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EYE MOVEMENT DESENSITIZATION AND REPROCESSING TREATMENT
OF COMMUNICATION ANXIETY:
A CLOSER LOOK

by
Teresa Foley

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Psychology

Western Michigan University
Kalamazoo, Michigan
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EYE MOVEMENT DESENSITIZATION AND REPROCESSING TREATMENT
OF COMMUNICATION ANXIETY:
A CLOSER LOOK

Teresa Foley, Ph.D.

Western Michigan University, 1996

The purpose of this study was to replicate the results of previous research with respect to EMD/R (eye movement desensitization and reprocessing) and of this researcher's investigation of EMD/R treatment of public-speaking anxiety (Foley & Spates, 1995). The present study, however, included components to permit more extensive analysis of the elements of treatment that contribute to therapeutic effectiveness. The study investigated the contribution of assessment speeches to treatment effectiveness by using a two factor design in which one factor featured a condition of pre-treatment/post-treatment speeches vs. a condition of post-treatment speeches only. The other factor featured two treatment conditions, permitting consideration of the contribution of the imaginal exposure component of EMD/R to treatment effectiveness. One treatment condition received EMD/R while the other condition received an alternative treatment that differed from EMD/R only in that there were no instructions to visualize the traumatic event during the eye movement component.

Subjects were 32 college students who suffered from communication anxiety and had experienced a specific traumatic event related to a communication situation. The research was carried out in a two factor repeated measures design consisting of four treatment groups: EMD/R-speech condition, EMD/R-no speech condition, Alternative treatment-speech condition, Alternative treatment-no speech condition.

Results showed a significant decrease from pre to post-treatment for all groups on several measures. There were no significant differences between groups; however, the results on one measure (CAI) suggest that if power were increased, the groups would differ significantly with respect to the pre treatment behavioral assessment factor.

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Teresa Foley

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CHAPTER I

INTRODUCTION

Statement of the Problem

Eye movement desensitization and reprocessing (EMD/R) is a relatively new therapeutic approach that has been reported to be very effective in the treatment of Post Traumatic Stress Disorder (PTSD). Whereas in the past, prolonged treatment has been required to relieve the symptoms of PTSD, EMD/R has been reported to be successful in eliminating the symptoms and the subjective distress within a single treatment session. The short duration of this therapy would result in considerable savings in time and money and significant relief of personal suffering. Consequently, the effectiveness of EMD/R with other disorders should be established as quickly as possible.

Because of the relationship of PTSD to other anxiety disorders, it is logical to hypothesize that EMD/R may be effective with those disorders also. Furthermore, considering that anxiety disorders represent the largest mental health problem in the country (Barlow, 1990), a decrease in the length of treatment would result in considerable savings in time and suffering. Specifically, the parallels between PTSD and primary social phobia lend support to an hypothesis that a treatment for one may also be effective with the other. Like PTSD, social phobia often develops following a traumatic event which, although not outside the normal range of human experience as in PTSD, leaves the person feeling helpless, anxious, and unable to perform at pre-trauma levels (Barlow, 1990). In both disorders, fear of loss of control is experienced, both as an indication of a potential subsequent traumatic encounter and as a symptom of the anxiety state itself. Because of such similarities, persons suffering from social

phobia may respond to EMD/R in much the same way as do persons suffering from PTSD. One subtype of social anxiety--communication anxiety--may be particularly appropriate for treatment with EMD/R.

Communication anxiety (CA) includes any situation in which a person experiences anxiety with respect to real or anticipated communication with another person or persons. (Buhr, Pryor & Sullivan, 1991; McCroskey, 1984a; McCroskey & Beatty, 1984) Considering that EMD/R was developed as a treatment for post traumatic distress, parallels between PTSD and CA suggest that CA may also respond well to the treatment. Life as a human being implies relationship, with all its concomitant reinforcers and punishers. Because communication is so closely connected to relationship, situations involving communication are apt to be linked to aversive stimuli, sometimes so aversive that the situation would be called traumatic. Depending on the degree of aversiveness, anxiety is likely to be experienced in subsequent similar situations. However, communication anxiety interferes with or prevents the means by which the individual learns about relationship. The individual avoids or escapes from his/her only means of learning that communication can be rewarding. In such a situation, intervention from a related part of the environment may be necessary if change is to occur. Currently, intervention for CA is inadequate. Effective treatments exist, but most require considerable time commitment on the part of the client. The present study sought to reduce that time commitment by using EMD/R as a treatment for subjects suffering from communication anxiety.

Research with respect to EMD/R has demonstrated its effectiveness in certain situations. However, the elements of the treatment that contribute to treatment effectiveness remain unclear. Previous studies have indicated that eye movements are not critical (Foley & Spates, 1995; Renfrey & Spates, 1994). Therefore, in addition to extending EMD/R to a related disorder, the present study was designed to permit

limited speculation about the contribution to treatment effectiveness of other elements of the treatment.

Review of Related Literature

Research With Respect to EMD/R

Treatment using eye-movement desensitization was developed by Shapiro (1989a, 1989b, 1991) for treating clients suffering from post-traumatic stress. Many elements of the procedure, however, are not new. The basic technique, using imagery, self-rating, and rehearsal through visualization, is similar to that of various other techniques (systematic desensitization, neuro-linguistic programming, "healing the inner child", implosion therapy, etc.). In EMD/R, the subjective unit of discomfort scale (SUDs) (Wolpe, 1982) is used to evaluate anxiety level during visualizations of anxiety-evoking events with their accompanying self-statements. The client then formulates preferred self-statements and rates them on Shapiro's validity of cognition (VOC) scale. After repeating the visualization during saccadic eye movement, the ratings are repeated. The most salient new element in this technique is the use of the saccadic eye movements which are produced by the client's following the repeated side-to-side movement of the therapist's finger (12-24 times at the rate of 2 per second) (Shapiro, 1989).

Shapiro conducted a controlled study with 22 subjects diagnosed as suffering from PTSD. Using the EMD/R procedure, she found dramatic decreases in self-reports of anxiety, presenting complaints, and acceptance of positive cognitions. No such decreases were found in a control group in which the saccadic eye movements were not employed. The EMD/R treatment was then given to the control subjects with similar results. The results for both groups were maintained at a three month follow up.

Additional research followed Shapiro's study. Wolpe and Abrams (1991) reported a case study of a female rape victim who suffered from symptoms of PTSD for 5 years. Treatment with EMD/R dramatically improved her condition with the improvement being maintained at a five-month follow up. Puk (1991) reported two case studies of patients diagnosed with PTSD--one traumatized by the death of a sibling, the other by childhood sexual abuse--which also resulted in immediate long term relief of symptoms after treatment with EMD/R. Marquis (1991) reported on 78 cases in which EMD/R was used in treating a variety of problems. The average outcome for all of the problems was reported as much improved, although the treatment was rated as most effective with the symptoms of PTSD and least effective with negative themes (low self esteem, feeling unpopular or hopeless) and addictions.

The interest in EMD/R has continued; however, most of the reports involve case studies or single subject designs. Lipke & Botkin (1992) reported using EMD/R with five combat veterans diagnosed with chronic PTSD. Four of the five showed rapid marked decrease in the distress associated with the traumatic memories. Kleinknecht & Morgan (1992), in a pre-test/post-test case study using EMD/R with a 40 year old multiply traumatized male, reported decrease on several measures after one treatment session. Successful case studies have also been reported by McCann (1992), Page & Crino (1993), and Spates & Burnette (1995). Wernik (1993) reported promising results using EMD/R with two cases involving sexual dysfunction. Montgomery & Allyon (1994a) reported using EMD/R in a multiple baseline single subject design with a twice traumatized client; significant decrease in all measures of stress were reported after twelve sessions of treatment. The same authors (Montgomery & Allyon, 1994b) also reported using six subjects in a multiple baseline across subjects design addressing the issue of eye movements as an essential component of EMD/R. The non-eye-movement group did not show a decrease in SUDs comparable to the EMD/R

group; however, it has been noted that the non-eye-movement procedure differed substantially from EMD/R in aspects other than the eye movements. Forbes, Creamer & Rycroft (1994), using standard assessment measures, treated 8 subjects diagnosed with PTSD with four sessions of EMD/R. Significant improvement was noted at post test, but 50% of the subjects still met full criteria for PTSD diagnosis.

There have also been a limited number of controlled studies using group designs. Sanderson & Carpenter (1992) reported using one session of EMD/R in a two treatment crossover design with 58 spider phobics. Subjects who reported a traumatic onset of the phobia showed a decrease in SUDs to 0. Other subjects showed only a moderate decrease. Jenson (1994) reported using EMD/R with 25 Vietnam combat veterans suffering from PTSD in a pre-test/post-test control group design in which there were no differences at post-test between EMD/R and the control group on any measure except SUDs rating. Hekmat, Groth & Rogers (1994), using EMD/R vs. EMD with music vs. control group, tested the pain ameliorating effects of treatment on 30 university students. Significant effects were reported for both treatments with no significant differences between them.

The results of some studies have called into question certain aspects of the original interpretation of EMD/R. Boudewyns, Stwertka, Hyer, Albrecht, & Sperr (1993) reported using EMD/R in a pre-test/post-test control group design with 20 veterans diagnosed with PTSD. The results showed a significant decrease in SUDs from pre-test to post-test but no change in SUDs during post-test presentation of a taped playback of the subject's original description of the trauma. Nor did the results show a change on standardized or psycho physiological measures. Other studies call into question the importance of eye movement for treatment effectiveness. Renfrey & Spates (1994) reported using EMD/R in a pre-test/post-test comparison group design with 23 subjects meeting the criteria for PTSD. Standard EMD/R was compared with a

standard protocol using a light tracking stimulus and with a standard protocol using a non-moving light stimulus. Significant results were reported on all measures across all of the groups with no difference between the groups. Foley & Spates (1995) reported using EMD/R in a pre-test/post-test no treatment control group design with 40 university students suffering from public speaking anxiety. Standard EMD/R was compared with a standard protocol using a sound tracking stimulus and with a standard protocol using the subject's hands as a stimulus on which to rest the eyes. Significant decrease in anxiety from pre-test to post-test was found on the self report measure for the three treatment groups but not for the control group. Significant decrease in SUDs and VOC was reported for each of the treatment groups with no significant differences reported between the groups.

To date, EMD/R has been reported to be most effective in the treatment of PTSD. PTSD is one of the anxiety disorders and as such is characterized by symptoms of high autonomic arousal, cognitive intrusions, and avoidance behavior (DSM-III-R). Barlow (1990) distinguished PTSD and the other anxiety disorders from depression by the presence of action tendencies (engagement and activation) as well as by worry and apprehension. PTSD is distinguished from the other anxiety disorders by an identifiable point of onset, i.e., a traumatic event that is usually outside the range of normal experience.

Social Phobia describes a condition in which a person experiences intense anxiety in situations where s/he may be subject to the scrutiny of others while performing a specific task (Nickols, 1974; Barlow, 1990; DSM-III-R, 1987). In some instances, such as communication anxiety, onset can often be clearly identified as an occasion on which the person panicked, then subsequently experienced the subjective reaction and the critical feedback as extremely traumatic. Considering this similarity to PTSD, communication anxiety may respond similarly to treatment with EMD/R.

