

1978

# The effect of various cognitive strategies in the control of public speaking anxiety

G. Rex Walker

Follow this and additional works at: <http://scholarship.richmond.edu/masters-theses>



Part of the [Psychology Commons](#)

---

## Recommended Citation

Walker, G. Rex, "The effect of various cognitive strategies in the control of public speaking anxiety" (1978). *Master's Theses*. 1186.  
<http://scholarship.richmond.edu/masters-theses/1186>

This Thesis is brought to you for free and open access by the Student Research at UR Scholarship Repository. It has been accepted for inclusion in Master's Theses by an authorized administrator of UR Scholarship Repository. For more information, please contact [scholarshiprepository@richmond.edu](mailto:scholarshiprepository@richmond.edu).

THE EFFECT OF VARIOUS COGNITIVE STRATEGIES IN THE  
CONTROL OF PUBLIC SPEAKING ANXIETY

G. REX WALKER

A thesis submitted in partial fulfillment  
of the requirements for the degree of Master of Arts  
in psychology in the Graduate School of the  
University of Richmond

May, 1978

Running head: Public Speaking

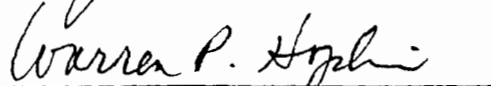
THE EFFECT OF VARIOUS COGNITIVE STRATEGIES IN THE  
CONTROL OF PUBLIC SPEAKING ANXIETY

G. REX WALKER

Approved:

  
Dr. Matt E. Jaremko

  
Dr. L. James Tromater

  
Dr. Warren P. Hopkins

## Abstract

An experiment was designed to apply the cognitive strategy paradigm of Jaremko and Patteson (note 2) to a classroom speech anxiety situation. Forty-eight introductory speech students volunteered to be tested on physiological, behavioral, and self-report measures of anxiety during two of their regular classroom speeches. Subjects were divided into groups based upon which cognitive strategy they were asked to implement: rationalization, reversal of affect, misattribution, misattribution and rationalization, a placebo control and a no treatment control.

Results indicated reductions in anxiety across trials, but these were not attributable to treatment. These findings are discussed in terms of the application of laboratory paradigms to field situations, and the reliability of anxiety measures. Future lines of research are suggested.

The Effect of Various Cognitive Strategies in the  
Control of Public Speaking Anxiety

The relationship between internal cognitive behavior and external overt behavior has begun to be explored in recent years. Much of this research has had as its purpose the development of "cognitive behavior therapies" which would presumably enable the client and/or therapist to gain control over maladaptive cognitive events. Such maladaptive cognitive events do not necessarily imply overt behavioral deficits, but this is often the case. One such example is test anxiety, discussed in a review by Wine (1971).

Description of cognitive behaviors has generally taken two forms. The first point of view, espoused by Donald Meichenbaum and his associates, looks at cognitive behavior as self-statements and attempts to enable the client to substitute adaptive self-statements for maladaptive ones (e.g. Meichenbaum, 1973). A second approach, adopted by a number of other researchers (e.g. Houston, note 1; Jaremko and Patteson, note 2), has involved "cognitive strategies." These refer to a cognitive appraisal of an event or more precisely to a class of covert verbalizations in response to a stimulus situation.

In order to analyze the differences between these two approaches, it is necessary to look at the verbal behavior

constituting cognition. Verbal behavior may be described as existing on three levels (Sullivan, 1953; Jaremko, note 3). The first level consists of non-linguistic verbal behavior such as grunts and other noises. The second consists of actual words and sentences. The third level is conceptual. This level places second level verbal behavior into stimulus classes. Accordingly, it is this level of verbal behavior that comprises much of human reasoning. It is possible to look at the models of cognitive behavior in this way.

The cognitive self-statements approach analyzes cognitions related to anxiety at the second level of verbal behavior, that is, at the level of the actual anxiety-related self-statement. The cognitive strategies approach analyzes verbal behavior at the third level. Accordingly, a cognitive strategy represents a conceptual coping mechanism. A number of second level verbal behaviors may be involved in stress, but the individual deals with stress primarily by conceptual means.

One advantage of the analysis of self-statements is that the experimenter is able to attain a great deal of control over the actual cognitive behavior of the subject. However, it might be argued that this approach actually over-defines the verbal behavior in the emotion process and might thereby lead to incorrect conclusions. For example, suppose an individual is exposed to painful stimulation, such as immersing his hand in cold water (cold pressor task), and is instructed

to repeat the sentence, "My hand is very warm." If he is able to tolerate the painful stimulation longer using the statement, do we conclude that his increased tolerance was due to the nature of the sentence or to the act of repeating a sentence? Moreover, is the sentence itself effective or is it merely incompatible with maladaptive self-rumination?

