and individual situations (Phillips, 1986).

Most CA theories stem from the cognitive domain perspective where thoughts drive our feelings of anxiety and/or fear. For example, a person might have thoughts about giving a public speech like "I cannot do this" which then makes them feel fearful. So, in other words CA is first caused by mental processes (Ayres, 1997). Cognitive interventions are then based on the notion that negative thoughts about a communication situation can provoke CA but if these negative thoughts are treated then CA can be reduced. Cognitive interventions include Cognitive Restructuring (Meichenbaum, 1985), cognitive-orientation modification (COM) therapy (Motley, 1997), and Visualization (Ayres & Hopf, 1985; 1993). Cognitive Restructuring teaches people to identify negative thoughts they have towards a communication situation and develop coping statements they can use to counter negative

thoughts (Meichenbaum, 1985). COM therapy focuses on discarding a performance orientation toward communication in favor of a communication orientation toward communication. COM therapy attempts to eliminate negative thoughts by demonstrating the thoughts to be false (Motley, 1997). Last, Visualization is a way to develop positive thinking and it involves having subjects respond to scripts. These scripts are carefully created to provide subjects with a positive experience related to a communication event like a public speech. The positive images counteract the negative images that subjects already have (Ayres & Hopf, 1985). Ayres and colleagues found that visualization is successful in reducing CA in public speaking situations (Ayres & Hopf, 1985), CA levels over time (Ayres & Hopf, 1990), in writing situations (Ayres & Hopf, 1991), and in initial interactions (Hopf, Ayres, & Colby, 1994).

Finally, affective interventions are based on negative feelings that one associates with unfavorable outcomes. The affective domain describes the feelings or emotions one has about a situation. This includes physiological symptoms like increased heart rate, sweaty palms, or increased respiration rate. Affective researchers believe that physiological symptoms and emotion create negative thoughts about a situation which then leads to CA (Ayres, 1997). Affective interventions include flooding (Marshall, Parker, & Hayes, 1982) and Systematic Desensitization (Wolpe, 1958). Flooding involves the process of desensitizing students via skills training (Marshall, Parker, & Hayes, 1982). Systematic Desensitization (SD) is one of the most widely used interventions for CA (Wolpe, 1958). Wolpe uses reciprocal inhibition in conjunction with exposure to aversive stimuli to help reduce anxiety. People are first taught to relax using Jacobsen's (1938) Progressive Muscle Relaxation protocol. Once this is learned, the person is asked to use this protocol while being

presented with progressively more aversive stimuli. As treatments continue the person is "systematically desensitized" to the stimulus. This technique assists people to associate relaxed states with aversive stimuli rather than anxious states. Wolpe argues that one cannot be relaxed and anxious at the same time and this is essentially why SD is effective (1958).

To some degree, motivation, emotion, and cognition are all present in one form or another (Bloom, 1956). However, it is necessary at times to look at each of these domains separately to gain a better understanding of them and to examine them at a deeper level. Originally, this taxonomy was useful for instructors and researchers interested in helping students reduce CA in the classroom.

While past research has focused on each of the three domains independently of one another, it is not surprising that people who have CA report experiencing elements of all three domains (Ayres, 1997). More recent work reveals that using two or more interventions is more effective in reducing CA than using just one (Ayres, 1997). It may be that Cognitive-Behavioral Therapy and other forms of trimodal therapy could provide a multi-dimensional way to deal with CA. Lazarus thought this as well. He stresses a multimodal approach to therapy that uses seven dimensions of personality and believes that therapy should be custom fit to the person (2004). Following this logic, Dwyer (2000) developed a multidimensional model for teaching students how to self-manage CA. Using Lazarus' seven dimensions of personality, she created an instrument to identify the firing order of dimensions and paired them with appropriate CA interventions. Multimodal Therapy supports the continued need for exploring other interventions and the ongoing benefit of having a variety of therapies available.

Tactile/Massage Therapy

One form of therapy that has not been examined in the treatment of CA is tactile therapy, more commonly referred to as massage therapy (MT). MT can be defined as the manipulation of soft tissue to promote health and well-being (Fritz, 2000). The biological systems affected by massage include the neuroendocrine system, connective tissue system, and the circulatory system (Fritz, 2000). Massage can also have a strong psychological effect (Moyer, Rounds, & Hannum, 2004). Empirical research to support these claims has helped MT gain legitimacy but much more needs to be done.

MT has been shown to reduce cortisol stress hormone levels (Field et al., 2005). It also assists in the reduction of physiological indicators of stress like blood pressure, heart rate, and respiration rates (Moyer et al., 2004). Additionally, MT also reduces psychological influences of stress, anxiety, and depression (Moyer et al., 2004). For example, in a study that examined massage effects on bulimic adolescents, results indicate reductions in anxiety, depression, and cortisol (Field et al., 1998). Another study focused on the immunological effects of MT as a stress reduction therapy in healthy adults experiencing test anxiety. Results indicate that MT was successful in reducing anxiety, respiration rate, blood pressure, and heart rate. Furthermore, MT increased the presence of white blood cells. This was posited to be due to increased circulation.

The previously mentioned studies used a pre-post design. Some were also able to use control groups, however, using a control group is not always possible in clinical experiments conducted in the field. One example of using a control in a field experiment is demonstrated by Shulman and Jones' (1996) work. They examined the effectiveness of MT on anxiety in the workplace using the STAI self-report measure. Data were collected before and after

treatment and subjects were randomly assigned to conditions. Results found that those in the treatment group had significantly lower state anxiety scores compared to those in the control group. Trait differences were observed but not significant.

A relatively new method, self-massage, has not been examined as thoroughly as other MT approaches. However, one study did focus on reducing smoking cravings via a self-massage protocol. Subjects were randomly assigned to either a treatment or control group and effects of the treatment were observed over a one month period. Self reports revealed that the self-massage lowered anxiety, improved mood, and lowered cravings in the treatment group when compared to the control group. Additionally, those in the treatment group smoked fewer cigarettes per day by the last week (Hernandez-Reif, Field, & Hart, 1999).

Some preliminary theories exist that attempt to explain why MT is effective (Moyer et al., 2004). One theory proposes that as pressure is applied to the body it triggers physiological responses that help shift the body from a state of sympathetic arousal to a parasympathetic state (Moyer et al., 2004). This theory is based on the basic mechanisms of anatomy and physiology which are briefly explained below. As mentioned previously, the SNS is responsible for the flight/fight/fear response and helps the body gear up for handling emergency situations. The PNS is responsible for bringing the body back to homeostasis. Both of these systems interact together with the endocrine system to create cellular response including hormone secretion and muscle firing patterns. For example, hormones like cortisol are released when organisms are under high stress and arm and leg muscles tighten when getting ready to fight or flee (Cohen & Wood, 2000). Excessive and/or prolonged sympathetic activity can been linked to stress related pathology like fibromyalgia, high blood pressure, and excessive muscle tension (Cohen & Wood, 2000).