Research With Respect to Communication Anxiety

Communication anxiety--which includes anxiety experienced during public speaking, group discussion, meeting participation, and talking with a new acquaintance--is certainly a ubiquitous problem. In a national survey of what Americans fear most, the fear of speaking before a group was ranked first, even above the fear of death (Bruskin Associates, 1971). Furthermore, public-speaking educators report that an overwhelming majority of their students report extreme fear of speaking in public (McCroskey, 1982). Effective treatments exist, but most require considerable time commitment on the part of the subject. EMD/R may be effective in treating some instances of communication anxiety and thereby substantially reduce the amount of time one must spend to overcome this problem.

There has been much research with respect to communication anxiety both from within the field of psychology and from within the fields of education and communication. This research can be further divided into analytical research regarding the causes, differences, and types of speech anxiety and treatment research regarding what works for which clients. The findings of both branches of research have implications for the hypothesized use of speech anxiety as a target behavior for EMD/R. Communication anxiety or apprehension is defined by McCroskey, Daly, & Sorensen (1976) as the predisposition to "avoid communication, if possible, or suffer a variety of anxiety-type feelings..." (p.376). Public speaking anxiety is one manifestation of communication anxiety (CA), but is often used as a prototype for general CA. McCroskey's (1982) version of the Personal Report of Communication Apprehension (PRCA-24) is generally accepted as a valid measure of Communication Apprehension, and the public speaking component of it has been demonstrated to be a valid and reliable predictor of public speaking anxiety because of its high correlation with

avoidance and withdrawal and with the anxiety evidenced during a speech (Ayres, 1988; Beatty, 1987, 1988; Beatty, Dobos, Balfantz, & Kuwabara, 1991; Buhr, Pryor, & Sullivan, 1991). Because of its reliability as a predictor of speech anxiety, the public speaking component of the PRCA-24 is frequently used as an independent variable (Beatty, 1987; Beatty et al, 1991; Beatty & Friedland, 1990) or as a dependent variable (Ayres & Hopf, 1985; Beatty, 1988; Buhr et al., 1991). Because the public speaking component correlates highly with the PRCA-24 total score, public speaking is often used in behavioral assessment of CA.

Much of the debate about the causality of CA has revolved around the issue of trait factors versus state or situational factors. However, although the state factors of novelty, conspicuousness, and subordinate status seem to affect CA, some research indicates that these states originate with the individual rather than with the situation (Beatty & Friedland, 1990; Buss, 1980). It is the individual's attribution of novelty, conspicuousness, or subordinate status to the speech situation that affects him/her, and such attribution depends on the person's prior history, particularly with respect to speech experiences (Beatty, 1988; Daly & McCroskey, 1984; Motley & Sherman, 1971).

Debate continues about the etiology and prediction of CA. Behavioral disruption during communication was once considered an appropriate outcome measure of CA (Mulac & Sherman, 1971). Recent research, however, shows behavioral disruption to be a reliable predictor of future CA but not to be reliable as an outcome measure of it (Beatty et al., 1991). An individual's history of behavioral disruption and anxiety experienced in a communication situation also accounts for the ratio of negative to positive speech related thoughts that one experiences in subsequent similar situations (Buhr et al., 1991); in turn, negative speech related thoughts are considered to be predictive of CA (Turner & Beidel, 1985). General shyness because

of inadequate social skills is another reliable predictor of CA (Daly & McCroskey, 1984; McCroskey, 1982). The consensus is that speech anxiety has an internal source (i.e. physiological arousal, negative thoughts) and that, except for cases of general shyness, treatment should deal directly with the anxiety (Beatty & Friedland, 1990).

The treatments that have been developed for CA correspond to the causal theories (Daly & McCroskey, 1984). Systematic desensitization aims at extinguishing the conditioned responses to a communication situation. Cognitive therapy targets the negative thoughts learned from prior history as a communicator. Social skills training attempts to counteract shyness, and speaking skills training seeks to impact educational deficits. Ady (1987) attempted a multi-strategic approach, but the results were not significantly different from a single strategy approach. Paul (1966) and Paul & Shannon (1966) reported significant results with a program of systematic desensitization both for individuals and for therapy groups. Visualization and imagery techniques have been reported to be important components in desensitization and in increasing positive thoughts (Ayres, 1988; Lang, 1977). Motley (1990) presented case history evidence of considerable success in relieving speech anxiety through an educational process of changing the individual's cognitive orientation toward the speech situation from one of performance to one of communication.

EMD/R contains most of the elements that are already used in treating communication anxiety. Systematic desensitization, visualization, cognitive restructuring, and imaginal exposure can all be seen as components of the EMD/R protocol. It remains a question as to what EMD/R adds to the above-mentioned procedures. The addition of saccadic eye movement, or a similar activity, does not appear to increase the effectiveness of the other procedures with CA as it is reported to do with PTSD; however, it may be that some other component of EMD/R makes it effective with CA. Because skills training is not a component of EMD/R, individuals

who are chronically shy and lacking in social skills and individuals who lack basic speaking skills would be expected to require skills training instead of or in addition to this treatment.

Purpose of the Present Study

The present research was based on the results of the researcher's previous studies (Foley & Spates, 1995; Foley & Spates, 1994). The first study investigated the efficacy of Eye Movement Desensitization and Reprocessing (EMD/R) as a treatment for public speaking anxiety. Additionally, the study was designed to permit partial dismantling of the treatment. In that study, subjective units of discomfort (SUD) (Wolpe, 1982) and scores on the Personal Report of Communication Apprehension-24 (PRCA-24) (McCroskey, 1982) were significantly reduced for subjects who received EMD/R treatment or either of the other treatments. Subjects in the no treatment control group did not report any change (Foley & Spates, 1995). The second study investigated the feasibility of using introductory speech classes for recruiting subjects and for doing assessment in actual public speaking situations. Students in the classes showed a significant reduction in PRCA-24 scores over the course of the semester; however, no students chose to receive EMD/R or other treatment for speech anxiety (Foley & Spates, 1994). The results of these studies contributed greatly to the development of the current research. Because the PRCA-24 is a measure of communication anxiety, the current study investigated the treatment of CA (which includes but is not limited to public speaking anxiety) by comparing subjects with CA who were treated with EMD/R to comparable subjects treated with another intervention strategy. Additionally, the study was designed to permit limited speculation about the contribution to treatment effectiveness of the element of imaginal exposure that is apparent in EMD/R.

The current study also considered the role of the pre-treatment assessment speech with respect to treatment effect. Results from both of the previous studies (one involving subjects receiving treatment, the other involving students in introductory speech classes) showed a significant improvement in subjective reports of public speaking anxiety. Non-research clients in the WMU Psychology clinic, however, who received EMD/R treatment for public speaking anxiety showed no improvement at all. It was noted that the clinic clients differed from the research subjects in that the clients did not have to give a speech as part of the initial and final assessment. No speech requirement meant that they did not have to actually come in contact with the feared event during treatment. The treatment involved only imaginal exposure (rather than in vivo exposure), which raises the possibility that the fear activation during pre treatment assessment may have been greater than that experienced during treatment and may have contributed significantly to therapeutic effect. The present study was designed to permit consideration of that factor.

To test the therapeutic importance of pre treatment assessment speeches, the present study employed a design that featured a condition of pre treatment/post treatment speeches vs. a condition of post treatment speeches only. To test the importance of dosed imaginal exposure, each speech condition featured two treatment groups. One group received EMD/R (Shapiro, 1989c) while the other group received an alternative treatment in which the subject described to the therapist specific instances during which extreme anxiety was experienced while speaking in public or while talking with an individual. (See Appendix A.). Eye movements were included in the alternative treatment but without instructions to visualize the traumatic event during the eye movement.

The present study tested the hypothesis that treatment with EMD/R would alleviate the symptoms of CA. Additionally, it tested the hypothesis that imaginal

exposure might be the crucial component of EMD/R. Finally, it tested the hypothesis that confrontation of the feared event (i.e., giving a speech) is necessary for treatment effectiveness. In testing these hypotheses, this research considered questions as to the generality of EMD/R treatment to similar disorders and as to the effectiveness of an alternative therapy that included eye movements but not the imaginal exposure element of EMD/R.

The dependent variable, communication anxiety, was measured in three ways:

1. Scores on the PRCA-24 (McCroskey, 1982) were used as the principle measure. Scores on the Communication Anxiety Inventory (CAI) (Booth-Butterfield & Gould, 1986) were used for comparison.

2. Behavior Assessment of Speech Anxiety scores (BASA) (Mulac & Sherman, 1974) were recorded at pre and post-tests for subjects in groups EMDRs and ALTs, who were required to give speeches as part of pre and post assessment. For the other subjects, the BASA scores were recorded only with their required speech at post-test.

3. Finally, measures of heart rate variability were recorded for all subjects with respect to resting/imagining differential at pre-test, pre-treatment, and post-treatment. Resting/speaking differential was recorded with respect to each speaking situation. Additional dependent variables included SUDs (Wolpe, 1982) and VOC (Shapiro, 1989a), as well as subjects' ratings of treatment expectancy and effectiveness.

CHAPTER II

METHODS SECTION

Subjects

Thirty-two subjects were randomly assigned to four groups. There were eight subjects in each group, recruited by bulletin board postings and solicitation in college classes. (See Appendices B & C.). Subjects were selected from the pool of male and female college students who according to their own report suffered from communication anxiety to the extent that they avoided particular communication situations whenever possible and/or experienced extreme distress whenever they agreed to participate. Seven students were eliminated according to the screening procedures described below.

All subjects included in the study indicated at least a moderate level of communication anxiety by their score on the PRCA-24. All subjects also identified, by completing questions 1 to 3 on the Pre-Treatment Questionnaire (See Appendix D.), a previous situation in which they had experienced communication anxiety. Additionally, all subjects indicated an absence of very high or low levels of social anxiety by scoring in the moderate range on at least two of the following standardized questionnaires: (a) Social Avoidance and Distress Scale (SAD) (Watson & Friend, 1969), (b) Fear of Negative Evaluation Scale (FNE) (Watson & Friend, 1969), (c) Social Interaction Self Statement Test (SISST) (Glass, Merluzzi, Biever, & Larsen, 1982).

Design

A two by two factorial design with repeated measures was used consisting of

four treatment groups. A condition of pre-treatment/post-treatment speeches vs. a condition of no pre-treatment speeches constituted Factor A in the design. Factor B in the design was comprised of treatment type. A "no treatment control" was not included because previous research (Foley & Spates, 1995) indicated that there was no improvement for the "no treatment" subjects who were pre tested. Subjects were recruited from the College population and were randomly assigned to each group.

Procedures

Setting

The first and the final sessions were held in an intake or a treatment room in the university clinic. The subject was alone except for the researcher. The treatment session(s) took place in a treatment room in the university clinic with only the subject and the therapist present. The therapist was either personally trained by the developer of EMD/R or was personally trained by an experienced EMD/R therapist. An observer was present behind a one-way mirror for 30% of the treatment sessions in order to observe the treatment procedure and to assure that subjects were reliably treated according to their group assignment.

Apparatus

An automated blood pressure and pulse monitor from Industrial and Biomedical Sensors Corporation, SD-700A, was used for measuring heart rate during the first and the final sessions as well as during the treatment session. A camcorder was used during the first and final sessions for recording assessment speeches which were viewed and scored later by trained research assistants.