From our point of view, it is advantageous to believe that modification of self-statements and use of cognitive strategies are different approaches to a single process. By placing labels on verbal behavior, we impose an external order upon them which may or may not be entirely correct. Our purpose in research, therefore, might be to develop a greater understanding of these cognitive events in an effort to subsequently more correctly redefine them. The first step in the process is to assess the relative efficacy of the cognitive strategies as they are now defined. Three such strategies will be described in this paper.

Rationalization consists of providing plausible reasons why a potentially stressful situation should not be upsetting. An individual who is afraid of flying, for example, might concentrate on his reasons for flying--the speed, comfort, and safety of airlines. Houston (note 1) found rationalization to be an effective strategy in coping with fear of impending electric shock. Specific reductions in anxiety

were demonstrated as measured by the Multiple Affect Adjective Checklist (MAACL, Zuckerman and Lubin, 1965) and heart rate. One deficiency with this study was that it did not manipulate the subject's cognitive strategy, but instead identified the subjects' unprompted use of the strategy by means of a post-experimental questionnaire. Experimental work by Jaremko and Patteson (note 2) has also shown rationalization to be an effective strategy in coping with pain. In this study, subjects were instructed in the use of various cognitive strategies (rationalization, reversal of affect, irrelevant strategy, or no strategy) for coping with the pain of the cold pressor task. The major dependent variable was the amount of time that the subject would tolerate the pain. Results showed rationalization and reversal of affect to be the most effective strategies.

Reversal of affect is, as the name suggests, an attempt to reverse one's attitude toward or appraisal of a situation. In this strategy, a positive affect or reaction is substituted for a negative one. For example, an individual who finds the sound of a baby crying upsetting might be told to notice the interesting aspects of the sound.

Looking again at the study by Houston (note 1), we find that reversal of affect was correlated with moderate effectiveness in controlling anxiety related to a threat of electric



shock. In this case, a discrepancy was found between physiological and self-report measures of anxiety. Specifically, subjects using reversal of affect reported low anxiety but manifested high physiological arousal. Jaremko and Walker (note 8) reported that reversal of affect was an effective strategy for increasing tolerance to the cold pressor task and to the sound of an infant crying.

A final cognitive strategy is that of misattribution. This phenomenon has received a great deal of attention since the first misattribution manipulation was performed by Nisbett and Schachter (1966). The concept of misattribution was developed from the theory of emotion espoused by Schachter and Singer (1962). This theory held that emotion consists of two components: a physiological response to an event and a cognitive labelling of the arousal. Nisbett and Schachter reasoned that if an individual could be induced to mislabel (misattribute) his arousal, he would experience no emotion.

Subjects in this study were told that they were going to receive electric shocks. Some of them were given a placebo pill and told that this "drug" would cause feelings of sweaty palms, butterflies in the stomach, and so forth. Control subjects were given no such pills. The authors found that misattribution subjects reported less anxiety than controls only if they had initially been told to expect mild shocks.

Those who had been told to expect severe shocks demonstrated no effect of misattribution.

Numerous studies have applied this paradigm to other situations. These include insomnia (Storms and Nisbett, 1970; Kellogg and Baron, 1975; Lowery, Denney and Storms, note 4), vicarious pain associated with dental work (Denney, Rupert and Burish, note 5) and public speaking (Singerman, Borkovec and Baron, 1976). These studies have reported inconsistent findings.

In a review of the misattribution literature, Walker and Jaremko (note 6) argued that the name misattribution may be incorrect. This review attempted to show that the results of misattribution research do not support the theory of emotion put forth by Schachter and Singer (1962). Instead, they more closely adhere to the primarily cognitive models of emotion espoused by Lazarus and Averill (1972) and Spielberger (1972).

Misattribution, it was argued, was akin to the cognitive strategies of rationalization, reversal of affect, and the like. (There is considerable confusion in the literature concerning the terminology for these strategies.) It differs from them, however, in that it alters an individual's self-perception of his own emotional response. A person who experiences stress generates two types of cognitive behavior. The first is an appraisal of the threat. The second is an individual's appraisal of his own reaction to the stressful event. The reaction which is

being evaluated is primarily physiological and is generated by cognitive behavior related to the threat itself.

Anxiety is reduced by rationalization or reversal of affect when the technique enables one to reduce his appraisal of threat in the stress-producing situation. Misattribution reduces anxiety when it reduces one's appraisal of his own reaction to the threat.

Rationalization, reversal of affect and misattribution will therefore be the three cognitive strategies to be considered in this paper. To test the efficacy of these strategies, a paradigm is needed which will generate anxiety in a real life situation.

Singerman, et. al. (1976) exposed a group of speech-anxious subjects to a public speaking situation in an attempt to assess the efficacy of misattribution with a "clinically relevant target behavior." (p. 306) The results of this study failed to demonstrate any effect of misattribution. The authors concluded that a misattribution therapy might not be effective in clinical situations since it appeared to work only at low levels of arousal (cf. Nisbett and Schachter, 1966). The question nevertheless remains of whether the failure was specific to misattribution or if public speaking anxiety is simply not amenable to cognitive therapy.