When working on muscle cells, certain methods like movement of joints, stretching of muscles, and pressure on muscle tissue from compression or effleurage strokes serve to introduce a neurological signal that supports normal muscle function. Effleurage is a massage stroke involving medium pressure and long strokes toward the heart. Movement, stretch, and pressure methods focus on softening muscle tightness and stimulating the resetting of unproductive signals (Fritz, 2000). MT strokes like effleurage can also assist with increasing circulation and thus nutrients to the damaged tissue (Fritz, 2000). Another circulatory benefit of MT is the movement of hormones released in the blood stream which encourages dispersion and absorption processes (Fritz, 2000). From a psychological perspective, it may be that once muscle tightness is reduced, people psychologically feel much more relaxed (Moyer et al., 2004). Also, since circulation serves to induce PNS, and thus the relaxation response, people feel more relaxed. As Wolpe believed, and SD has demonstrated, one cannot be relaxed and anxious at the same time (1958).

As discussed previously, past CA intervention research has been successful in reducing CA in people who experience high anxiety in communication situations. These interventions focus in on cognitive, behavioral, and affective methods in order to be effective. If then, these methods directly and indirectly activate the PNS and reduce a person's sympathetic state, it holds that MT may also be an effective treatment that gets at the heart of reactivity in the body.

Significance of Study

There is some empirical evidence supporting the positive psychological and physiological effects of MT. However, more work needs to be conducted in this area of research. Not only will this study contribute to the growing body of MT research currently

available, but it will provide another CA intervention choice to those experiencing high CA. As well, MT addresses the biology of the anxiety response, and can thus help us better understand biological influences on communication apprehension. Also, it is important to note that those with high public speaking anxiety are more likely to avoid help (Hopf, Crosby, & Ayres, 1997). With this in mind it is important that interventions be easily accessible and easy to administer. The development of a portable self-massage protocol has practical value for anyone experiencing high levels of CA before a public performance.

Research Question and Hypotheses

Previous research provides evidence that the use of MT is successful in reducing anxiety in a variety of situations. Thus, it seems likely that MT can have a positive impact on reducing CA. This study primarily addresses whether or not an MT treatment will have a positive effect on public speaking anxiety. If MT has been shown to activate the PNS and reduce the sympathetic state, than it holds that MT may be a promising intervention for CA as well. Based on the rationale presented, the following hypotheses are generated:

H1: Participants exposed to the self hand massage treatment, Self Administered Tactile Therapy (SATT), will report significantly lower CA scores after the treatment compared to before the treatment.

Like SD, combining both physical and cognitive aspects in an intervention may prove to be even more effective. As research on SD has demonstrated, it is one of the most used treatments and has had significant results in the reduction of CA (Allen, Hunter, & Donahue, 1989). Previous research supports that the most effective way to help high CA's manage anxiety is an intervention that “uses the widest possible combination of methods" (Allen et al., 1989). This combinational approach has been supported in CA research as a highly

effective method for reducing communication anxiety (Allen et al., 1989; Ayres & Hopf, 1993; Whitworth & Cochran, 1996). Thus, a combination group integrating both the physical aspects of self massage and the cognitive aspects of the visualization intervention may give us a synergistic effect. It is then hypothesized that the combination group may be more effective than either the hand massage or visualization groups alone. Thus, it is hypothesized:

H2: Participants exposed to the combination (COMBO) group treatment will report significantly lower CA scores after the treatment compared to before the treatment

H3: CA scores for the COMBO group will be significantly lower than either the SATT or VIS groups

In this study there is no need for a control group. Numerous studies conducted with the same methodology in testing visualization have consistently demonstrated that a visualization intervention is better than no intervention at reducing CA (e.g., Ayres & Hopf, 1985; Ayres & Hopf, 1991; Ayres, 1997). With this in mind, we hope to show that the newly created self hand massage protocol is just as effective as the visualization intervention. This design allowed us to test more groups without being limited to the number of subjects needed if a control group was added.

CHAPTER TWO

RESEARCH METHODOLOGY

Participants

The participants for the study were drawn from a population of 882 students enrolled in an entry level public speaking course at a northwest research university. Participants were randomly selected from among those who scored one standard deviation above the mean on the Personal Report of Communication Apprehension-Public Speaking Subscale (PRCA-PSS). This score indicates an elevated level of PSA and is consistent with past studies (e.g., Ayres & Heuett, 1999; Ayres & Schliesman, 2002). Identifying high PSA in participants is important to the study since this group is most likely to benefit from treatment (Smith, 1988).

From the population, 151 students were identified with high PSA. Out of those identified, 74 volunteered to participate in the experiment. One participant was eliminated due to lack of pre-test data leaving 73 total participants in the study. There were a total of twenty-five participants in the Visualization (VIS) group, twenty-three in the Self-Adminstered Tactile Therapy (SATT) group, and twenty-four in the Combination (COMBO) group. All participants were kept blind to the nature of the study and were told that their names and/or personal information would be kept confidential and only used by the research team. Additionally, participants signed all appropriate consent forms which were previously approved by the university's Institutional Review Board (See Appendix A).

Assistant Training

The principle investigator (PI) of the study facilitated the administration of the experiment sessions and had no direct involvement with participants during individual treatment sessions. The PI was the only person aware of the PRCA-PSS scores of the

participants. In order to reduce experimenter bias, all assistants were kept blind to the nature of the study. Assistants consisted of male and female graduate student volunteers. They were trained in all three condition treatments using the same protocol and then assigned to a different treatment each of the three nights of the study. Training of the assistants was conducted by the PI and involved practicing each treatment protocol (VIS, SATT, COMBO). The procedures included below outline the general protocol used during training (See Appendix B for individual detailed protocols).

1. Be sure all participants sit together in the front and center of room.
2. Turn on the video recorder in back of room and record during session.
3. Introduce yourself.
4. Hand out and collect signed consent forms.
5. Assign a speech topic, either "**What I expect to get out of school**" or "**What I expect to do after school**." Systematically vary topic order so that half of the participants speak on one topic for the first round of speeches and the other topic for the second round of speeches. Use enclosed Speech Assignment Sheet if needed (Appendix D).
6. Randomly assign speaking order, have them stand up in the front of room and give their speeches one at a time.
7. Administer and collect pre-test forms (labeled **PRE-TEST**).
8. If group is the hand massage group or combination group, demonstrate the hand massage techniques laid out below and ask them if they have any questions. Do not have them follow along.
9. Demonstrate the hand massage techniques:

When the CD asks you to:

- Make loose fists and rotate them, it should look like this (demo).
- Squeeze your fists and then straighten and spread your fingers (demo).
- Put your arms straight out in front of you and bend your wrists to towards the ceiling and down towards the floor (demo).
- Use the thumb of one hand to apply medium pressure to your opposite palm in a slow, circular motion (you may want to walk closer to them so they can see your palm)
- Gently squeeze each finger of one hand from the base of the finger at the palm to the tip of the finger (demo).
- Squeeze the Hoku Point of one hand which is just above the webbing between the thumb and forefinger with medium pressure (demo).

Ask them if there are any questions before you begin.

10. Play the keyed up CD script for the appropriate treatment via the touch screen. Follow enclosed directions if needed and first be sure to turn up the volume to an appropriate level.
11. After treatment is finished, assign appropriate speech topic and listen to the second round of speeches.
12. Administer and collect post-test forms (labeled **POST-TEST**).
13. Thank the participants for their participation and let them know that they will be going back to the main room for a debriefing, pizza, refreshments, and the lottery drawing.