Measures

Each subject's level of speech anxiety was measured in three ways. The PRCA-24 (McCroskey, 1982) and the Communication Anxiety Inventory (CAI) (Watson & Friend, 1969) were used as subjective measures. The PRCA-24 has evolved as the measure of choice for researchers and practitioners studying communication anxiety (McCroskey, Beatty, Kearney, & Plax, 1985). Reliability estimates have been consistently above .90 (Beatty and Andriate, 1985; McCroskey, 1984; McCroskey et al 1985). Additionally, McCroskey et al (1985) rigorously investigated the content validity of the instrument with results that confirmed its predictive capability beyond the context-based content of the items employed. The CAI is based on Spielberger's (1966) state anxiety measure. It was modified for communication anxiety by Booth-Butterfield & Gould (1986), with reliability estimates consistently above .91 and validity confirmed by correlation with other measures of CA. As a behavioral measure, observer scores on the Behavioral Assessment of Speech Anxiety (BASA) (Mulac and Sherman, 1971) were used. Heart rate variability was used as the physiological measure. The recorded heart rate was the average of six readings on the heart rate monitor taken at three second intervals after the sensor had been attached to the subject's finger for at least 15 seconds. Heart rate variability represented the difference between resting heart rate and heart rate recorded while imagining an aversive communication situation.

During the first and the final sessions, resting heart rate was taken for all subjects after they had completed the PRCA-24. Subjects who were to give a speech (at the final session, all subjects) were then given several topics, from which to choose one, for a three to five minute speech. Five minutes of preparation time were given, after which the subject gave a speech that was videotaped by a researcher. Heart rate

was recorded during the speech. At a subsequent time, two trained observers scored each subject's speech according to the criteria of the BASA. The CAI was completed immediately after the speech, or, for those who did not give a speech, immediately after spending a comparable amount of time with the researcher.

Subjective Units of Discomfort (SUDs) and Validity of Cognition (VOC) scores were recorded for all subjects before, during, and after treatment in order to compare the results of the present study with previous research concerning EMD/R. A follow-up rating on both scales was recorded at the post-test session. A rating (0-3) of treatment effectiveness was also recorded at the post-test session.

Follow up questionnaires were sent out one month after the final session. Each subject was requested to complete again the PRCA-24. Each subject was asked again for ratings on the SUDs and VOC scales as well as for a final rating of treatment effectiveness.

Observers

Observers were research assistants recruited from the graduate and undergraduate student body in the psychology department. They were trained by being required to independently score videotaped speeches until the observers' scores reached a 90% level of agreement. Midway through the study, observers went through the training procedure again to insure consistency of scoring. For this study, the BASA was condensed from 18 categories to 7. Each category was rated on a scale of 1-9. Scores within three points of each other were considered to be in agreement. The average of all the observers' scores for each item was used as the final score which was then multiplied by a weighted value according to the scoring procedure for the BASA (Mulac and Sherman, 1971).

Procedure

During the introductory session, the study was explained and consent forms were signed. (See Appendix E.) Subjects were then selected according to their scores on self-report questionnaires. Subjects were included in the study who met criteria on at least 2 of the 3 screening questionnaires. Criteria were reached by scores below 28 and above 3 on the Fear of Negative Evaluation scale (FNE) (Watson & Friend, 1969), below 26 and above 3 on the Social Avoidance and Distress scale (SAD) (Watson & Friend, 1969), and above 25 on the negative sub scale of the Social Interaction Self-Statement Test (SISST) (Glass, Merluzzi, Biever, & Larsen, 1982). Those students were eliminated who scored below 18 on all four components of the PRCA-24. Subjects included in the study were randomly assigned to a treatment group and proceeded with pre-treatment assessment.

Subjects attended one or two treatment sessions, depending on their response to treatment. Subjects in both treatment conditions received the same verbal instructions regarding the treatment protocol, with the therapist following EMD/R procedure (Shapiro, 1989). First, a few minutes were spent developing rapport with the subject. During that time, therapist and subject discussed the subject's history of communication anxiety. The therapist gave a rationale for treatment effectiveness, and the subject rated his/her expectancy for benefiting from the treatment. (See Appendix F.) Then, based on his/her past experience, the subject identified (a) a specific pivotal image of anxiety experienced during a communication situation, (b) a negative cognition with respect to the image as well as a desired cognition and a validity of cognition rating (VOC) with respect to the desired cognition, and (c) a specific emotion with respect to the anxiety image, SUDs rating, and location of body sensation. The subject was then given the specific instructions:

What we will be doing is often a physiology check. I need to know from you exactly what is going on with as clear feedback as possible. Sometimes things will change and sometimes they won't. I'll ask you how you feel from "0" to "10" -- sometimes it will change and sometimes it won't. I may ask if something else comes up -- sometimes it will and sometimes it won't. There are no "supposed to's" in this process. So just give as accurate feedback as you can as to what is happening, without judging whether it should be happening or not. Just let whatever happens, happen. (Shapiro, 1989c, page 10).

From this point on, the procedure for the treatment groups varied.

In the regular EMDR groups (Shapiro, 1989c), the subject was instructed to hold the image in awareness while following the therapist's finger with his/her eyes as the finger was moved rapidly back and forth across the field of vision. The therapist observed for concentration, resistance, and fatigue, but normally each set lasted for approximately twenty seconds. The set ended with instructions to "blank it out and take a breath." The subject was instructed to bring up the image, cognition, or emotion again. The therapist then asked "Did anything else come up?" or "What do you get now?" The sets were repeated as long as new material was being reported. When no new material was reported, the therapist instructed the subject to return to the original image and a SUDs level rating was recorded. Depending on the SUDs level with respect to the original image, the desensitization process was repeated. If the SUDs level was very low and no new information was surfacing, the desired cognition was installed. The subject was instructed to hold in mind at the same time both the original traumatic/disturbing image and the desired cognition. S/he was then asked to evaluate the desired cognition using the VOC rating scale.

Treatment was considered completed after a maximum of two sessions or when a body scan by the subject revealed evidence of a low level of anxiety with respect to imaging of the aversive communication situation as well as acceptance of a new adaptive cognition as true for him/her. If the subject reported some relief of anxiety during the first treatment session but was not able to report a one or two SUDs level or

a six or seven VOC rating, s/he was asked to come in for a second treatment session. Under no circumstances, however, did a subject receive more than two treatment sessions.

The alternative treatment was similar but without the imaginal exposure component. (See Appendix A.) The subject was instructed to move his/her eyes in the same manner as in standard EMD/R, but was not given instructions to hold anything in awareness during the eye movement. As in EMD/R, the subject was told to "Blank it out and take a breath" after each set of saccades. After the first set of eye movements, the therapist instructed the subject to describe the events that occurred, the environment, and the feelings and thoughts experienced during specific episodes of CA. After subsequent sets of saccades, the therapist asked "Did anything else come up?" or "What do you get now?" The alternative treatment, therefore, was equivalent to Shapiro's alternative treatment (Shapiro, 1989a) except for the inclusion of eye movement with its accompanying break in the action and instructions to "blank it out and take a breath". SUDs, VOC, and heart rate were recorded at comparable points in the session. If the subject was not able to report a one or two SUDs level at the end of the first session, s/he was asked to come in for a second treatment session.

The post-treatment session was scheduled at least one week after the subject's final treatment session. Post-treatment assessment was the same for all subjects. Resting heart rate was recorded while the subject was sitting quietly in a room with only the researcher present. All subjects completed the PRCA-24 and post-treatment questionnaires which included ratings of SUDs, VOC, and treatment effectiveness. (See Appendix G.) All subjects gave a short speech that was videotaped for scoring at a later time. Heart rate was measured during the speech, after which all subjects completed the CAI.

A one month follow up assessment, consisting of the PRCA-24 and the follow

up questionnaire, was requested of all subjects. SUDs, VOC ratings, and treatment effectiveness rating were included on the questionnaire. (See Appendix H.)

CHAPTER III

RESULTS

Preliminary Analyses

Three males and five females who were selected to participate did not complete the study. Another seven males and ten females who were selected never made contact with the treatment because of unavailability of therapists. The 32 subjects who were included in the study were undergraduate college students, 9 males and 23 females. Males were distributed two in group 1 (EMDRs), four in group 2 (EMDRns), one in group 3 (ALTs), and two in group 4 (ALTns). All subjects scored 18 on at least one of the components of the PRCA-24. All of the subjects showed moderate levels of social anxiety by reaching criteria on two out of three of the following measures: FNE, SAD, and SISST. By their responses to the first three questions on the pre-treatment questionnaire, all subjects identified a specific episode of communication anxiety.

Inter observer agreement for scores across all categories on the BASA was .85; however, agreement reached 100% for the category, "overall anxiety estimate". Agreement level differed substantially between pre-test scores (.80) and post-test scores (.90) as well as between scores from the first half of the study (.92) and those from the second half (.82). The reason for this is not clear. A possible explanation is that there were different scorers who were trained separately for the second half of the study. Observer bias also has to be considered.

Analysis of variance indicated that, for each relevant measure, all groups were equal at pre-test. Therefore, in the next section, pre-test equivalence of group means should be inferred if it is not stated explicitly.

The data were not complete for follow up scores so they are not included in this analysis.

Primary Analyses

A two factor repeated measures analysis of variance was conducted for each of the pre-test and post-test measures (PRCA-24, CAI, heart rate reactivity, SUDs and VOC scores.) A one way ANOVA was conducted with respect to BASA scores and to the subjects' ratings of overall treatment response. For each one of the measures, the data will be presented first graphically in figures for visual inspection. Then the appropriate statistical analysis will be described and displayed in table form.

Figure 1 displays the change in group means from pre-test to post-test for the PRCA-24. Upon visual inspection, the groups appear to differ as to the amount of change, but statistical analysis shows no significant differences between the groups. The two factor repeated measures analysis of variance on PRCA-24 scores (4 groups X 2 assessment periods) showed no significant main effect for treatment groups ($p < .96$), a significant main effect for the repeated measure ($p < .02$), and no significant treatment by phase interaction ($p < .63$) (Table 1). All treatment groups, considered together, showed significant improvement on this measure, and there were no significant differences between any of the treatment groups when compared to each other.

ANOVAs were also conducted on each of the four components of the PRCA-24. The public speaking component ($p < .96$) showed no significant change from pre-test to post-test. The group discussion component ($p < .002$) and the meeting participation component ($p < .03$) both showed a statistically significant change, and the conversation component ($p < .07$) showed a strong tendency toward significance. The possible relevance of these results will be considered in the discussion section.