If the failure were specific to misattribution, then

our understanding of cognitive behaviors as they are now defined would be enhanced. It might indicate, for example, that cognitions related to stress are primarily determined by the individual's appraisal of the stress itself. Cognitive strategies would in this case be most effective when they focused upon these cognitive behaviors.

A finding that no cognitive strategies are applicable to public speaking anxiety might indicate that our definition of cognitive coping processes is somewhat off the mark. It might then be necessary to redefine the cognitive strategies in a manner which more correctly fits the data. This finding could also indicate that the rule governed procedures of the experimental analogue are ineffective in teaching cognitive coping skills when the threat of the situation is high. In this case, an extensive clinical procedure of cognitive shaping might be indicated.

An experiment by Meichenbaum, Gilmore, and Fedoravicius (1971) used a group "insight" treatment to assess the effect of modification of self-statements upon public speaking anxiety. Four treatments were employed in the experiment. Cognitive modification or "insight" subjects were instructed in the role of self-statements in anxiety and given ways to restructure these statements. Desensitization subjects received a treatment described by Paul and Shannon (1966). A third

group received treatments consisting of desensitization plus insight and a fourth control group received no treatment.

Results of this study revealed greatest improvement in the desensitization and cognitive modification groups along behavioral and self-report measures of anxiety. These data, however, may not be compatible with those of Singerman, et. al. for two reasons. First, the Meichenbaum et. al. experiment adopted a self-statement rather than a cognitive strategies viewpoint. Second, this study modified cognitions in a series of eight one-hour sessions while the Singerman et. al. used a single instruction session. Hence we are justified in comparing misattribution with the other cognitive strategies in a single experiment.

Research of this type inevitably brings with it the problem of measurement. In this study, anxiety will be operationally defined as having three components: physiological, behavioral, and phenomenological. Accordingly it will be measured along each of these dimensions.

Measurement of the behavioral and phenomenological components of anxiety has a long history, including such instruments as the Multiple Affect Adjective Checklist (Zuckerman and Lubin, 1965) and a number of behavioral checklists similar to those used by Meichenbaum et. al. (1971).

Measurement of physiological components of anxiety has

been more difficult. Discrepancy between physiological and self-report measures of anxiety have been reported by Houston (note 1) in groups using reversal of affect to cope with stress. Results of experiments similar to that of May (1977) have been more encouraging and indicate that heart rate may be a reliable correlate of anxiety.

Finally, in assessing the efficacy of coping strategies, one is faced with the problem of significance. Since the primary purpose of analogue research is to develop therapeutic procedures, the major responsibility is to the "client" and his phenomenal experience. It is therefore necessary to assess clinical, as well as statistical significance. The procedure must not only work; the subject must know that it has worked.

Therefore, this study proposed to investigate the efficacy of three cognitive strategies in the control of public speaking anxiety. The specific treatments to be used included rationalization, reversal of affect, misattribution, a combination of misattribution and rationalization, a placebo treatment control and a no treatment control. Efficacy was determined by a comparison of cognitive strategy subjects with a previous baseline session and by comparison of treatment and control groups.

## Method

### Subjects

The subjects in this experiment were forty-eight male and female undergraduates at the University of Richmond. All were enrolled in introductory speech courses which require that the student present seven speeches over the course of the semester. Data for this experiment were collected during two of these speeches. Although the speeches were a course requirement, participation in the experiment was optional. Subjects signed an informed consent agreement prior to the first session. (Appendix A)

### Materials

Speech Materials. Subjects provided materials for the delivery of a four to six minute speech in a topic area of their choice. The first speech was of an informative type using visual aids. The second was persuasive.

Cardiotachometer. Heart rate was measured by a cardiotachometer manufactured by Devices for Science, Inc. Input is provided by a piezo-electric crystal fingertip pulse transducer attached to the subject. Heart rate was measured in beats per minute and averaged over ten second intervals by a Cyborg Q 880 data accumulator.

Self-Report Measures. Two types of self-report measures were used. The first consisted of items from the Multiple

Affect Adjective Checklist (MAACL; Zuckerman and Lubin, 1965). This scale consisted of twenty-one anxiety items and ten neutral items. This ratio was designed to be equivalent to the original scale (Appendix B). The second measure consisted of fourteen items from the Specific Fear Survey Schedule--Public Speaking (SFSS; Jaremko and Wenrich, 1973; Appendix C).

Behavioral Measures. Behavioral indices of anxiety were assessed by trained observers from the Department of Psychology. The instrument used was the Behavioral Assessment of Speech Anxiety scale (BASA; Mulac and Sherman, 1975). This scale consists of eighteen items which the observer rates on a scale of 0 to 9 (Appendix D).