Data Collection

As mentioned previously, students enrolled in various sections of the entry level public speaking course were prescreened for high PSA using the PRCA-PSS instrument. Instructors of the course, blind to the nature of the study, distributed and collected consent forms and PRCA-PSS surveys from their students. Each survey was entered into SPSS and items that were reverse coded were recoded. Final scores were obtained. A minimum score of 6 and a maximum score of 30 was possible. The mean score was obtained for all eligible surveys and a score one standard deviation above the mean was used to indicate high PSA students. Eligible students were randomly selected to be contacted by phone and asked to participate in the experiment portion of the study.

Experiments were set up to be conducted on a total of three evenings. Procedures were kept consistent across all three evenings and opened with participants arriving at 5:45 p.m. to check in and assigned randomly to a treatment group (A, B, or C). At 5:55 the check in table was closed, the PI welcomed all participants, and introduced the assistants. Then, participants with corresponding group assignments followed their assigned assistant to the appropriate treatment room. In the treatment room, each assistant followed their assigned protocol as described previously.

In the room each student was randomly assigned one of two speech topics, either "**What I expect to get out of school**" or "**What I expect to do after school**." These topics were selected because they have been used successfully in past intervention studies (e.g., Ayres, Hopf, & Peterson, 2000; Ayres & Schliesman, 2002). Speech questions were systematically varied so that half of the participants presented on one topic for the first round of speeches and the other topic for the second round of speeches. As mentioned previously,

assistants were asked to not view scores from both the pre-test and post-test surveys. Also, during the experiment, each assistant was videotaped as a manipulation check to be sure that they were following assigned protocols and that to check for major differences in assistant procedures across groups.

Throughout the study, participants were informed that all information given to us would be kept strictly confidential and only used by the principal investigator and the research team. In addition, subjects were kept blind to the true nature of the study and had the opportunity to read and sign the experiment consent form both during the pre screen and later before the experiment began. They were also asked to not share the details of the experiment with others. At the end all students were debriefed together (See Appendix E) and were given pizza and refreshments.

Treatment Conditions

Each treatment condition was conducted in similar rooms with similar sizes and seating arrangements. All students were in their assigned treatment rooms for an average of 28 minutes and all treatment scripts were similar in length lasting between 7-10 minutes depending on the condition. Each group contained approximately the same number of students overall. On each night student group size averaged 8 students which provided the necessary public speaking situation stimulus. Each script was recorded with a high quality digital recorder and burned to CD. To minimize sources of potential variation, the same person recorded all scripts.

Visualization

Visualization (Ayres & Hopf, 1993) was utilized in this study as a comparative treatment. A high quality digital CD recording of an adaptation of the Visualization script

created by Ayres & Hopf (1993) was used for the Visualization treatment condition for this study (See Appendix C). The Visualization script guides one through the day of a speech using positive imagery. The script takes approximately 7 minutes to administer.

Self Administered Tactile Therapy

The SATT was developed in two stages. First, the PI utilized the expertise of three local Licensed Massage Practitioners: Theresa Baker, Paula Youmans, and Laura Staples (Baker, Youmans, & Staples, 2005). They were interviewed individually to get feedback on techniques they would use if instructing someone on how to perform a self administered hand massage for relaxation. Feedback from these experts was very similar and the recommended techniques were combined into one protocol. This protocol, not surprisingly, matched up very closely with a 5 minute hand massage protocol used with positive results in a previous study (Hernandez-Reif, Field, & Hart, 1999). This may be due to the fact that the protocol was also developed by Licensed Massage Practitioners. Therefore, the protocol created for use in this study was based on massage experts' direct feedback regarding techniques that would reduce stress and on a protocol used in past studies.

Second, the PI pilot tested this protocol with a group of volunteers who had similar characteristics as the target population for this study. A focus group format was used to collect feedback from the student volunteers. Questions asked focused on whether the hand massage was relaxing and if directions were difficult to follow. Volunteers were also asked to suggest changes to the protocol to make it more relaxing and not as confusing. Results from the focus group indicated that massaging the back of the hand did not feel relaxing. They also suggested providing a brief demonstration to help them with confusion since their eyes were closed during treatment. Volunteers also felt that the voice used was therapeutic

and the deep breathing before and after the massage definitely contributed to their relaxation. Furthermore, they had positive comments about the hand massage overall and suggested the protocol stay as is except for massaging the back of the hand. A final protocol was created based on volunteer feedback gathered from the pilot study. A high quality digital CD recording of the script was then made for use in the study (See Appendix C). The script takes approximately 7 minutes to administer.

Combination

The Combination group consists of a combination of scripts from both the VIS and SATT treatments. (See Appendix C). A high quality digital CD recording of the COMBO script was created. The script takes approximately 10 minutes to administer.

Instruments

PRCA – PSS

The Personal Report of Communication Apprehension Public Speaking Subscale (PRCA-PSS) was used to measure trait communication apprehension with regard to public speaking. The PRCA has repeatedly been found to have high reliability (over .90) and strong face, construct, and predictive validity (McCroskey, 1997). The PRCA-PSS has been used extensively in public speaking research studies to measure trait PSA and to prescreen for high CA in public speaking situations (e.g., Ayres & Hopf, 1993; Ayres, Heuett, & Sonadre, 1998; Ayres, Hopf, & Peterson, 2000). The PRCA-PSS uses a six item five-point Likert scale (1-strongly agree, 2-agree, 3-undecided, 4-disagree, and 5-strongly disagree) and asks the following questions (note that an ® indicates reverse coding):

1. I have no fear of speaking in public.
2. Certain parts of my body feel tense and rigid while I am giving a speech. ®

3. I felt relaxed when giving a speech.
4. My thoughts become jumbled and confused when I am giving a speech. ®
5. I face the prospect of giving a speech with confidence.
6. When giving a speech I get so nervous I forget facts that I really know. ®

STAI – State Anxiety Inventory

Spielberger, Gorsuch, & Lushene's (1970) state anxiety scale is a five item five-point Likert scale (1-strongly disagree, 2-disagree, 3-undecided, 4-agree, and 5-strongly agree) that measures a person's level of anxiety with regard to a particular situation. The scale examines how you feel *right* now, that is, *at this moment*. This scale has been found to be of value in related research (e.g., Beatty, Dobos, Balfaantz, & Kuabara, 1991) and has been repeatedly found to be internally reliable when measuring state CA (e.g., Ayres, 1995; Ayres & Heuett, 1999).

This instrument asks the following five statements:

1. I did not feel tense.
2. I felt calm.
3. I felt relaxed.
4. I felt at ease.
5. I did not feel jittery.

Design and Analysis

The design for this study was a randomized experimental pre-test / post-test design with three groups: Visualization (VIS), Self Administered Tactile Therapy (SATT), and a combination group (COMBO). This design was chosen to allow for testing a treatment in a controlled environment and because it addresses many threats to internal validity and

external validity (Campbell & Stanley, 1963). The independent variables are the treatment conditions and the dependent variables in this study are the PRCA-PSS scores and the STAI scores. Data was originally going to be analyzed using a multivariate analysis of covariance (MANCOVA) with the pre-test identified as the covariate. However, as explained in the analysis section, a univariate analysis of covariance (ANCOVA) was used instead. By treating the pre-test scores as the covariate, any correlation between treatment effects and pre-test scores can be ruled out (Nunnally & Bernstein, 1994). Thus, true treatment effects can be assessed by examining differences in post-test means after pre-test differences are accounted for. Additionally, individual t-tests were conducted to determine pre to post significance for the SATT and COMBO groups.