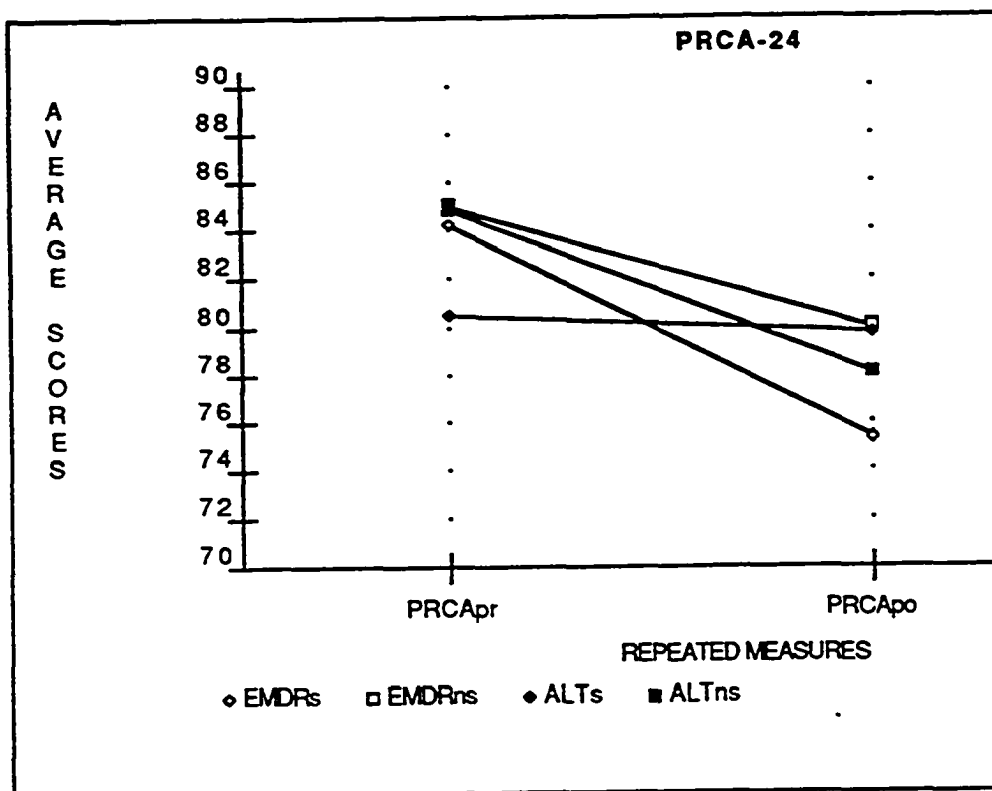


Figure 1. Personal Report of Communication Apprehension-24:
Pre-test to Post-test Change in Group Means.

When displayed graphically, the results for the CAI (Figure 2) appear very different from those of the PRCA-24. Statistically, when analyzed with treatment groups as a factor, the results are similar to those of the PRCA-24. The two factor repeated measures ANOVA showed a significant main effect for the repeated measure ($p < .003$). Main effects for groups was not significant, and the treatment by group interaction ($p < .003$) also fell short of statistical significance. However, when analyzed with speech/no speech condition as a factor, there is a significant interaction effect ($p < .02$) (Table 2).

Table 1
Two Factor Repeated Measures Anova
PRCA-24: Pre-test and Post-test

| Source: | df: | Sum of squares: | Mean Square: | F-test: | P value: |
|--------------------|-----|-----------------|--------------|---------|----------|
| GROUP (A) | 3 | 74.797 | 24.932 | .091 | .9641 |
| subjects w. groups | 28 | 7629.688 | 272.489 | | |
| Repeated Measures | 1 | 456.891 | 456.891 | 5.541 | .0258 |
| AB | 3 | 142.672 | 47.557 | .577 | .6351 |
| B x ss. w. groups | 28 | 2308.938 | 82.462 | | |

The AB Incidence Table

| Repeated Measures: | PRCApre: | PRCApost: | Totals: |
|--------------------|----------|-----------|---------|
| Level 1: | 8 | 8 | 16 |
| | 84.25 | 75.375 | 79.812 |
| Level 2: | 8 | 8 | 16 |
| | 85 | 80 | 82.5 |
| Level 3: | 8 | 8 | 16 |
| | 80.5 | 79.75 | 80.125 |
| Level 4: | 8 | 8 | 8 |
| | 84.875 | 78.125 | 81.5 |
| Totals: | 32 | 32 | 64 |
| | 83.656 | 78.312 | 80.984 |

Graphically presented, the BASA group means for all four groups at post-test appeared to differ somewhat (Figure 3), but statistical analysis does not support that conclusion. Analysis of the BASA scores had to be done differently because the study called for pre-test speeches from only the EMDRs and the ALTs groups. A one factor ANOVA for those groups showed no significant difference at pre-test ($p < .14$) or post-test ($p < .85$) (Table 3). A one factor ANOVA for all groups at post-test showed no significant differences among the groups ($p < .61$) (Table 4).

Heart rate variability represented the difference between resting heart rate and

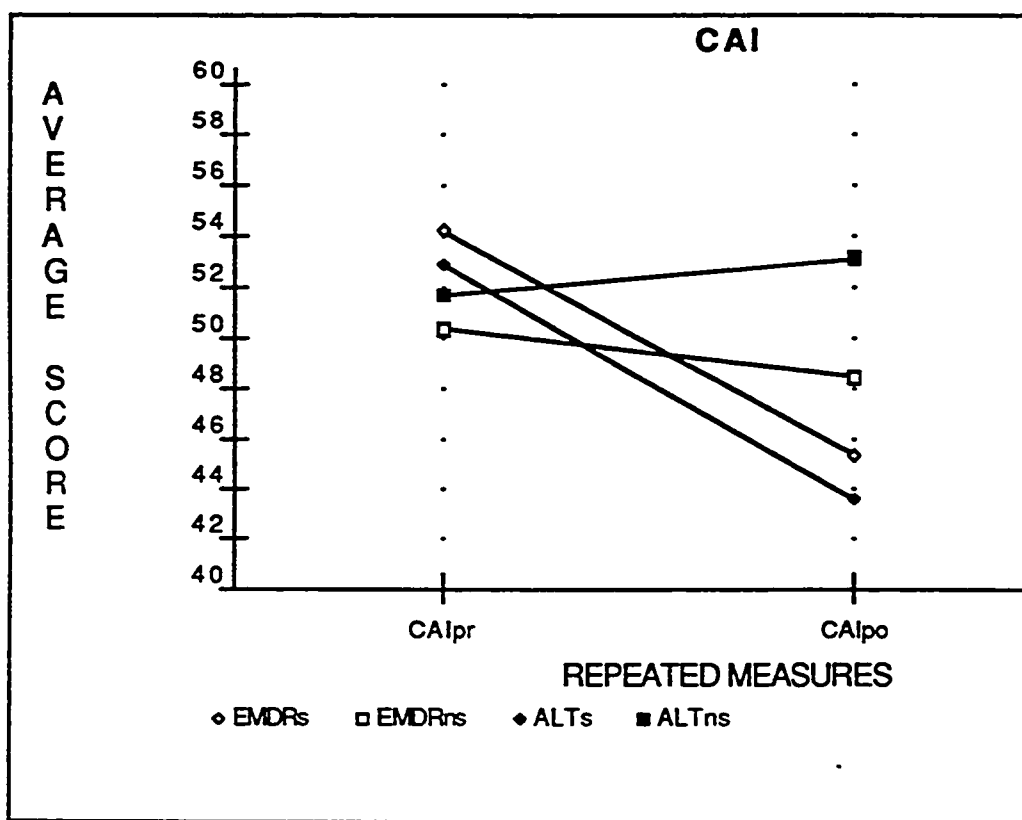


Figure 2. Communication Anxiety Inventory: Pre-test to Post-test Change in Group Means.

heart rate recorded while imagining an aversive communication situation. Heart rate variability was measured at the pre-test session and twice during the treatment session--immediately before and immediately after the treatment. When presented graphically, the treatment group means appear to differ from each other considerably at post-treatment (Figure 4). However, statistical analysis (Table 5) shows only a significant overall reduction ($p < .0001$), with no significant difference between groups.

Presented graphically, there appears to be a consistent reduction in SUDs scores for all groups at post-treatment, which appears to be maintained at post-test (Figure 5).

Table 2

Results of Two Factor Repeated Measures ANOVA
 With Speech/no speech Condition as a Factor
 CAI: Pre-test and Post-test

| Source: | df: | Sum of squares: | Mean Square: | F-test: | P value: |
|--------------------|-----|-----------------|--------------|---------|----------|
| Group (A) | 1 | 64 | 64 | .353 | .5568 |
| subjects w. groups | 30 | 54.36 | 181.2 | | |
| Repeated Measures | 1 | 451.562 | 451.562 | 10.42 | .003 |
| AB | 1 | 305.062 | 232.562 | 5.367 | .0275 |
| B x ss. w. groups | 30 | 1299.825 | 43.329 | | |

The AB Incidence Table

| Repeated Measures: | CAIpre: | CAIpost: | Totals: |
|--------------------|---------|----------|---------|
| Level 1: | 16 | 16 | 32 |
| | 53.562 | 44.438 | 49 |
| Level 2: | 16 | 16 | 32 |
| | 51.75 | 50.25 | 51 |
| Totals: | 32 | 32 | 64 |
| | 52.656 | 47.344 | 50 |

A repeated measures ANOVA showed an overall significant reduction in SUDs for all groups from pre to post-treatment ($p < .0001$) but no main effect for groups nor interaction effect (Table 6).

For VOC scores, there was overall significant positive change from pre to post-treatment for all groups ($p < .0001$) but no main effect for groups nor interaction effect (Figure 6, Table 7). There were no further differences observed between post-treatment and post-test.

Group means of subjects' ratings of treatment effect appeared to differ from each other when presented graphically (Figure 7). A one factor ANOVA on overall treatment effect (scale of 0-3) indicated a significant difference between one or more of

the groups ($p < .01$) (Table 8). The Fisher LSD on paired comparisons showed a significant difference between EMDRns (Group 2) and ALTs (Group 3), as well as between EMDRns (Group 2) and ALTns (Group 4). The possible relevance of this will be discussed in the next section.

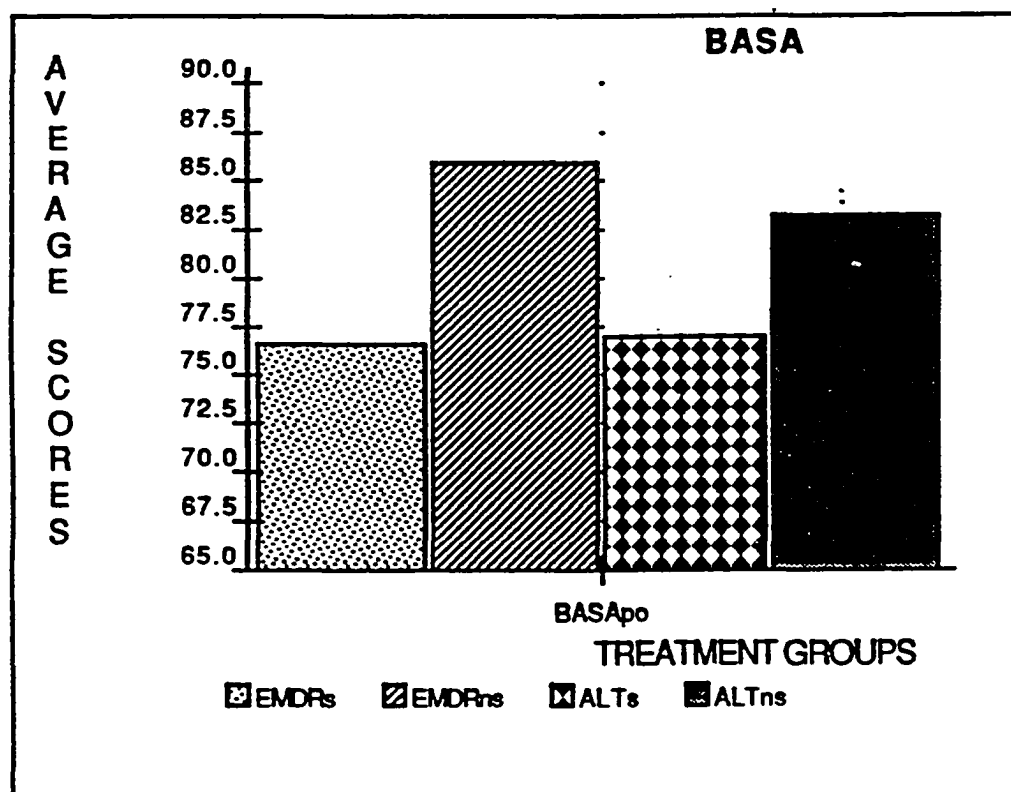


Figure 3. Behavioral Assessment of Speech Anxiety: Group Means at Post-test.