Post-Experimental Questionnaire. The post-experimental questionnaire was administered at the end of the second session. The first part consisted of three of the four semantic differential scales used in the Involvement in Imaginings Inventory of Jaremko and Patteson (note 2). The second part consisted of a single scale which asked the subject to rate the extent to which the instructions helped him with his speech. A final part was given only to subjects in the placebo control group. It assessed the extent to which they applied the placebo treatment (Appendix E).

#### Procedure

Session One. The first session established pre-treatment



anxiety levels for each subject. Prior to his or her speech, the subject was seated at a desk in the hallway outside the classroom. During this time he completed the SFSS and was attached to the cardiometer. Average heart rates were recorded for six ten second intervals prior to his introduction as the next speaker. At this time, he was given a copy of the MAACL and asked to complete the questionnaire after his speech based upon how he felt while he was speaking.

While the subject spoke, one male and one female observer from the Department of Psychology rated behavioral indices of anxiety using the BASA scale. The experimenter collected the BASA and MAACL forms at the end of each class period.

Session Two. The second session was identical to the first except that subjects received special instructions based upon their group assignment. These were recorded on audiotape prior to the experiment and played back through headphones. The instructions for the rationalization strategy (RAT) group were as follows:

Now for this speech, I'd like you to think of the reason you are speaking. Think of how important it is to be able to communicate effectively. Think of finishing this course and of graduating from the University. Think of having another

required speech out of the way. Do your best and remember to think about why you are giving this speech.

For the reversal of affect (REV) group, the instructions were:

Now for this speech, I'd like you to think about how enjoyable speaking can be. Think about your interest in the topic. Feel yourself becoming more and more energetic as you begin to speak and then turn that energy into your speaking. It's really a good feeling to have so much energy. Do your best and remember to think about how good it feels to give a speech.

Subjects in the misattribution condition were offered a cup of coffee and given the following instructions (MIS):

We are interested in some of the feelings people have while they are speaking and believe that some of these may be related to diet. Coffee as you know contains the stimulant caffeine which is related to certain feelings, such as sweaty palms, butterflies in the stomach, and accelerated heart rate. Do your best and remember that coffee can cause some of these feelings.

The coffee given to the subject was actually Tasters Choice decaffeinated coffee which has no stimulant properties. It

was placed in a jar bearing the label of the same brand with caffeine and left in view of the subject. Cola was kept on hand for any subjects who refused the coffee, but no one in the experiment refused.

Another group was given instructions from both the misattribution and rationalization strategies (MRT):

For this part of the experiment, we are interested in the relation between diet and thoughts while you speak. The coffee you are drinking contains the stimulant caffeine which, as you know, is related to feelings of sweaty palms, butterflies in the stomach, and so forth. Accordingly, when you speak I want you to think about why you are doing so. Think about finishing the course and graduating from school. Think about having another required speech out of the way. Think about learning to communicate effectively. Do your best and remember to think about why you are speaking.

Subjects in the placebo treatment control (PTC) group receive the following instructions:

During this speech, I want you to make a mental note of when you blink your eyes. Think about this and try to notice your eyelids as much as possible without losing your train of thought.

Do your best and remember to notice when you blink.

Subjects in the no treatment control (NTC) group received instructions identical to session one.

Following the second speech , all subjects completed the post-experimental questionnaire. They were thanked for their participation after which they returned to class.

### Experimental Design

The design of this experiment was a 2 x 6 factorial with two treatment sessions (pre and post) and six treatment groups (RAT, REV, MIS, MRT, PTC, and NTC). Five dependent measures were employed: heart rate, BASA, MAACL, SFSS, and the post experimental questionnaire.

Subjects were assigned to groups using a stratified randomization procedure. This violates the random assignment assumption of the analysis of variance but is a common procedure in clinical research.

### Results

#### Preliminary Analyses

Intercorrelations were performed on the various measures of anxiety used in this study. Validity of the SFSS was computed by correlating its pretest scores with those of the MAACL. This yielded a nonsignificant correlation ( $r = .21$ ,  $p > .05$ ) based upon a sample of 48 subjects.

Heart rate was also correlated with the MAACL and this yielded a small nonsignificant correlation ( $r = .17, p > .05$ ). Finally, the relationship between the BASA scale and the MAACL yielded a very small correlation of .04.

Inter-rater reliability scores were significant for all but one of the four pair of raters. Correlation coefficients were .26, .47, .50, and .77 for samples of 14, 26, 16, and 15 pair of scores, respectively. The first was not significant.

Hartley's F max test was performed on each of the data sets as a test of homogeneity of variance. None of these were significant at the .05 level.

#### Treatment Effects

The means and standard deviations of the pretest and post-test scores on each of the dependent measures for the six treatment conditions are summarized in Table 1. Since intro-

---

Insert Table 1 Here

---

ductory speech courses are designed to enable the student to improve upon each successive speech, it is to be expected that scores along each of the measures would tend to decrease from the first to the second treatment session. A visual inspection of the AACL and BASA scores confirms this expectation.