One area that should be clarified is the choice for not using a control group in this design. While use of a control group allows for the flushing out of true treatment effects, extensive research has been conducted on the effects of an intervention versus no intervention in the reduction of public speaking anxiety. Visualization, in particular, has been shown to be effective in the reduction of PSA in a number of studies (e.g., Ayres & Hopf, 1985; Ayres & Hopf, 1991; Ayres, 1997). By using VIS as a comparative treatment, a reasonable assumption may be made about the effectiveness of the SATT and COMBO groups.

CHAPTER THREE

ANALYSIS AND DISCUSSION

Results

Before analyses were conducted, reliability tests were run on both the PRCA-PSS trait instrument and the STAI state instrument to be sure the measures were indeed reliable for this particular study. The PRCA-PSS revealed an alpha reliability of .453 for pre-test and .645 for post-test. All entries for the PRCA-PSS pre- and post-tests were checked but no input error or major inconsistency in the data was found. The STAI state measure, however, showed an alpha reliability of .872 for pre-test and .895 for post-test. The unreliable nature of the PRCA-PSS meant that it could not be used for analysis, and so an ANCOVA was applied to evaluate the relationship between State CA and the different treatment groups.

The independent variable was the treatment factor which included three levels: Visualization, Self-Administered Tactile Therapy, and Combination. The dependent variable was the STAI state CA scores. The pre-test scores were used as a covariate and an alpha level of .05 was used. The ANCOVA was not significant [$F(2,69) = 2.01$, *ns*]. Since the omnibus test was not significant, no follow-up tests were conducted. Note that the observed power was moderate at .41. The Levene test was not significant, indicating no problems with the cell variances. Table 1 contains means and standard deviations for the tested variables.

Table 1: Means and Standard Deviations of Pretests and Posttests Across Treatments

Scale		**Treatment Groups**					
		VIS		SATT		COMBO	
		M	SD	M	SD	M	SD
STAI State CA	Pre Test	2.33	.789	2.42	.703	2.20	.919
	Post Test	2.95	.803	3.40	.850	3.09	.943

Note: For STAI - the higher the score, the lower the Public Speaking Apprehension

Index of terms:

Treatment Groups:

VIS – Visualization; n = 26

SATT – Self Administered Tactile Therapy; n = 23

COMBO – Combination; n = 24

As stated in Table 1, standard deviation values are similar across treatments. Means changed pre- to post-test for all groups. Paired-samples *t* tests were conducted for both the SATT and COMBO groups. Results indicated the mean for SATT pre-test (M = 2.42, SD = .703) was significantly lower than the mean for SATT post-test (M = 3.40, SD = .850), t (22) = -6.24, $p<.01$. Results also revealed the mean for COMBO pre-test (M = 2.20, SD = .919) was significantly lower than the mean for COMBO post-test (M = 3.09, SD = ..943), t (23) = -4.99, $p<.01$.

Discussion

This study was designed to see if SATT would be effective at reducing PSA. To do this we compared SATT to Visualization, a well-established intervention. Also, we wanted to explore whether a treatment that combined both SATT and VIS would have a synergistic effect. Paired-samples *t* tests reveal that both the SATT and COMBO interventions were successful at lowering Public Speaking Apprehension pre- to post-test. After controlling for pre-test differences, however, the group effect did not emerge. It is important to note that non significance across groups is not a totally bad thing in this experiment. Non significance here indicates that all interventions were equally beneficial and one was not necessarily better than the other. Since the F-value is large and the power is moderate, an increase in effect may be experienced if cell sizes were increased appropriately. Hence Pairwise Comparisons give us a hint of what we might find if the omnibus test was significant. Upon examination of Pairwise Comparisons, the VIS group and the SATT groups significantly differ from one another. The COMBO group was not significantly different from either the VIS or SATT group. This was surprising since the study hypothesized that CA scores for the COMBO group would be significantly different than either the SATT or VIS groups due to the synergistic effect of using both treatments. The post-test mean for the Combination group was, however, higher than the post-test mean for the VIS group.

As indicated in Table 1, mean scores did change pre- to post-test for all treatments. This was expected. This section will discuss the pre- and post-test means for each group in turn. Participants in the SATT group have the highest pre- and post-test means of 2.42 and 3.40 respectively. While these scores are the highest means noted of the three treatment groups, the difference between the two scores is .98. This is the largest pre- to post-test

difference of all the groups. So, even though participants in this group started off with slightly lower PSA than other groups, the change in mean score was still higher when compared to the COMBO or VIS groups. This may indicate that SATT had more of an impact at lowering PSA than either of the other groups. In comparison, the COMBO group has the lowest pre-test mean of all three groups at 2.20 indicating that this group started off with slightly higher levels of PSA compared to the other two groups. However, the COMBO group has the second highest post-test mean of 3.10. The difference between the two scores is .90. Even though the COMBO group was not significantly different from SATT or VIS, it did have a larger pre- to post-test difference than VIS. This may indicate that the COMBO treatment was better than VIS at lowering PSA but not better than SATT. Finally, the VIS group has a pre-test mean of 2.33 and the lowest post-test mean of 2.95. The difference between pre- and post-test scores is .62. This difference is interesting in that it is lower than either of the other group differences (.98 and .90). It can be assumed that Visualization is successful in lowering PSA. With this in mind, we may speculate that both the COMBO and SATT groups are also successful in lowering PSA. These scores indicate participants exposed to SATT had less post-test PSA and more change in PSA than either of the other two groups. Also, participants in the Combination group faired better than those in the Visualization group. The combination of massage techniques and positive cognitive imagery did seem to create a synergistic effect, however small. After examining post-test means and changes in scores, it appears that the addition of the SATT massage protocol to Visualization made the COMBO treatment more effective at reducing PSA. With Visualization being such a well established intervention, these results definitely warrant further investigation.

Furthermore, Visualization has been developed, tested, and enhanced over the years and has proven to be a successful intervention in the treatment of PSA. However, one must listen to the script via an audio CD or watch a video to gain the benefits of the therapy. This can be cumbersome and cannot be easily administered before a public address. Even though SATT is new and requires much more exploration, it is a simple intervention that can be adapted for portability. It can easily be taught to people with high PSA who can then use the technique unobtrusively while waiting to give a speech. In this way, SATT shows promise as a practical treatment for those who have high PSA.

Licensed Massage Practitioners can also benefit from the results of this study. The hand massage protocol, SATT, created for this study was developed by practitioners with many years of experience in the field. It was not developed with just PSA in mind but with general relaxation in mind. This kind of a protocol is perfect to recommend to clients who leave the practitioners office relaxed just to be stressed again once they are back in the office. The one major drawback of traditional massage is that it must be applied by another person. A portable self-administered protocol like SATT can be used at any time in a variety of stressful situations and can be thought of as a complement to other more cumbersome treatments.