Table 3

BASA: EMDRs and ALTs, Pre-test
Results of One Factor ANOVA

| Source: | df: | Sum of squares: | Mean Square: | F-test: |
|----------------|-----|-----------------|--------------|-----------|
| Between groups | 1 | 597.846 | 579.846 | 2.427 |
| Within groups | 14 | 3348.403 | 239.172 | p = .1418 |
| Total | 15 | 3928.249 | | |

Table 4

BASA: All Groups, Post-test
Results of One Factor ANOVA

| Source: | df: | Sum of squares: | Mean Square: | F-test: |
|----------------|-----|-----------------|--------------|-----------|
| Between groups | 3 | 508.547 | 169.516 | .609 |
| Within groups | 28 | 7796.998 | 278.464 | p = .6149 |
| Total | 31 | 8505.545 | | |

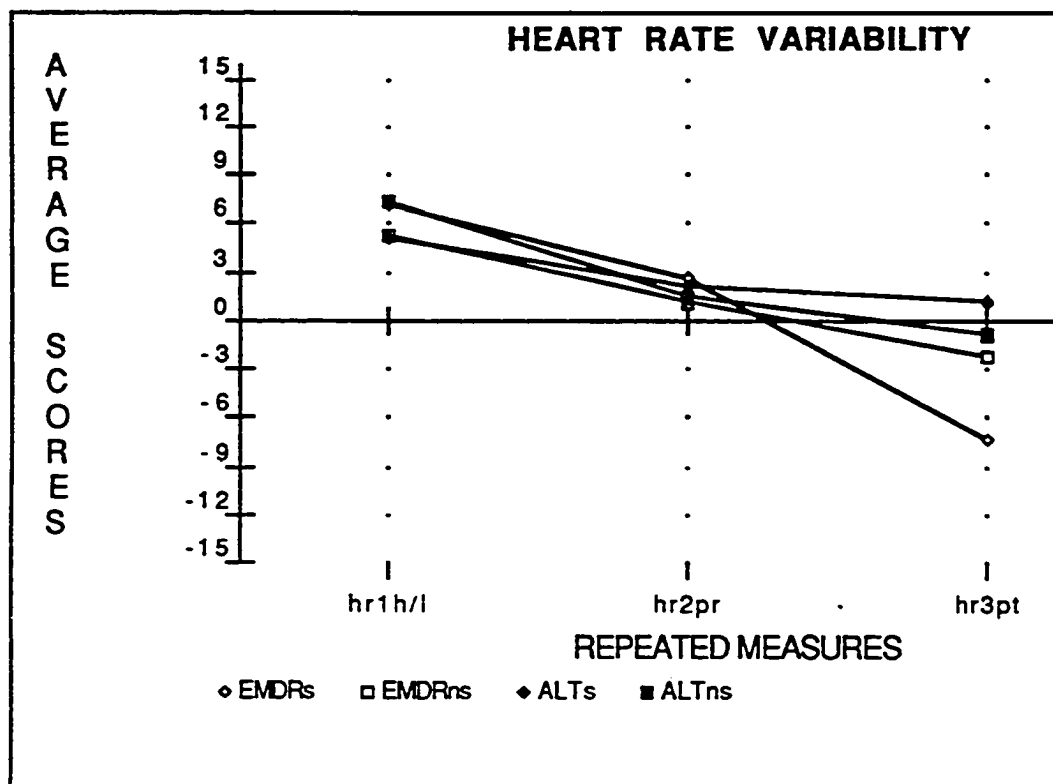


Figure 4. Heart Rate Variability: Pre-test to Pre-treatment to Post-treatment Change in Group Means.

Table 5
Results of Two Factor Repeated Measures ANOVA
Heart Rate Variability

| Source: | df: | Sum of Squares: | Mean Square: | F-test: | P value: |
|----------------------|-----|-----------------|--------------|---------|----------|
| Group (A) | 3 | 59.271 | 19.757 | .467 | .7082 |
| subjects w. groups | 25 | 1058.476 | 42.339 | | |
| Repeated Measure (B) | 2 | 1164.437 | 582.218 | 16.77 | .0001 |
| AB | 6 | 319.504 | 53.251 | 1.534 | .1866 |
| B x ss. w. groups | 50 | 1736.06 | 34.721 | | |

The AB Incidence Table

| Repeated Measures: | HRV1: | HRV2: | HRV3: | Totals: |
|--------------------|-------|-------|--------|---------|
| Level 1 | 8 | 8 | 8 | 24 |
| | 7.125 | 2.75 | -7.375 | .833 |
| Level 2 | 7 | 7 | 7 | 21 |
| | 5.714 | .286 | -2 | 1.333 |
| Level 3 | 7 | 7 | 7 | 21 |
| | 5.143 | 2.143 | 1.143 | 2.81 |
| Level 4 | 7 | 7 | 7 | 21 |
| | 8 | .286 | -.714 | 2.524 |
| Totals: | 29 | 29 | 29 | 87 |
| | 6.517 | 1.414 | -2.414 | 1.839 |

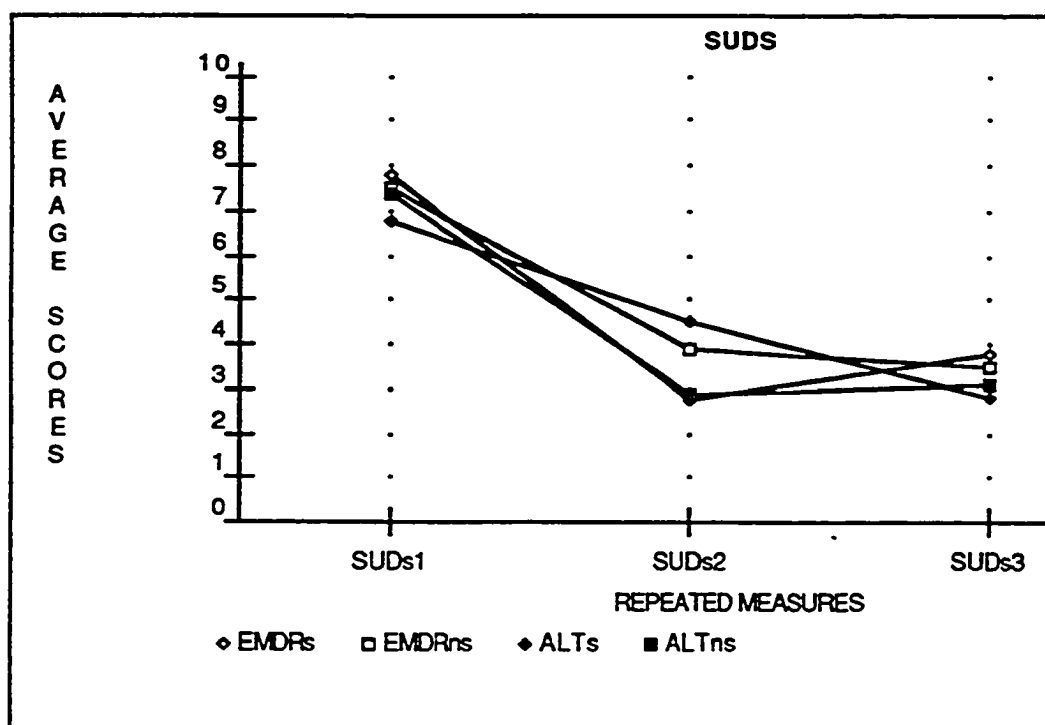


Figure 5. Subjective Units of Discomfort: Pre-treatment to Post-treatment to Post-test Changes in Group Means.

Table 6

Results of Two Factor Repeated Measures ANOVA:
Subjective Units of Discomfort

| Source: | df: | Sum of squares: | Mean Square: | F-test: | P value: |
|--------------------|-----|-----------------|--------------|---------|----------|
| GROUP (A) | 3 | 3.083 | 1.028 | .129 | .942 |
| subjects w. groups | 28 | 222.75 | 7.955 | | |
| Repeated Measures | 2 | 334.146 | 167.073 | 63.54 | .0001 |
| AB | 6 | 22.604 | 3.767 | 1.433 | .2186 |
| B x ss. w. groups | 56 | 147.25 | 2.629 | | |

The AB Incidence Table

| Repeated Measures: | SUDS1: | SUDS2: | SUDS3: | Totals: |
|--------------------|--------|--------|--------|---------|
| Level 1 | 8 | 8 | 8 | 24 |
| | 7.75 | 2.75 | 3.75 | 4.75 |
| Level 2 | 8 | 8 | 8 | 24 |
| | 7.5 | 3.875 | 3.5 | 4.96 |
| Level 3 | 8 | 8 | 8 | 24 |
| | 6.75 | 4.5 | 2.75 | 4.67 |
| Level 4 | 8 | 8 | 8 | 24 |
| | 7.38 | 2.88 | 3.13 | 4.46 |
| Totals: | 32 | 32 | 32 | 96 |
| | 7.35 | 3.5 | 3.29 | 4.71 |

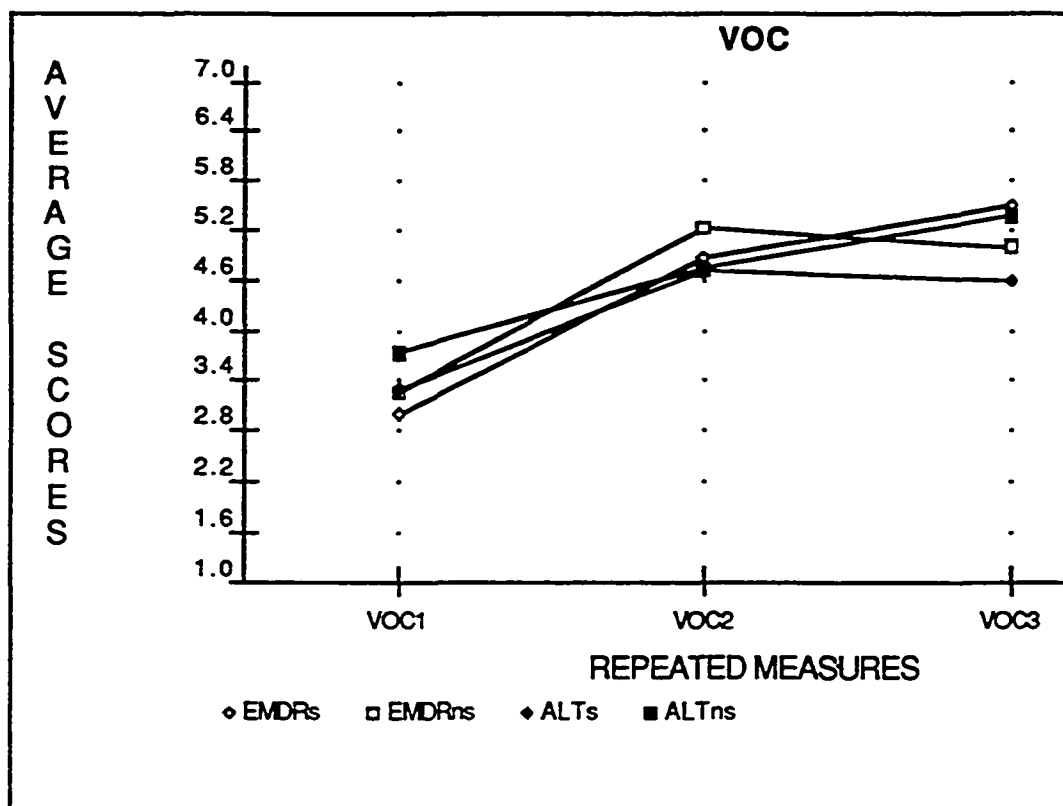


Figure 6. Validity of Cognition: Pre-treatment to Post-treatment to Post-test Changes in Group Means.