Analyses of variance were performed on each of the data sets (MAACL, SFSS, BASA, and heart rate). Differential

Table 1

Means and standard deviations of experimental conditions

Group	Measure	Pretest		Posttest	
		Mean	S.D.	Mean	S.D.
RAT	SFSS	50.0	12.3	48.9	10.8
	AACL	11.6	3.3	10.5	3.7
	BASA	67.0	19.3	62.2	16.1
	Heart	91.3	6.5	90.0	6.5
REV	SFSS	43.5	12.1	37.8	14.3
	AACL	9.3	4.0	8.9	2.6
	BASA	55.5	24.0	52.0	17.7
	Heart	93.7	8.1	97.1	8.9
MIS	SFSS	57.8	13.1	55.6	13.3
	AACL	11.4	3.9	9.5	4.0
	BASA	62.8	23.1	57.8	32.3
	Heart	99.2	9.1	98.8	12.7
MRT	SFSS	46.4	13.25	45.3	9.3
	AACL	12.8	3.4	11.5	2.6
	BASA	57.4	10.5	59.1	20.9
	Heart	91.8	9.9	98.6	13.0

Table 1 (continued)

Group	Measure	Pretest		Posttest	
		Mean	S.D.	Mean	S.D.
PTC	SFSS	48.1	8.2	50.4	9.4
	AACL	12.3	3.4	9.3	3.3
	BASA	63.2	17.9	51.7	19.8
	Heart	103.6	15.2	100.4	6.1
NTC	SFSS	45.0	16.2	45.6	10.6
	AACL	13.3	4.3	13.8	4.4
	BASA	60.7	24.2	53.3	21.9
	Heart	95.6	12.4	88.1	18.6

effectiveness of treatments would be indicated by a significant trials by conditions interaction. This was not found in any of the analyses, indicating that the treatments were not differentially effective in reducing the anxiety of the speakers (all  $F$ 's  $< 1$ ). Significant main effects across trials (pre-post) were found for the MAACL ( $F_{1,32} = 33.88$ ;  $p < .05$ ) and for the BASA ( $F_{1,32} = 4.70$ ;  $p < .05$ ) data sets. It seems that speech classes serve to reduce some measured distress, but the strategies used here had no appreciable effect. Individual data for each subject's MAACL and BASA scores are found in Appendix F.

Imagery refers to the extent to which the subject was able to implement the instructions given by the experimenter in the second session. This scale consists of three seven-point semantic differential scales (Appendix E). Mean scores for the RAT, REV, MIS, MRT, and PTC groups were 13.3, 13.1, 10.1, 15.6, and 17.5. These scores fall between the verbal ratings of "an average amount" and "a little." Differences between groups were not significant ( $F < 1$ ).

Effectiveness refers to the subjects' rating of whether they thought that the strategy was effective in reducing their anxiety during the second speech, and is rated along a seven point semantic differential (Appendix E). This scale ranges from 0 (very much) to 7 (not at all). Mean scores



for groups in the order mentioned above were 5.6, 3.5, 4.4, 5.1 and 5.9 .

Subjects in the placebo treatment control also rated the extent to which they noticed their eyes blinking while they spoke (Appendix E). This was also rated on a seven point differential. The mean score on this dimension was 5.5, corresponding to a verbal rating of "a little."

A post hoc analysis was performed on the MAACL data which compared the combined effect of all treatment groups with the NTC group. This yielded a nonsignificant trials x conditions interaction ( $F_{1,46} = 2.42$ ;  $p > .05$ ) and significant main effects for trials ( $F_{1,46} = 6.02$ ;  $p < .05$ ) and conditions ( $F_{1,46} = 5.18$ ;  $p < .05$ ).

### Discussion

The results of this experiment indicate that no one of the cognitive treatments employed were any better than the others in reducing the anxiety of the speech class participants. The main effect across trials for the MAACL and BASA data sets indicates that anxiety was reduced across trials for all groups. Nevertheless, post hoc comparisons revealed that when the treatment groups are pooled, no significant difference is found between the treatment groups and the control group. Thus differences between anxiety ratings in the first and second sessions are not attributable to the treatment.

It was suggested earlier that a finding that none of the cognitive strategies were effective in reducing anxiety could be attributed to two possible causes. It could either indicate that the cognitive strategies approach to anxiety reduction is incorrect or that the procedures of experimentation are insufficient to implement use of the strategy. A proper evaluation of the results, however, entails comparison of this study with those providing the impetus for the research. These studies are of two general types: treatment studies and cognitive strategy studies.

Treatment studies (e.g. Meichenbaum, et. al., 1971) attempt to reduce anxiety by means of several types of group treatment sessions. Their relationship to the present research is in the phenomenon being studied (speech anxiety). Cognitive strategy studies employ much less elaborate "treatments" and usually take the form of laboratory analogues such as the cold pressor task (e.g. Scott and Barber, note 7). Their relationship to the present study is the use of the cognitive strategy technique.