Limitations and Recommendations

This study employed normative methodology utilized in previous CA studies. Since numerous past studies indicate the PRCA instrument is valid and reliable as a whole, it should hold that the individual subscales are also reliable. Past studies using the subscale alone have also come up with reliable results (e.g., Story, 2004). There was no reason to believe that the PRCA-PSS instrument would not be reliable in this study. Data were

checked and rechecked for systematic error and great care was taken to involve assistants that were blind to the nature of the study and to keep the true nature of the study from the participants. However, it is possible that a systematic error may have caused inconsistency and that participants guessed the nature of the study. The more obvious answer may lie within the subscale alone. Future studies may want to examine the stability of the PRCA subscale to measure public speaking apprehension. It is interesting to note that more recent work is indicative of low subscale reliability (Hazel, 2004). McCroskey (2006) himself recently added this statement to his web site regarding the PRCA instrument, "It permits one to obtain sub-scores on the contexts of public speaking, dyadic interaction, small groups, and large groups. However, these scores are substantially less reliable than the total PRCA-24 scores-because of the reduced number of items." This is potentially very problematic since subscales of a reliable scale should also be reliable. Future studies should continue to use the STAI state scale but also employ other instruments to measure public speaking apprehension (Leary, 1983). Another recommendation for future research would be to add more participants overall and boost the numbers per cell for added power. While similar studies used cell sizes of 20-25 with positive results, a power analysis would have been useful in determining appropriate numbers needed for this study.

While not significant, results of this study do indicate SATT was more effective at reducing PSA compared to the VIS and COMBO interventions. Examination of the SATT intervention should be continued in other studies employing different methodology. A qualitative examination of SATT might reveal why people feel it is helpful. Using larger focus groups paired with individual interviews would provide much needed detail about the effectiveness of SATT. A physiological examination of how SATT affects people might

reveal what exactly is happening from a biological perspective. For example, a study could focus on measuring physiological indicators of stress including blood pressure, heart rate, and stress hormone levels both pre- and post-test. A comparison of SATT with other portable interventions like deep diaphragmatic breathing may help us tease out the most effective methods used in the SATT intervention. Also, adding a placebo group that includes rubbing of an area of the body that is innocuous may help us further pinpoint useful techniques. SATT could also be tested in a wider variety of settings to see if it helps people lower CA in other situations. For example, this may be a good intervention for people who experience high CA during job interviews or for performers who have high singing apprehension. A portable intervention may be very useful for anyone who needed to lower their apprehension levels right before a communication event. Also, SATT could be tested to see if it helps lower more general stress and/or anxiety levels. For example, chair massage has been found to be effective in helping people manage stress in the workplace (Shulman & Jones, 1996). Full body massage was found to be effective in lowering student's text anxiety levels (Moyer et al., 2004). SATT could be tested in both of these settings. A portable intervention could be very helpful in these types of situations where traditional massage was not readily available.

In conclusion, practitioners have struggled to make massage an established, recognized, and respected field. Empirical studies conducted on the psychological and physiological effects of massage have boosted the credibility of traditional massage as an alternative/complementary therapy, however, more research needs to be done. Also, very little work has been conducted on self-administered therapies. This study contributes to this line of research by testing SATT. In addition, CA scholars have long been interested in

creating interventions to help people alleviate PSA. This study reveals SATT is useful in lowering PSA and is an intervention that people can administer easily on themselves at any time needed. SATT shows promise as a practical treatment for those who have high PSA and may prove useful in other anxiety provoking situations as well.

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APPENDIX A

STUDY PARTICIPANT CONSENT FORM – Part 1

Nancy L. Schmidt, Principal Investigator (PI) and Interdisciplinary Ph.D. candidate, along with fellow assistants from the Edward R. Murrow School of Communication and the Department of Psychology are conducting a research project to learn more about communication difficulties. The information in this consent form is provided so you can decide whether you wish to participate in this two-part study. It is important that you understand your participation is completely voluntary. This means that even if you agree to participate, you are free to withdraw from the study at any time, or decline to participate in any portion of the study.

Part One *(today):*

In part one of this study taking place today, you are being asked to fill out a brief questionnaire that asks about your feelings towards communication. This questionnaire is located on the other side of this consent form and will only take 5 minutes of your time. Based on your responses, there is a possibility you will be chosen for part two of the study. All questionnaire information will be kept confidential and will only be accessible by the principal investigator and any trained research assistants.

Part Two *(at a later time):*

If chosen to participate in part two of the study, you will be contacted by the researcher/s to sign up for a laboratory experiment time. During the experiment, you will fill out two sets of questionnaires and you may be asked to perform an activity that involves communicating with others. Additionally, you may be asked to perform cognitive tasks involving a cognitive visualization of an event or a series of non strenuous motor tasks involving movement of your hands, wrists, and arms. This experiment poses no known risks to your health and your name will not be associated with the findings. Your participation in this part of the study will take approximately one hour. Upon completion of the study you will be provided with an explanation of the question that this study addresses. A video recording will also be taken of the research assistant and there is a possibility that you may show up on the recording. However, these video tapes will only be used by the PI and the research team to review actions of the research assistant. All data collected including surveys, computer files, and video tapes will be stored in a locked file cabinet in the PI's private office and will be destroyed three years after the completion of the study.

By filling out the questionnaire passed out today, you are consenting to participate in both parts of the study. Remember, you have the option to withdraw at any time. If you have questions regarding the study please contact Nancy L. Schmidt via the phone number listed below. If you have questions or concerns regarding your rights as a participant, you can contact the WSU Institutional Review Board at 335-9661 or irb@wsu.edu. This study has been reviewed and approved for human subjects participation by the WSU Institutional Review Board. You will receive a copy of this form, which you should keep for your records.

Thank you for your time,

_____ _____

Nancy L. Schmidt, Murrow 234, 335-3808 Date

EXPERIMENT PARTICIPANT CONSENT FORM – Part 2

Nancy L. Schmidt, Principal Investigator (PI) and Interdisciplinary Ph.D. candidate, along with fellow assistants from the Edward R. Murrow School of Communication and the Department of Psychology are conducting a research project to learn more about communication difficulties. The information in this consent form is provided so you can decide whether you wish to participate in this part of the study. It is important that you understand your participation is completely voluntary. This means that even if you agree to participate, you are free to withdraw from the study at any time, or decline to participate in any portion of the study.

During the experiment, you will fill out two sets of questionnaires and you may be asked to perform an activity that involves communicating with others. Additionally, you may be asked to perform cognitive tasks involving a cognitive visualization of an event or a series of non strenuous motor tasks involving movement of your hands, wrists, and arms. This experiment poses no known risks to your health and your name will not be associated with the findings. Your participation in this part of the study will take approximately one hour. Upon completion of the study you will be provided with an explanation of the question that this study addresses. A video recording will also be taken of the research assistant and there is a possibility that you may show up on the recording. However, these video tapes will only be used by the PI and the research team to review actions of the research assistant. All data collected including surveys, computer files, and video tapes will be stored in a locked file cabinet in the PI's private office and will be destroyed three years after the completion of the study.

This study has been reviewed and approved for human subjects participation by the WSU Institutional Review Board. You will receive a copy of this form, which you should keep for your records.

Thank you for your time.

_____ _____

Researcher's Signature (Date)
(Nancy Schmidt, Murrow 234, 335-3808)

CONSENT STATEMENT:

I have read the above comments and agree to participate in this experiment. I understand that if I have any questions or concerns regarding this project I can contact the investigator at the above location or the WSU Institutional Review Board at (509) 335-9661.