Table 7

Results of Two Factor Repeated Measures ANOVA:
Validity of Cognition

| Source: | df: | Sum of squares: | Mean Square: | F-test: | P value: |
|--------------------|-----|-----------------|--------------|---------|----------|
| GROUP (A) | 3 | 3.917 | 1.306 | .291 | .831 |
| subjects w. groups | 28 | 125.417 | 4.479 | | |
| Repeated Measures | 2 | 59.083 | 29.542 | 30.31 | .0001 |
| AB | 6 | 6.333 | 1.056 | 1.083 | .3838 |
| B x ss. w. groups | 56 | 54.583 | .975 | | |

The AB Incidence Table

| Repeated Measures: | VOC1: | VOC2: | VOC3: | Totals: |
|--------------------|-------|-------|-------|---------|
| Level 1 | 8 | 8 | 8 | 24 |
| | 3 | 4.88 | 5.5 | 4.46 |
| Level 2 | 8 | 8 | 8 | 24 |
| | 3.25 | 5.25 | 5 | 4.5 |
| Level 3 | 8 | 8 | 8 | 24 |
| | 3.25 | 4.63 | 4.38 | 4.08 |
| Level 4 | 8 | 8 | 8 | 24 |
| | 3.75 | 4.75 | 5.38 | 4.63 |
| Totals: | 32 | 32 | 32 | 96 |
| | 3.31 | 4.88 | 5.06 | 4.42 |

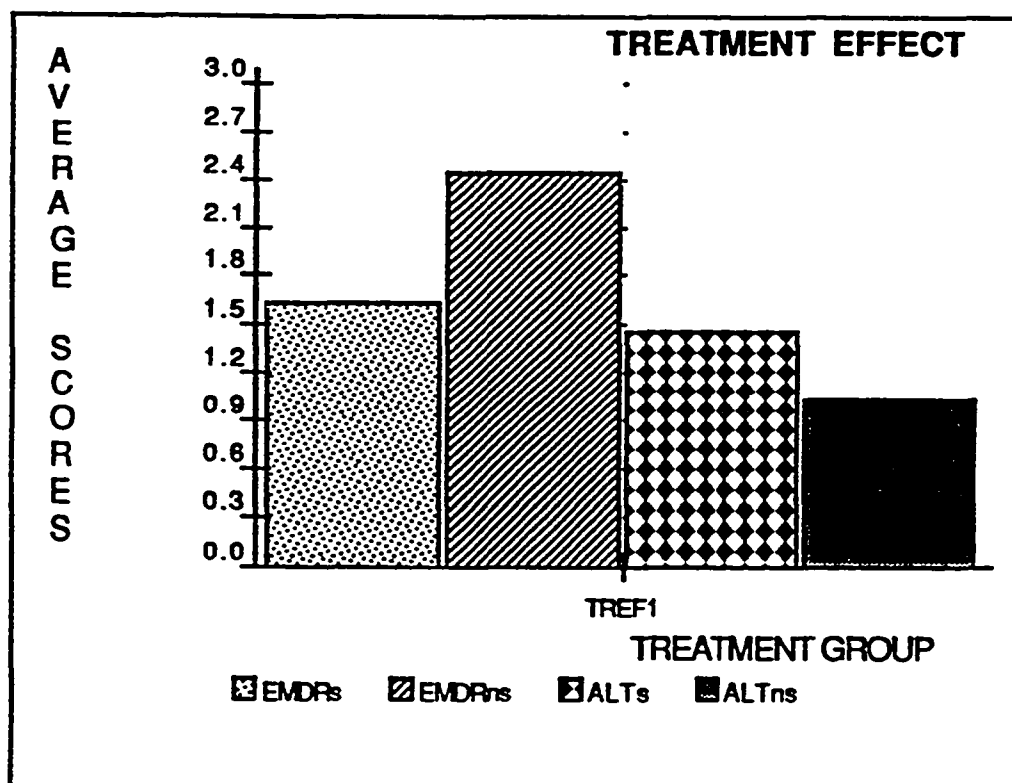


Figure 7. Subject Rating of Treatment Effect: Group Means at Post-test.

Table 8

Subject Rating of Treatment Effect:
Results of One Factor ANOVA

| Source: | df: | Sum of squares: | Mean Square: | F-test: |
|----------------|-----|-----------------|--------------|-----------|
| Between groups | 3 | 7.896 | 2.632 | 4.33 |
| Within groups | 26 | 15.804 | .608 | p = .0133 |
| Total | 29 | 23.7 | | |

| Group: | Count: | Mean: | Std. Dev.: | Std. Error: |
|---------|--------|-------|------------|-------------|
| Group 1 | 8 | 1.625 | .916 | .324 |
| Group 2 | 7 | 2.429 | .535 | .202 |
| Group 3 | 7 | 1.429 | .787 | .297 |
| Group 4 | 8 | 1 | .802 | .283 |

| Comparison: | Mean Diff.: | Fisher PLSD: | Scheffe F-test: | Dunnett t: |
|---------------|-------------|--------------|-----------------|------------|
| Group 1 vs. 2 | -.804 | .829 | 1.322 | 1.992 |
| Group 1 vs. 3 | .196 | .829 | .079 | .487 |
| Group 1 vs. 4 | .625 | .801 | .857 | 1.603 |
| Group 2 vs. 3 | 1 | .857* | 1.919 | 2.4 |
| Group 2 vs. 4 | 1.429 | .829* | 4.178* | 3.54 |
| Group 3 vs. 4 | .429 | .829 | .376 | 1.062 |

(* Significant at 95%)

CHAPTER IV

DISCUSSION

Comparison With Previous Research

Consideration of the Main Hypotheses

The results of the present study support previous evidence that EMD/R has a significant effect on communication anxiety. However, the results of the study are inconclusive with respect to the importance of imaginal exposure and to the role of a pre treatment behavioral assessment.

Regarding the effectiveness of EMD/R treatment, the treatment protocol used in this study followed closely that taught by Shapiro in her training seminars (Shapiro, 1989c). The therapists were either personally trained at one of those seminars or trained by an experienced EMD/R therapist. The decrease in SUDs and the positive change in VOC reported by Lipke (1991), Renfrey & Spates (1995), and Shapiro (1989) are supported by this study. Additionally, changes in PRCA-24 scores were consistent with previous research that evaluated EMD/R treatment of CA, and those scores were supported by a significant change in scores on the CAI. Heart rate variability from pre to post treatment also decreased significantly.

There were no significant differences with respect to treatment type, suggesting that the imaginal exposure component (i.e., visualization during the eye movements) is not critical for treatment effect. However, it must be remembered that the treatment target in this study is different than in other studies because the subjects were not

suffering from PTSD. Imaginal exposure during eye movement may be more relevant to the desensitization of more traumatic memories.

There also were no significant differences with respect to the role of pre treatment behavioral assessment when analyzed with treatment group as a factor. However, on the CAI, the interaction effect showed a marked tendency toward significance ($p < .09$), which would likely have reached a significant level if the comparative power had been greater. When scores on the CAI were analyzed with the behavioral assessment condition (speech/no speech) as a factor, the interaction was significant at $p < .02$. The interaction effect suggests that the pre treatment speech contributed to the treatment effect as measured by subjective reports of anxiety experienced in an actual communication situation. Further research is necessary, however, before any conclusive statements can be made.

Consideration of the Outcome Measures

The findings in the present investigation with respect to the PRCA-24 scores were consistent with the findings from several other investigations. The implication that communication anxiety has an internal source and should therefore be treated with techniques dealing directly with the apprehension (Beatty, 1988; Beatty, Balfantz, & Kuwabara, 1989; Beatty and Friedland, 1990; Buss, 1980; Motley and Sherman, 1971) was supported by this study in that EMD/R effectively decreased anxiety experienced with respect to communication but did not alter behavioral manifestations of this apprehension. Furthermore, subjects' reports of decreased anxiety during the post-test speech corresponded to the change in PRCA-24 scores recorded at post-test. This correspondence attests to the validity of the PRCA-24 as a measure that correlates highly with the report of subjective anxiety evidenced during a speech (Ayres, 1988; Beatty, 1987, 1988; Beatty et al., 1991; Buhr et al. 1991).

The component analysis of the PRCA-24 presents an apparently anomalous finding which is in accord with results of previous research (Foley & Spates, 1995). Of the four components of CA (public speaking, conversation with a new acquaintance, group discussion, meeting participation), only the public-speaking component did not decrease significantly from pre-test to post-test. A possible explanation for this relates to the number of opportunities for confrontation of public-speaking situations in a person's normal living routine. It should be noted that the assessment speech requirement in the present study was not equivalent to public speaking; rather, it was more like the other components included in the PRCA-24. As college students, all subjects frequently come into contact with group discussion, participation in meetings, and conversing with new acquaintances. On the other hand, public-speaking situations are rare occurrences for many college students. It is possible that subjects did not endorse a change in behavior with respect to public-speaking because they had not yet had an opportunity to observe themselves in a public-speaking situation. This is especially likely given the relatively brief duration between pre and post testing.

Analysis of the BASA scores for those subjects required to give a pre test speech (EMDRs and ALTs) showed no difference between groups at pre test. Based on that information, the four group means at post test were analyzed. Visual inspection suggests a difference in group means at post test. However, no statistical differences were found. Inter observer agreement on pre-test scores (.80) differed considerably from agreement on post-test scores (.90), as did inter observer agreement between the first half of the study (.91) and the second half of the study (.79). This difference in agreement may be due to the fact that new observers were trained for the second half of the study and were trained separately from each other. If that is the case, it may account for the absence of any apparent treatment effect with respect to this measure.

Overall treatment effect has been used or recommended frequently in EMD/R (and other anxiety-related research) as a summary index of treatment outcome (Kleinknecht & Morgan, 1992; Lohr et al., 1993; Marquis, 1991; Sanderson & Carpenter, 1992). Marquis (1991) suggested the use of this variable in his report of 78 cases in which EMD/R was used for treating a variety of problems. In the present study, all group means were at 1 or higher, indicating at least some improvement (scale of 0 - 3). The mean of 2.4 for the EMDRns group was significantly higher than the mean of 1.4 for ALTs group and the mean of 1 for ALTns group. The reason for this is not clear. Overall, the EMD/R groups (EMDRs and EMDRns, with means of 1.6 and 2.4 respectively) had higher mean ratings for treatment effect than did the alternative treatment groups. However, the greater number of males in the EMDRns group (four vs. one or two) may also have been a factor. Additionally, it should be noted that at one month follow-up, although scores were not available for all subjects, the group means had evened out (EMDRs - 1.3, EMDRns - 2, ALTs - 1.4, ALTns - 1.4).