Treatment studies of speech anxiety have reported moderate effectiveness of cognitive treatments (cf. Meichenbaum, et. al., 1971; Weissburg, 1977). Anxiety reductions in these studies are usually implemented by means of a series of treatment sessions, often totalling as much as eight hours of treatments.

Reductions of anxiety are commonly found on self-report measures of anxiety, but reductions on behavioral measures are somewhat less frequent. A notable exception is the research of Trussell (1978), who used a treatment of gradual behavior rehearsal, and was able to effect reductions in anxiety as measured by the BASA and several self-report measures.

Experimentation examining the effectiveness of cognitive strategies has had a long series of successes (e.g. Houston, note 1; Jaremko and Walker, note 8). These studies have involved laboratory analogues of pain and stress in which instruction in the use of the cognitive strategy is usually very brief (30-45 seconds). Experimenters have usually been very successful in increasing pain tolerance with the cognitive strategies. Moreover, Scott and Barber (note 7) report no difference between subjects given 45 second instructions and those version of the same instructions lasting about three minutes.

In general, cognitive strategy research involving pain has produced evidence which is more compelling than that which has involved stress. Two experiments reported by Jaremko and Walker (note 8) are exemplary in this regard. The experiments were almost identical except for the nature of the aversive event. In the first experiment, pain was

produced by means of the cold pressor task; in the second, stress was produced by the sound of an infant crying. Significant increases in tolerance were reported in the first experiment but not in the second.

In contrast to the previous findings demonstrating the efficacy of cognitive strategies in analogue tasks and the usefulness of cognitive techniques in the control of speech anxiety, the present experiment effected no anxiety reduction. Two areas of explanation are possible: 1) the nature of the dependent measures of anxiety and, 2) the methodology of this experiment. The relationship of measures will be considered first.

Cleavinger (1959) reviewed a large body of speech anxiety research in communication journals and concluded that "audience-perceived stage fright, cognitively experienced stage fright, and physiological disruption are three variables which operate with only moderate interdependence during the course of a public speech. (p. 145)" This was based upon his finding that low intercorrelations between behavioral, physiological, and self-report measures of anxiety were the rule rather than the exception. Unfortunately, studies such as those by Meichenbaum, et. al. (1971), Weissburg (1977), and Trussell (1978) do not report these correlations.

Similar problems persist in the cognitive strategy literature.

Scott and Barber (note 7) report that "it is easier to change tolerance of pain than it is to change perception of pain or the distress produced by pain." This finding is supported by the data reported by Jaremko and Walker (note 8).

This problem is further aggravated by the low inter-rater reliabilities of raters using the BASA scale in the present research. The reliabilities reported are considerably lower than those reported by Trussell (1978) and Mulac and Sherman (1975). The training sessions of the research assistants in this experiment were considerably shorter than those of Trussell and Mulac and Sherman. Future uses of the BASA scale should involve extensive training of assistants to an acceptable criterion of agreement.

The low intercorrelations between measures reported in this study are therefore not surprising. The anxiety treatment literature is probably more pertinent at this point, but the difficulty exists in a number of other research areas. The tendency of psychologists to conceive of anxiety as a unidimensional phenomenon (which may be measured in different ways) is at least partially to blame. A more fruitful approach might be to look at all of the various aspects of anxiety (i.e. cognitive, behavioral and physiological) and through careful experimentation to determine which are affected by various coping mechanisms.

Relevant to the problem of measurement is the initial anxiety level of the participants. The administration of the initial

pretest in this experiment occurred at approximately the middle of the semester. Subjects in three of the four groups had completed two speeches prior to the pretest, and those in the fourth had completed three. General anxiety, then, had tapered off to a relatively low level for most of the subjects. By comparison, subjects in the Weissburg (1977) and Trussell (1978) experiments were very anxious. Mean BASA scores in the pretest portion of the Trussell study ranged from 114.6 to 124.9 as compared to a range from 55.5 to 67.0 in this study. MAACL scores in the Weissburg study ranged from 14.4 to 15.4 compared to 9.3 to 13.4 in the research reported here.

This is not to suggest that cognitive coping skills are only effective with those who are extremely anxious. Rather, in this type of research it is important to select individuals who are initially high in anxiety in order to be able to measure the changes. Differences, for example, between college students and Mt. Alto V.A. Test I patients on the anxiety scale of the MAACL are less than six points (Zuckerman and Lubin, 1965). Until more precise measures of anxiety are developed, research will have to employ techniques which are expected to result in large changes in anxiety.

Another source of explanation for the results of this experiment concerns methodology. The paradigm of this experiment

was patterned after the cognitive strategy studies of Jaremko and Patteson (note 2) and Jaremko and Walker (note 8). Like all studies of cognitive strategies, these were conducted in the laboratory using stress or pain analogues. Although these studies successfully increased pain tolerance in the laboratory, the present application of the technique to a real life situation was unsuccessful.