_____ _____

(Participant's signature) (Date)

APPENDIX B

Hand Massage and Combo Protocol for Volunteers

Be sure all participants sit together in the front and center of room and turn on the video recorder in back of room and record during session. (Press red record button on front of camera. Look in view finder to see REC in window)

Introduce yourself. *Suggested script:* "As Nancy mentioned before, my name is _____. We will first begin this evening by reading and signing the consent form for today's experiment."

Hand out and collect signed consent forms.

Use the Speech Assignment Sheet to assign a speech topic to each participant, either "**What you expect to get out of school**" or "**What you expect to do after school**." Systematically vary topic order so that half of the participants speak on one topic for the first round of speeches and the other topic for the second round of speeches. Sit with the other participants.

Suggested script: "You will now be asked to present a 2 minute impromptu speech on a randomly assigned topic."

Randomly assign speaking order, have them stand up in the front of room and give their speeches one at a time to the rest of the participants and to you.

Administer and collect pre-test form (in folder labeled **PRE-TEST**).

Suggested script: "Now, I would like you to fill out this short questionnaire. Please read the directions carefully before you begin."

Suggested script: "In the next segment of the experiment you will be asked to listen to an audio CD and follow what it asks you to do."

Demonstrate the hand massage techniques first using the following script.

"Before we begin, I will demonstrate some techniques that you will be asked to perform with your hands. Nothing should be uncomfortable to you. As I demonstrate, please let me know if you have any questions."

"When the CD asks you to:
Make loose fists and rotate them, it should look like this (demo).
Squeeze your fists and then straighten and spread your fingers (demo).
Put your arms straight out in front of you and bend your wrists to towards the ceiling and down towards the floor (demo).
Use the thumb of one hand to apply medium pressure to your opposite palm in a slow, circular motion (you may want to walk closer to them so they can see your palm)
Gently squeeze each finger of one hand from the base of the finger at the palm to the tip of the finger (demo).
Squeeze the Hoku Point of one hand which is just above the webbing between the thumb and forefinger with medium pressure (demo).
Are there any questions before we begin?"

Play the keyed up CD script via the touch screen. Follow directions below if needed and be sure to turn up the volume to an appropriate level before pressing play.

Touch Screen Directions
If screen not up, touch screen anywhere to begin
Touch Scheduled Resources button and then choose letter displaying "Schmidt"
Choose CD button and then turn up volume using screen controls and play CD

After treatment is finished, assign appropriate speech topic and listen to the second round of speeches. *Suggested script*: "You will now be asked again to present a 2 minute impromptu speech on a randomly assigned topic."

Administer and collect post-test forms (in folder labeled **POST-TEST**).

Suggested script: "Now, I would like you to fill out these two short questionnaires. Again, please read the directions carefully before you begin. The scales are different for each form."

Thank the participants for their participation and bring them back to main room.
Suggested script: "Thank you for your participation tonight. Follow me back to the main room where there are refreshments for you to enjoy. Nancy will debrief all of you at the same time and do the drawing for the Bookie gift certificate."

**** Note: Research Assistant can be dismissed at this time if needed*

VIS Protocol for Volunteers

Be sure all participants sit together in the front and center of room and turn on the video recorder in back of room and record during session. (Press red record button on front of camera. Look in view finder to see REC in window)

Introduce yourself.

Suggested script: "As Nancy mentioned before, my name is _____. We will first begin this evening by reading and signing the consent form for today's experiment."

Hand out and collect signed consent forms.

Use the Speech Assignment Sheet to assign a speech topic to each participant, either "**What you expect to get out of school**" or "**What you expect to do after school**." Systematically vary topic order so that half of the participants speak on one topic for the first round of speeches and the other topic for the second round of speeches. Sit with the other participants.

Suggested script: "You will now be asked to present a 2 minute impromptu speech on a randomly assigned topic."

Randomly assign speaking order, have them stand up in the front of room and give their speeches one at a time to the rest of the participants and to you.

Administer and collect pre-test form (in folder labeled **PRE-TEST**).

Suggested script: "Now, I would like you to fill out this short questionnaire. Please read the directions carefully before you begin."

Suggested script: "In the next segment of the experiment you will be asked to listen to an audio CD and follow what it asks you to do. Are there any questions before we begin?"

Play the keyed up CD script via the touch screen. Follow directions on back if needed and be sure to turn up the volume to an appropriate level before pressing play.

Touch Screen Directions

If screen not up, touch screen anywhere to begin
Touch the Scheduled Resources button
Choose letter displaying “Schmidt” (should be A)
Choose CD button
Turn up volume using screen controls and when ready touch play to begin CD

After treatment is finished, assign appropriate speech topic and listen to the second round of speeches.

Suggested script: “You will now be asked again to present a 2 minute impromptu speech on a randomly assigned topic.”

Administer and collect post-test forms (in folder labeled **POST-TEST**).

Suggested script: “Now, I would like you to fill out these two short questionnaires. Again, please read the directions carefully before you begin. The scales are different for each form.”

Thank the participants for their participation and bring them back to main room.

Suggested script: “Thank you for your participation tonight. Follow me back to the main room where there are refreshments for you to enjoy. Nancy will debrief all of you at the same time and do the drawing for the Bookie gift certificate.”

*** *Note: Research Assistant can be dismissed at this time if needed*

APPENDIX C

VISUALIZATION INTERVENTION SCRIPT

Close your eyes and allow your body to get comfortable in the chair in which you are sitting. You may want to put your hands in your lap or take off your glasses in order to get more comfortable. Move around until you feel that you are in a position that will continue to be relaxing for you for the next ten to fifteen minutes.

Take a deep, abdominal breath so your abdomen rises and not just your chest. Hold it. (pause 2 seconds). Now slowly release it.

Take another deep, abdominal breath. Hold it. (pause 2 seconds). Now slowly release it. Note how good you feel while you are breathing deeply. Feel the relaxation starting to flow through the limbs of your body to your fingers and toes.

Take one more deep, abdominal breath and hold it for a couple seconds. Release it slowly. Now, return to your normal breathing pattern. Again, try to get as comfortable as you can in your chair.

Begin to mentally picture the dawn of the day on which you are going to give your speech. See yourself getting up in the morning, full of energy, full of confidence, looking forward to the day's challenges. You are putting on just the right clothes for the task at hand that day. Dressing well makes you look and feel good about yourself, so you have on just what you want to wear, which clearly expresses your sense of inner well-being.

As you are driving, riding, or walking to the speech setting, note how relaxed and confident you feel. See yourself walking into the building and then into the room where you will speak. Your classmates appear warm and friendly. They greet with you with very positive remarks. A friend nearby tells you that you'll do a great job today. Another friend says she's been looking forward to hearing your speech.

You feel thoroughly prepared to speak to your class as you walk over to your seat. You are mentally and physically ready for the occasion. You have thoroughly researched your topic and any related issues. Because of your rehearsing, you are confident about the timing. You are prepared in every way for what you are presenting today.

See yourself sitting at your seat in the classroom. You are talking very comfortably and confidently with those around you. You assure others that you are looking forward to hearing from them. You feel absolutely confident about your presentation and your ability to deliver your speech in a lively and assured manner. You know your message will be beneficial to many in your audience.

It is now approaching your time to speak. As you wait, you see yourself taking a relaxed abdominal breath. Now, you see yourself moving to the front of the room. You are feeling very good about your presentation and see yourself move eagerly forward. All of your audio visual materials are well organized and well planned. You are confident they will enhance your presentation.