The decrease in SUDs scores and the positive change in VOC scores are consistent with previous case reports and outcome studies of EMD/R (Renfrey & Spates, 1994; Shapiro, 1989a) as well as with previous research using EMD/R with CA (Foley & Spates, 1995). However, in the present study (as in previous research with EMD/R and CA), SUDs scores did not reach 0 or 1 in the majority of cases (post-test SUDs: mean, 3.5; mode, 2). In this respect, the findings are more like those of Lipke and Botkin (1992), Marquis (1991), and Sanderson and Carpenter (1992) than like those of Shapiro (1989). As mentioned previously, differences in the nature of the target behavior must be considered. Subjects with PTSD may respond more dramatically to the treatment than do subjects with other anxiety disorders. There is preliminary evidence suggesting this possibility (Sanderson and Carpenter, 1992).

Consideration of the Ways This Study Differs From Previous Research

The present study differs from previous research in two important ways. First, it featured the use of the eye movement component without the accompanying visualization of the traumatic event. In Shapiro's original study (1989a), the alternative treatment control group did not have the eye movement component, but the control treatment also did not include imaginal exposure. This study addressed that issue by varying only one component of the alternative treatment. Recently, Montgomery and Allyon (1994b) addressed the same issue by using an alternative treatment that featured imaginal exposure but no eye movement. Results of that study showed EMD/R to be significantly more effective than the imaginal exposure group. However, it appeared that the exposure group differed from EMD/R in other important ways. (For example, there were no instructions to "Blank it out and take a breath" or questions about "What comes up now?"). In the present study, the alternative treatment differed from EMD/R on only one variable: the subject was not instructed to visualize the aversive memory during the eye movement component.

A second way this study differed from other research was in its controlled evaluation of the effect of pre treatment behavioral assessment. During pre treatment assessment, particularly when conducting research with respect to anxiety disorders, subjects are frequently required to confront their feared situation both imaginally and in vivo. Because pre treatment assessment is part of the overall treatment context, it is logical to assume that fear activation during assessment may contribute to treatment effectiveness. The previous study using EMD/R treatment for public-speaking anxiety (Foley & Spates, 1995) may have inadvertently arranged a situation of forced in vivo exposure that activated a fear response and thereby rendered the subjects more sensitive to imaginal exposure during treatment. Another study using EMD/R (Sanderson and

Carpenter, 1992) may have arranged a similar situation by asking subjects to rate their anxiety level while confronting a feared object before and after every seven sets of eye movements. In considering the effectiveness of EMD/R, it will be important to determine the function of pre treatment assessment using in vivo exposure. The present study addressed that issue by requiring pre treatment assessment speeches of only half of the subjects.

Consideration of the Effective Components of EMD/R

The components of EMD/R that are critical for treatment effectiveness have not yet been established. In the present study, although self-report ratings improved significantly for all groups, the results suggest that the imaginal exposure component of EMD/R is not critical for treatment effectiveness, at least with respect to communication anxiety. Although eye movements were featured in both conditions of the present study, previous research indicates that they are not critical (Foley & Spates, 1995; Renfrey & Spates, 1994). Rather, the effective components may be those elements of the treatment that, as mentioned previously, are similar to other treatments that have already proven effective with communication anxiety. Focus on emotions, talking about the aversive event, and reappraisal of negative self-statements are elements common to both EMD/R and to the alternative treatment. Those elements parallel the desensitization, cognitive restructuring, and consideration of coping skills that are important in other treatments of CA.

Even without reference to other techniques, EMD/R (as well as the alternative treatment in this study) employs several established change strategies. During the treatment, the subject increases self-awareness and self-acceptance through uncritical acceptance of the aversive thoughts and feelings that comprise the traumatic memory. The subject accesses and re experiences previously denied or unaware reactions as

he/she "just lets whatever happens, happen". Finally, the subject learns a new and empowering perspective on his/her problem situation through choosing a preferred cognition in place of the negative one held previously (reframing). It may be that EMD/R is effective because of these strategies and that the eye movement component serves only to distinguish it from other techniques.

However, in addition to eye movements, there is another way that EMD/R differs from other treatments. That "other" difference may be the most important in accounting for the remarkable effects that have been reported for this treatment. In EMD/R treatment, the therapist directs the client's attention to private events of the "world within the skin", but the therapist never interprets, restates, empathizes, or otherwise engages in naming or identifying those events for the client. Consequently, the client becomes engaged in being an accepting observer in the present moment of the present interaction between himself and his environment. Radical behavioral approaches to psychotherapy (Hayes & Wilson, 1994; Kohlenberg & Tsai, 1991) and approaches from a mystical perspective (Deikman, 1982) contend that the development and enhancement of the "observing self" is a critical element of psychotherapy and is crucial for the progress of Western psychology. The critical component of EMD/R may be that it develops and enhances the "observing self" by imposing a structure that interferes with control by "thinking" or with control by therapist suggestion.

Limitations of the Study

A frequent question with respect to EMD/R is that the believability of the rationale given for the intervention may have caused the outcomes rather than that they reflect a true experimental effect due solely to the intervention. The present study attempted to address that issue by providing a common (i.e., constant) rationale for each treatment (i.e., that the treatment was a form of desensitization and had been

extremely successful in treating other types of anxiety). Additionally, subjects were reminded that the treatment they received was not necessarily the treatment of interest. After the rationale was given, subjects rated their expectancy (scale of 1-5) for benefiting from the treatment. At the beginning of treatment, expectancy was 3 or above in most cases. In this study, believability may have negatively affected outcome considering that eight subjects did not complete the treatment and others did not choose to have a second session. Hope (1993) noted that a situation must be seen as an appropriate target if exposure is to be effective. It may be that for some individuals with CA, the rationale was insufficient, and they could not accept that attending to a painful memory could in any way help them to perform better in the future.

A related concern in EMD/R research involves the use of blind or double blind formats for the intervention (Lohr et al., 1992). This study did not attempt such a manipulation, but would recommend that future studies attempt to do so. Naive therapists trained in each of several interventions (such as those used in the present investigation) could then deliver the interventions, as assigned, without knowledge of whether any given treatment was the treatment of choice. The treatment rationale in such a study should be controlled so that expected treatment effect is equally emphasized in each group. Control for equable expectations of treatment effect was attempted in the present study.

This study was also limited by difficulties with respect to outcome measures. There was little agreement between self-report, psycho physiological, and behavior-observation measures, which made interpretation difficult. Although previous studies involving communication anxiety have also reported inconsistency among measures of different behavior modalities (Beatty, 1987; Beatty et al., 1991; McCroskey, 1982), some of the problem in this study seemed to relate to differences in target behavior. Future studies using subjects with communication anxiety would be advised to limit

subjects to either those whose anxiety involves public speaking or to those whose anxiety involves one of the other components of CA. The physiological measures might also be more informative if groups are sub-divided into high physiological responders vs. low physiological responders as suggested by Turner and Beidel (1985) in their study investigating the evidence for subtypes of social anxiety. This study attempted to do that, but the absence of the pre-treatment behavioral assessment for some of the subjects confounded the results. Finally, future studies should try using the BASA overall anxiety estimate rather than the full scale rating. In this researcher's experience, the overall anxiety estimate has been more consistent with other outcome measures, it requires much less work scoring, and inter observer agreement has been much higher than it has been for the full scale rating.

Another limitation of the present study was the complexity of the treatment target. Communication anxiety may be caused by general shyness, by inadequate social skills, by concern about performance and evaluation, by excessive negative self-statements, or by a learned response to a traumatic experience. EMD/R would be expected to have an effect only with the last three etiologies. However, it is difficult to assess for specific and unique causes because frequently there are many variables affecting the experience of CA. Future research should develop ways to screen out subjects whose traumatic communication experience relates more to generalized social anxiety or avoidant personality than to situational events. Furthermore, future research could modify the protocol slightly to better address the component of evaluation anxiety, a factor which has proven to be particularly important in many cases of communication anxiety.

Finally, this study was limited by the overlap of visualization and exposure in the standard EMD/R protocol. Although subjects receiving the alternative treatment were not instructed to visualize the distressing memory during the eye movement

component, it is possible that visualization during SUDs assessment or while talking about the event may have constituted imaginal exposure. Future research should address the issue of how much visualization is needed before it can be considered imaginal exposure.

Appendix A
Protocol for the Alternative Treatment

PROTOCOL for alternative treatment

1. **Bonding:** The treatment will be described and a rationale will be given.
2. **History:** The subject will be asked about specific incidences when he/she experienced communication anxiety (referring to pre treatment questionnaire). The Subjective Unit of Discomfort scoring (SUDs) will be explained (a scale of 1 to 10 with 0 representing no discomfort and 10 representing intense discomfort). The subject will be asked to give a SUDs rating for specific incidences of speech anxiety.
3. **Choose Target:** The subject will choose a specific memory of an occurrence of communication anxiety. It will be one that is representational, generalizable, specific, and for which the subject can give a significant SUDs rating.
4. **Identify with respect to that memory:**
 - a. a specific pivotal picture (the worst moment of the episode)
 - b. a negative cognition and a corresponding desired cognition;
 a Validity of Cognition (VOC) rating with respect to the desired cognition (a scale of 1 to 7 with one representing "completely untrue" and 7 representing "completely true")
 - c. a specific emotion, SUDs, location of body sensation
5. **Specific instructions:**
 "What we will be doing is often a physiology check. I need to know from you exactly what is going on with as clear feedback as possible. Sometimes things will change and sometimes they won't. I'll ask you how you feel from "0" to "10" -- sometimes it will change and sometimes it won't..... There are no "supposed to's" in this process. So just give as accurate feedback as you can as to what is happening, without judging whether it should be happening or not. Just let whatever happens, happen." (Shapiro, 1989)
6. The subject will be instructed to visually track the movement of the therapist's finger. The therapist moves the index finger horizontally across the line of vision at a rate of two back and forth movements per second. The distance the hand travels on each sweep is at least 12 inches. Each 12 bi-directional saccadic eye-movements is one group. One set equals 1-3 groups depending on concentration, resistance and fatigue. (The subject will not be instructed to visualize or think about anything.)
7. **Instruction:** The subject will be instructed to describe the reported memories (starting with the target episode) of situations in which s/he experienced extreme communication anxiety.
8. Throughout the session, when 1 - 1 1/2 minutes have passed, the therapist will have the subject do another set of saccades. After every third set, subject will be asked to give another SUDs rating.

9. The subject will be instructed to continue describing the event. The therapist may ask if the picture changes or questions about who was involved, what the environment looked like, or what happened next.
10. Install new cognition: When the SUDs level is very low (1 or 2) and/or all the reported episodes of communication anxiety have been described, the subject will be instructed to think again of the original target episode while at the same time thinking of the desired cognition. He/she will then be asked to evaluate the desired cognition using the VOC rating scale.
11. Treatment termination: Treatment will be considered complete after a maximum of two sessions or when a body scan by the subject reveals evidence of a low level of anxiety with respect to thinking about public speaking situations and acceptance of a new adaptive cognition as true for him/her -- whichever occurs first.