One explanation of this discrepancy concerns the persuasiveness of the instructions. Jaremko and Walker (note 9) have demonstrated the effect of persuasive techniques in convincing a subject to implement a cognitive strategy. In the present experiment, the persuasiveness of the instructions in the use of the strategy (delivered via audiotape) was probably very low. This seems obvious when the laboratory and classroom situations are compared. A subject in the laboratory is more or less passive in the sense that his only tasks are to experience the stressor and possibly to implement the cognitive strategy. Subjects in speech classes are additionally faced with the tasks of looking over speech notes, setting up visual aids, and so forth. The difficulties faced by an experimenter attempting to induce students to employ a coping technique in this situation are substantial. The high scores of all groups on the imagery dimension (indicating low imagery) support this notion.

The imagery scores may also indicate that the subjects motivation for treatment in this experiment was very slight. This variable might be related to the anxiety level of the participants, which was very low. It would be expected that subjects with low motivation for treatment would be expected to demonstrate minimal implementation of the strategy and therefore little reduction in anxiety.

Future research should develop techniques which are more persuasive and detailed in their explanation of the coping technique, and which control for the subjects' initial motivation for treatment. Such research might conduct a series of "speech skill workshops" similar to those of Miechenbaum, et. al. (1971), but differing in the fact that techniques such as reversal of affect are described and practiced. Such research is presently underway at the University of Richmond.

Despite this initial failure in the reduction of speech anxiety, the future of this type of research appears promising. The effect of cognitive strategies has been adequately demonstrated in laboratory situations. The next step is to develop techniques which will demonstrate their application to real life situations.



## References

- Clevinger, Theodore. A synthesis of experimental research in stage fright. Quarterly Journal of Speech, 1959, 45, 134-145.
- Jaremko, M. E. and Wenrich, W. W. A prophylactic usage of systematic desensitization. Journal of Behavior Research and Experimental Psychiatry. 1973, 4, 100-104.
- Kellogg, R. and Baron, R. S. Attribution theory, insomnia, and the reverse placebo effect: A reversal of Storms and Nisbett's findings. J. Personality and Social Psychology, 1975, 32, 231-236.
- Lazarus, R. S. and Averill, J. R. Emotion and cognition: With special reference to anxiety. In C. D. Spielberger, (ed.) Anxiety: Current Trends in Theory and Research, Vol. II, New York: Academic, 1972.
- May, Jerry R. Psychophysiology of self-regulated phobic thoughts. Behavior Therapy, 1977, 8, 150-159.
- Meichenbaum, D. H. Cognitive factors in behavior modification: Modifying what people say to themselves. In C. M. Franks and G. T. Wilson, (eds.), Annual Review of Behavior Therapy, New York: Brunner/Mazel, Inc., 1973, 416-431.
- Meichenbaum, D. H., Gilmore, J. B., and Fedoravicius, A. Group insight versus desensitization in treating speech anxiety. J. Consulting and Clinical Psychology, 1971, 36, 410-421.

- Mulac, Anthony and Sherman, Robert. Behavioral assessment of speech anxiety. Quarterly Journal of Speech, 1975, 61, 134-143.
- Nisbett, R. E. and Schachter, S. Cognitive manipulation of pain. J. Experimental Social Psychology, 1966, 2, 227-236.
- Paul, G. L. and Shannon, D. T. Treatment of anxiety through systematic desensitization in therapy groups. J. Abnormal Psychology, 1966, 71, 124-135.
- Schachter, S. and Singer, J. E. Cognitive, social, and physiological determinants of emotional states. Psychological Review, 1962, 69, 379-399.
- Singerman, K. J., Borkovec, T. D. and Baron, R. S. Failure of a "misattribution therapy" manipulation with a clinically relevant target behavior. Behavior Therapy, 1976, 6, 306-316.
- Spielberger, C. D. Theory and research on anxiety. In C. D. Spielberger (ed.), Anxiety and Behavior, New York: Academic, 1966, 3-20.
- Storms, M. and Nisbett, R. E. Insomnia and the attribution process. J. Personality and Social Psychology, 1970, 16, 319-328.
- Sullivan, Harry Stack. The Interpersonal Theory of Psychiatry, New York: Norton, 1953.
- Trussell, R. P. Use of graduated behavioral rehearsal, feedback,

and systematic desensitization for speech anxiety.

J. Counseling Psychology, 1978, 25, 14-20.

Weissburg, Michael. A comparison of direct and vicarious treatments of speech anxiety: Desensitization, desensitization with coping imagery, and cognitive modification. Behavior Therapy, 8, 1977, 606-620.

Wine, Jeri. Test anxiety and the direction of attention. Psychological Bulletin, 1971, 76, 92-104.

Zuckerman, Marvin and Lubin, B. Manual for the Multiple Affect Adjective Checklist. San Diego, California: Educational and Industrial Testing Service.