Visualize yourself delivering your presentation. You are really quite good. You notice that your audience is giving you positive feedback with head nods, eye contact, and smiles, conveying the message that you are truly on target.

Your attention getter and opening remarks go the way you have planned. In fact, they work better than you had expected. The transition from the introduction to the body of the speech is extremely smooth. Your first major point comes forth as you expected. The evidence that you use – examples, statistics, and quotations – is well chosen and help support your points. You can see that you have your audience's attention and interest.

See yourself presenting all of your main points smoothly. Your language is fluent and the words come easily as in every day conversation. You are passionate and use gestures and vocal inflections to emphasize your points. As you wrap up your main points, your concluding remarks seem to be a natural outgrowth of everything you have done. All concluding remarks are on target.

When your final words are concluded, you have the feeling that it could not have gone better. The introduction worked, the main points were clear and easy to follow, your evidence was supportive, and your conclusion formed a fitting capstone. In addition, your vocal variety added interest and value. Your pauses punctuated important ideas, and your gestures and body movements were purposeful. You now see yourself fielding audience questions with brilliance, confidence, and energy equal to what you exhibited during the presentation itself.

See yourself receiving applause and congratulations from your classmates. You see yourself as relaxed, pleased with your talk, and ready for the next task to be accomplished that day. You are filled with energy, purpose, and a sense of general well-being. Congratulate yourself on a job well done!

Begin to return your thoughts to this time and this place. Take a deep abdominal breath. Hold it. (pause 2 seconds). Let it go. Do this a few more times at your own pace. (pause 5 seconds).

Take as much time as you need to make the transition back to the present. Now slowly open your eyes.

SELF ADMINISTERED TACTILE THERAPY SCRIPT

Begin by removing any hand or wrist jewelry you may have on and place items in a safe place for retrieval later. Now, close your eyes and allow your body to get comfortable in the chair in which you are sitting. You may want to put your hands in your lap or take off your glasses in order to get more comfortable. Move around until you feel that you are in a position that will continue to be relaxing for you for the next ten to fifteen minutes.

Take a deep, abdominal breath so your abdomen rises and not just your chest. Hold it. (pause 2 seconds). Now slowly release it.

Take another deep, abdominal breath. Hold it. (pause 2 seconds). Now slowly release it. Note how good you feel while you are breathing deeply. Feel the relaxation starting to flow through the limbs of your body to your fingers and toes.

Take one more deep, abdominal breath and hold it for a couple seconds. Release it slowly. Now, return to your normal breathing pattern. Again, try to get as comfortable as you can in your chair.

Make loose fists with your hands and slowly rotate them in one direction. (pause 3 seconds). Now change direction. (pause 3 seconds).

With your hands still in fists, squeeze tightly and hold. (pause 3 seconds). Now spread the hand and straighten the fingers strongly. (pause 3). Again, squeeze tightly and hold. (pause 3 seconds). Spread and straighten the hand strongly. (pause 3 seconds).

Release your fists and put arms straight out in front of you. Bend wrists so your fingers point up towards the ceiling. You should feel a nice stretch in the wrist and lower arm. (pause 3 seconds). Now, bend wrists so your fingers point down towards the floor. (pause 3 seconds). Again, bend wrists upward towards the ceiling. (pause 3 seconds). Then, bend wrists downward towards the floor (pause 3 seconds).

Relax your hands and arms and put them in a comfortable position. Take a deep, abdominal breath in. Hold it. (pause 2 seconds). Release it. Note how energized your hands and arms feel.

Now, use the thumb of one hand to apply medium pressure to your opposite palm in a slow, circular motion. Massage all areas of your palm especially the fleshy area below the thumb. Note how good it feels to massage your palm. (pause 5 seconds). Switch hands and repeat. (pause 5 seconds).

Next, gently squeeze each finger of one hand from the base of the finger at the palm to the tip of the finger. Note how good your fingers feel as you squeeze them. (pause 5 seconds). Switch hands and repeat. (pause 5 seconds).

Now, gently squeeze the Hoku Point of one hand. Remember, the Hoku Point is just above the webbing between the thumb and forefinger. Apply medium pressure and hold. (pause 5 seconds). Switch hands and hold. (pause 5 seconds).

Relax your hands and arms and put them in a comfortable position. Take a deep, abdominal breath in. Hold it. (pause 2 seconds). Release it. Note how good your hands and arms feel.

Again, make loose fists with your hands and slowly rotate them in one direction. (pause 3 seconds). Now change direction. (pause 3 seconds).

With your hands still in fists, squeeze tightly and hold. (pause 3 seconds). Now spread the hand and straighten the fingers strongly. (pause 3). Again, squeeze tightly and hold. (pause 3 seconds). Spread and straighten the hand strongly. (pause 3 seconds).

Release your fists and put arms straight out in front of you. Bend wrists so your fingers point up towards the ceiling.(pause 3 seconds). Now, bend wrists so your fingers point down towards the floor. (pause 3 seconds). Again, bend wrists upward towards the ceiling. (pause 3 seconds). Then, bend wrists downward towards the floor (pause 3 seconds). Place your hands back in a comfortable position.

Take a deep abdominal breath. Hold it. (pause 2 seconds). Let it go. Do this a few more times at your own pace. (pause 5 seconds). Now slowly open your eyes.

COMBINATION INTERVENTION SCRIPT

Begin by removing any hand or wrist jewelry you may have on and place items in a safe place for retrieval later. Now, close your eyes and allow your body to get comfortable in the chair in which you are sitting. You may want to put your hands in your lap or take off your glasses in order to get more comfortable. Move around until you feel that you are in a position that will continue to be relaxing for you for the next ten to fifteen minutes.

Take a deep, abdominal breath so your abdomen rises and not just your chest. Hold it. (pause 2 seconds). Now slowly release it.

Take another deep, abdominal breath. Hold it. (pause 2 seconds). Now slowly release it. Note how good you feel while you are breathing deeply. Feel the relaxation starting to flow through the limbs of your body to your fingers and toes.

Take one more deep, abdominal breath and hold it for a couple seconds. Release it slowly. Now, return to your normal breathing pattern. Again, try to get as comfortable as you can in your chair.

Begin to mentally picture the dawn of the day on which you are going to give your speech. See yourself sitting up in bed to wake up your body. Now, physically make loose fists with your hands and slowly rotate them in one direction. (pause 3 seconds). Now change direction. (pause 3 seconds). With your hands still in fists, squeeze tightly and hold. (pause 3 seconds). Now spread the hand and straighten the fingers strongly. (pause 3). Again, squeeze

tightly and hold. (pause 3 seconds). Spread and straighten the hand strongly. (pause 3 seconds). Release your fists and put arms straight out in front of you. Bend wrists so your fingers point up towards the ceiling. You should feel a nice stretch in the wrist and lower arm. (pause 3 seconds). Now, bend wrists so your fingers point down towards the floor. (pause 3 seconds). Again, bend wrists upward towards the ceiling. (pause 3 seconds). Then, bend wrists downward towards the floor (pause 3 seconds). Place your hands back in a comfortable position. You feel full of energy, full of confidence, looking forward to the day's challenges.

Visualize yourself putting on just the right clothes for the task at hand that day. Dressing well makes you look and feel good about yourself, so you have on just what you want to wear, which clearly expresses your sense of inner well-being.