Appendix B
Subject Recruitment - Bulletin Board Posting

Subjects needed for research!!

on treatment for

COMMUNICATION ANXIETY

If speaking in public
or talking to a person you have just met

is a problem for you,
this treatment may help.

If interested, please send
your first name
and a phone number
where you can be reached
to Teresa Foley
c/o Psychology Department
W.M.U.

or call 387-4332 and leave a message.

Appendix C
Subject Recruitment -
Classroom Solicitation

RECRUITMENT OF SUBJECTS FOR RESEARCH REGARDING EMD/R TREATMENT OF COMMUNICATION ANXIETY

This research is being conducted by Terry Foley, a graduate student from the Psychology department. The study is testing a new procedure that has been reported to be very effective in the treatment of some types of anxiety. The present study is testing the treatment with subjects who experience communication anxiety. We define communication anxiety as extreme discomfort about speaking in public, in group discussions, in meeting participation, or when talking to a person for the first time. Extreme discomfort would mean that a person either avoids the situation altogether or else experiences great distress whenever he/she confronts the situation.

If you are interested in finding out more about the study, please write your first name and a phone number where you can be reached on this paper. A research associate will call you within a week to explain more about the study and what you will be doing if you decide to participate. If you're not interested, please write "not interested". Then please fold the papers and pass them toward the aisle where I can collect them.

Thank you.

Appendix D
Pre Treatment Questionnaire

CODE # _____

DATE _____

PRE-TREATMENT QUESTIONS

1. What was the worst episode of communication anxiety you have ever experienced?
2. What was the first time you experienced communication anxiety?
3. What was your most recent experience of communication anxiety?
4. How would you rate the degree of trauma you experienced during the most distressing speech related episode you can remember.

| | | | |
|-------------|-------------------|-------------------|------------------|
| 0 | 1 | 2 | 3 |
| No distress | a little distress | moderate distress | extreme distress |

5. On the following scale, how would you rate your ability to imagine an event?

| | | | | | |
|------------------|---|---|---|---|---------------|
| (non-existent) 0 | 1 | 2 | 3 | 4 | 5 (excellent) |
|------------------|---|---|---|---|---------------|

Select the statement that is more natural for you with respect to speaking in a stressful situation.

6. a. When I think about a past episode of communication anxiety, I tend to visualize what happened.
b. When I think about a past episode of communication anxiety, I tend to make statements to myself about what happened.
c. Sometimes a, other times b.
7. a. My communication stress consists primarily of rapid heartbeat and shortness of breath.
b. My communication stress consists primarily of sensations in my solar plexus.
c. Sometimes a, other times b.
8. a. Talking to myself in positive terms helps.
b. Positive self-talk doesn't help.
c. Sometimes a, other times b.
9. a. Taking a few deep breaths seems to help.
b. Taking deep breaths doesn't seem to help.
c. Sometimes a, other times b.
10. a. Tensing and relaxing muscles doesn't seem to help.
b. Tensing and relaxing muscles seems to help.
c. Sometimes a, other times b.

Indicate the degree to which the following statements apply to you by marking whether you

(1) strongly agree, (2) agree, (3) are undecided, (4) disagree, or (5) strongly disagree with each statement.

- ___ 11. My thoughts become confused and jumbled when I am speaking in front of people or with an individual that I don't know well.
- ___ 12. My hands tremble when I am speaking in front of people or with an individual that I don't know well.
- ___ 13. I am in constant fear of forgetting what I prepared to say.
- ___ 14. I perspire just before starting or while I am speaking in front of people or when I speak with an individual that I don't know well.
- ___ 15. My heart beats very fast just as I start to speak in front of people or when I speak with an individual that I don't know well.
- ___ 16. Certain parts of my body feel very tense and rigid while speaking in front of people or with an individual that I don't know well.
- ___ 17. I breathe faster just before speaking in front of people or with an individual that I don't know well.
- ___ 18. I do poorer when speaking in front of people or with an individual that I don't know well just because I am anxious.
- ___ 19. When I make a mistake while speaking in front of people or with an individual that I don't know well, I find it hard to concentrate on what I want to say.
- ___ 20. During an important occasion of speaking in front of people or with an individual that I don't know well, I experience a feeling of helplessness building up inside of me.
- ___ 21. My heart beats very fast while speaking in front of people or with an individual that I don't know well.
- ___ 22. While speaking in front of people or with an individual that I don't know well, I get so nervous I forget facts I really know.
23. The research assistant directed you to visualize as vividly as possible a recent or an imagined communication situation in which you experienced a great deal of anxiety. Now, please rate the amount of discomfort you felt while you were visualizing that event. Rate it on the following scale of 0 to 10, with 0 representing no discomfort and 10 representing the most discomfort imaginable.

NO DISCOMFORT

MOST DISCOMFORT

0-----1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Appendix E
Informed Consent Form

Department of PSYCHOLOGY
**RESEARCH PARTICIPATION INFORMED CONSENT
AGREEMENT**

Principal Investigator: C. RICHARD TSEGAYE-SPATES Ph.D.

Research Associate: TERESA FOLEY M.A.

I volunteer to participate in the research project investigating the treatment of communication anxiety. This may involve a new treatment method that has been reported to be successful with different but similar anxiety disorders.

I understand that I will be randomly assigned to one of two treatment conditions. In each condition, treatment will be conducted by a trained therapist. If either therapy is more effective than the other, it will be offered to all participants when the study is completed.

All treatment sessions will be conducted in the Psychology clinic at WMU. I understand that treatment may involve eye movement. I understand that trained observers may be present behind a one way mirror. The observers will be trained psychology students who agree to maintain the confidentiality of all subjects. I also understand that I may experience some anxiety as I visualize or talk about anxiety-provoking situations. Depending on my response, a second treatment session may be offered.

I understand that I will be eliminated from the study if my scores on the screening questionnaires indicate a very low or a very high level of social or evaluation anxiety. I will be informed immediately and will not be asked to complete any more of the assessment. If my scores indicate a level of social or evaluative anxiety that is

higher than would qualify me for this study, I will be informed of sources for receiving treatment if I so choose.

I understand that the assessment measures will consist of self-report questionnaires and heart rate readings. I understand that I may be asked to present 1 or 2 short video-taped speeches that will later be scored by trained observers. The observers will be trained psychology students who agree to maintain the confidentiality of all subjects. The video-tapes will be erased as soon as the data are scored and recorded. I understand that all data will be kept in a locked file in the Psychology Clinic office. Subjects will be identified by first name and a participant identification number only. The names and demographic information with respect to the subjects will be stored for 5 years in a locked file in the Psychology Clinic office with access only by the research team and clinical staff. After five years the material will be shredded.

As in all research, there may be unforeseen risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or treatment will be made available to me except as otherwise specified in this consent form. I understand, however, that crisis counseling will be provided should I become significantly upset, and that the therapist is prepared to make a referral if I need further counseling about this topic. I will be responsible for the cost of therapy if I choose to pursue it.

I understand that this treatment may decrease the anxiety I experience in some situations involving communication. An additional way in which I may benefit from this activity is by having the chance to talk about distressing events, which research indicates is beneficial for individuals who have experienced such events. I also understand that others who suffer from communication anxiety may benefit from the knowledge that is gained from this research.

I understand that I may withdraw my consent and discontinue participation in the experiment at any time without prejudice. If I have any questions or concerns about this study, I may contact either Dr. C. Richard Tsegaye-Spates 387-8332 or Teresa Foley at 387-8303. I may also contact the Chair of Human Subjects Institutional Review Board (387-8293) or the Vice President for Research (387-8298) with any concerns that I have. My signature below indicates that I understand the purpose and requirements of the study and that I agree to participate.

SIGNED _____

DATE _____

Appendix F
Treatment Expectancy Rating

CODE # _____

DATE _____

TREATMENT EFFICACY EXPECTANCY SCALE

Having now been given the rationale for the treatment you are going to receive in this research investigation, please express your expectation regarding the likelihood that the treatment will have positive effects:

| | | | | |
|------------------------|-----------------------|-------------------------|-----------------------|------------------------|
| 1 | 2 | 3 | 4 | 5 |
| Extremely skeptical | Somewhat Skeptical | Withholding Judgment | Somewhat Confident | Extremely Confident |

Appendix G
Post Treatment Questionnaire

CODE # _____

Date _____

Post-test questions

1. **SUDs rating for pivotal image.** Please imagine the pivotal image you used during your treatment session. Please rate the discomfort you experience (when you imagine that event now) on a scale from 0 (no discomfort) to 10 (intense discomfort).

0 1 2 3 4 5 6 7 8 9 10

2. When you imagine that event now, how have your feelings about it changed since the beginning of the treatment session?
3. Please write the sentence you chose (during the treatment session) as the thought you would like to have when you remember that event.

Now, please rate how true that statement seems when you are imagining that event. Please rate it on a scale of 1 (completely untrue) to 7 (completely true).

(untrue) 1 2 3 4 5 6 7 (true)

4. How did your feelings during the post-test speech compare with your feelings during the pre-test speech (or, during previous speeches, if you gave no pre-test speech)?
5. If you have had any other opportunities to speak in public since your treatment session, how did that speaking experience compare with your pre-treatment speech (or with previous speeches)?
6. Please rate the effectiveness of the treatment you received on a scale of 0 to 3 with 0 representing no improvement and 3 representing a great deal of improvement.
- 0 1 2 3
7. On the following scale, how would you rate your ability to imagine an event?
- (non-existent) 0 1 2 3 4 5 (excellent)
8. Any other comments or feedback?

Appendix H
Follow Up Questionnaire

CODE # _____

Date _____

Follow Up questions

1. **SUDs rating for pivotal image.** Please imagine the pivotal image you used during your treatment session. Please rate the discomfort you experience (when you imagine that event now) on a scale from 0 (no discomfort) to 10 (intense discomfort).

0 1 2 3 4 5 6 7 8 9 10

2. When you imagine that event now, how have your feelings about it changed since the beginning of the treatment session?

3. Please write the sentence you chose (during the treatment session) as the thought you would like to have when you remember that event.

Now, please rate how true that statement seems when you are imagining that event. Please rate it on a scale of 1 (completely untrue) to 7 (completely true).

(untrue) 1 2 3 4 5 6 7 (true)

4. If you have had any other opportunities to speak in public since your treatment session, how did that speaking experience compare with your post-treatment speech (or with previous speeches)?

5. Please rate the effectiveness of the treatment you received on a scale of 0 to 3 with 0 representing no improvement and 3 representing a great deal of improvement.

0 1 2 3

6. On the following scale, how would you rate your ability to imagine an event?

(non-existent) 0 1 2 3 4 5 (excellent)

7. Any other comments or feedback?

Appendix I
HSIRB Approval

Human Subjects Institutional Review Board



Kalamazoo, Michigan 49008-3899
616 387-8293

WESTERN MICHIGAN UNIVERSITY

Date: March 28, 1994

To: Teresa Foley

From: M. Michele Burnette, Chair

A handwritten signature in cursive script, reading "M. Michele Burnette", written over the printed name.

Re: HSIRB Project Number 94-03-05

This letter will serve as confirmation that your research project entitled "EMD/R treatment of communication anxiety: A closer loop" has been approved under the full category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

You must seek reapproval for any changes in this design. You must also seek reapproval if the project extends beyond the termination date.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: March 28, 1995

cc: Spates, Psych.

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