As you are driving, riding, or walking to the speech setting, note how relaxed and confident you feel. See yourself walking into the building and then into the room where you will speak. Your classmates appear warm and friendly. They greet with you with very positive remarks. A friend nearby tells you that you'll do a great job today. Another friend says she's been looking forward to hearing your speech.

You feel thoroughly prepared to speak to your class as you walk over to your seat. You are mentally and physically ready for the occasion. You have thoroughly researched your topic and any related issues. Because of your rehearsing, you are confident about the timing. You are prepared in every way for what you are presenting today.

See yourself sitting at your seat in the classroom. You are talking very comfortably and confidently with those around you. You assure others that you are looking forward to hearing from them. You feel absolutely confident about your presentation and your ability to deliver your speech in a lively and assured manner. You know your message will be beneficial to many in your audience.

It is now approaching your time to speak. As you wait, you see yourself taking a relaxed abdominal breath. Physically, use the thumb of one hand to apply medium pressure to your opposite palm in a slow, circular motion. Massage all areas of your palm especially the fleshy area below the thumb. Note how good it feels to massage your palm. (pause 5 seconds). Switch hands and repeat. (pause 5 seconds). Now, gently squeeze each finger of one hand from the base of the finger at the palm to the tip of the finger. Note how good your fingers feel as you squeeze them. (pause 5 seconds). Switch hands and repeat. (pause 5 seconds). Now, gently squeeze the Hoku Point of one hand. Remember, the Hoku Point is just above the webbing between the thumb and forefinger. Apply medium pressure and hold. (pause 5 seconds). Switch hands and hold. (pause 5 seconds). Now, relax your arms and hands and place them in a comfortable position. Take a deep, abdominal breath in. Hold it. (pause 2 seconds). Release it. Note how good you feel.

Now, you visualize yourself moving to the front of the room to give your speech. You are feeling very good about your presentation and see yourself move eagerly forward. All of

your audio visual materials are well organized and well planned. You are confident they will enhance your presentation.

Visualize yourself delivering your presentation. You are really quite good. You notice that your audience is giving you positive feedback with head nods, eye contact, and smiles, conveying the message that you are truly on target.

Your attention getter and opening remarks go the way you have planned. In fact, they work better than you had expected. The transition from the introduction to the body of the speech is extremely smooth. Your first major point comes forth as you expected. The evidence that you use – examples, statistics, and quotations – is well chosen and help support your points. You can see that you have your audience's attention and interest.

See yourself presenting all of your main points smoothly. Your language is fluent and the words come easily as in every day conversation. You are passionate and use gestures and vocal inflections to emphasize your points. As you wrap up your main points, your concluding remarks seem to be a natural outgrowth of everything you have done. All concluding remarks are on target.

When your final words are concluded, you have the feeling that it could not have gone better. The introduction worked, the main points were clear and easy to follow, your evidence was supportive, and your conclusion formed a fitting capstone. In addition, your vocal variety added interest and value. Your pauses punctuated important ideas, and your gestures and

body movements were purposeful. You now see yourself fielding audience questions with brilliance, confidence, and energy equal to what you exhibited during the presentation itself.

See yourself receiving applause and congratulations from your classmates. You see yourself as relaxed, pleased with your talk, and ready for the next task to be accomplished that day. You are filled with energy, purpose, and a sense of general well-being. Congratulate yourself on a job well done!

Begin to return your thoughts to this time and this place. Now, physically make loose fists with your hands and slowly rotate them in one direction. (pause 3 seconds). Now change direction. (pause 3 seconds). With your hands still in fists, squeeze tightly and hold. (pause 3 seconds). Now spread the hand and straighten the fingers strongly. (pause 3). Again, squeeze tightly and hold. (pause 3 seconds). Spread and straighten the hand strongly. (pause 3 seconds). Release your fists and put arms straight out in front of you. Bend wrists so your fingers point up towards the ceiling.(pause 3 seconds). Now, bend wrists so your fingers point down towards the floor. (pause 3 seconds). Again, bend wrists upward towards the ceiling. (pause 3 seconds). Then, bend wrists downward towards the floor (pause 3 seconds). Place your hands back in a comfortable position.

Take a deep abdominal breath. Hold it. (pause 2 seconds). Let it go. Do this a few more times at your own pace. (pause 5 seconds). Now slowly open your eyes.

APPENDIX D

Speech Assignment Sheet

Each participant will have a name tag on. Use this form to assign every other participant to one of the following speech topics. Every other person should have one or the other topic.

First Speech

What you expect to get out of school	"**What you expect to do after school**"

For the second speech assign the other topic.

Second Speech

What you expect to get out of school	"**What you expect to do after school**"

APPENDIX E

Debriefing Statement - Experiment

Thank you for participating in our workshop. Each workshop dealt with a treatment for communication difficulties. I will pass out a copy of the consent form for you to keep as a reference if needed. At the end of this experiment which should be in a month, we will let you know the true nature of the study. We would really appreciate it if you did not discuss the workshop with other students until that time since they may be chosen to participate at a later date as well.

Feel free to have pizza and refreshments and have a great evening.

Debriefing Statement – Post Experiment

Thank you again for participating in the communication workshop conducted in February. Each group was given a different intervention for the treatment of public speaking anxiety. One group was a positive visualization group, one group was a self administered hand massage group, and one group was a combination of visualization and self administered hand massage. This study set out to develop a self administered hand massage protocol and examine if it would be just as beneficial as the previously tested visualization protocol for the reduction of public speaking anxiety. Results indicate that the massage group is just as effective. This intervention should be tested further but it is a promising finding since the hand massage protocol is portable and can be easily administered by the student at any time.

Nancy L. Schmidt, Principle Investigator

APPENDIX F

TRAIT PRCA-PSS

Please give us the following information about yourself

<u>This information is strictly confidential.</u>

Name (please print): _____

Phone: _____ Email: _____

INSTRUCTIONS: For each statement below, please circle the number that best expresses how you generally feel about giving public speeches.

1-Strongly Agree 2-Agree 3-Undecided 4-Disagree 5-Strongly Disagree

	SA	A	U	D	SD
1. I have no fear of speaking in public.	1	2	3	4	5
2. Certain parts of my body feel tense and rigid while I am giving a speech.	1	2	3	4	5
3. I feel relaxed when giving a speech.	1	2	3	4	5
4. My thoughts become jumbled and confused when I am giving a speech.	1	2	3	4	5
5. I face the prospect of giving a speech with confidence.	1	2	3	4	5
6. When giving a speech I get so nervous I forget facts that I really know.	1	2	3	4	5

APPENDIX G

STATE STAI SCALE

Please give us the following information about yourself

<u>This information is strictly confidential.</u>

Name (please print): _____

Phone: _____ Email: _____

INSTRUCTIONS: Read each statement and then circle the appropriate number to indicate how you feel about the speech you have just completed

1-Strongly Disagree 2-Disagree 3-Undecided 4-Agree 5-Strongly Agree

	SD	D	U	A	SA
1. I did not feel tense.	1	2	3	4	5
2. I felt calm.	1	2	3	4	5
3. I felt relaxed.	1	2	3	4	5
4. I felt at ease.	1	2	3	4	5
5. I did not feel jittery.	1	2	3	4	5