## Reference Notes

1. Houston, Kent. Dispositional anxiety and the effectiveness of cognitive coping strategies in stressful laboratory and classroom situations. Conference on Dimensions of Anxiety and Stress, Oslo, Norway, 1975.
2. Jaremko, M. E. and Patteson, D. Cognitive strategies in the control of pain. Paper presented at the annual meeting of the Southeast Psychological Association, 1977.
3. Jaremko, Matt E. Personal communication.
4. Lowery, C. R., Denney, D. R. and Storms, M. D. Insomnia: A comparison of the effects of placebo pill attribution and non-pejorative self-attribution. Paper presented at the annual meeting of the American Psychological Association, Washington, 1976.
5. Denney, D. R., Rupert, P. A. and Burish, T. C. Misattribution of arousal produced by a dental stress videotape. Paper presented at the annual meeting of the American Psychological Association, Washington, 1976.
6. Walker, G. R. and Jaremko, M. E. Attribution therapy and the primacy of cognition in emotion. Unpublished manuscript, 1977. (Reprints available from the first author)
7. Scott, D. S. and Barber, T. X. Cognitive control of pain Effects of multiple cognitive strategies. Paper presented at the annual meeting of the American Psychological

Association, Washington, 1976.

8. Jaremko, Matt E. and Walker, G. Rex. The effect of cognitive coping techniques in coping with pain and other stress. Paper presented at the annual meeting of the Alpha Kappa Delta Sociological Research Symposium, Richmond, Virginia, 1978.
9. Jaremko, Matt E. and Walker, G. Rex. Specifying the efficacy of the therapist's verbal behavior: An exploratory study. Paper presented at the annual meeting of the Southeast Psychological Association, Atlanta, 1978.

Appendix A

Rex Walker has explained my participation in this experiment. I am fully aware of the following points and I volunteer to participate.

1. Measures of my heart rate will be taken just prior to the delivery of my speech. This will be terminated before my speech begins.
2. I will be asked to complete questionnaires concerning my feelings toward speaking in public. These will remain confidential.
3. Members of the department of psychology will be observing my speeches and recording information from them. This information will remain confidential.
4. All information from this experiment will become the property of the department of psychology and will be accessible only to those involved in the project. Although results of this experiment may be made public, my identity will be sufficiently disguised to insure anonymity.
5. I can terminate my participation in the experiment at any time.

---

Signature of participant

---

Date

---

Witness

## Appendix B

Directions: On this sheet you will find words which describe different kinds of moods and feelings. Place a check beside the words that describe how you feel. Some of the words may sound alike, but we want you to check all the words that describe your feelings. Work rapidly.

- |                   |                   |
|-------------------|-------------------|
| 1. ___afraid      | 17. ___nervous    |
| 2. ___annoyed     | 18. ___panicky    |
| 3. ___calm        | 19. ___pleased    |
| 4. ___cheerful    | 20. ___pleasant   |
| 5. ___contented   | 21. ___rough      |
| 6. ___cool        | 22. ___secure     |
| 7. ___desperate   | 23. ___shaky      |
| 8. ___devoted     | 24. ___shy        |
| 9. ___displeased  | 25. ___steady     |
| 10. ___fearful    | 26. ___tense      |
| 11. ___frightened | 27. ___terrified  |
| 12. ___gentle     | 28. ___thoughtful |
| 13. ___happy      | 29. ___upset      |
| 14. ___indignant  | 30. ___warm       |
| 15. ___joyful     | 31. ___worrying   |
| 16. ___loving     |                   |

## Appendix C

Directions: Answer these questions on a scale of 0 to 7. A score of 0 indicated that this statement is completely false concerning you and your life. A score of 7 indicates that the statement is completely true concerning you and your life. You may answer anywhere from 0 to 7, depending on how true it is concerning your life. Remember, 0 is completely false, 7 is completely true. Now answer these questions.

- |  |                 |
|--|-----------------|
| 1. I try to avoid occasions in which I have to speak to a group.   | 0 1 2 3 4 5 6 7 |
| 2. I am easily downed in an argument.  | 0 1 2 3 4 5 6 7 |
| 3. I enjoy speaking to a group of people.  | 0 1 2 3 4 5 6 7 |
| 4. When I am speaking to a group I am fairly relaxed.  | 0 1 2 3 4 5 6 7 |
| 5. I would feel more self-confident if I could speak in public.  | 0 1 2 3 4 5 6 7 |
| 6. I frequently have to fight against showing that I am nervous when I am speaking to a group of people. | 0 1 2 3 4 5 6 7 |
| 7. I find it hard to talk when I meet new people.  | 0 1 2 3 4 5 6 7 |
| 8. I would like to be a good speaker.  | 0 1 2 3 4 5 6 7 |
| 9. I feel anxiety about something all the time when I am speaking to a group.                            | 0 1 2 3 4 5 6 7 |
| 10. I am not usually self-conscious when I am speaking to a group.                                       | 0 1 2 3 4 5 6 7 |
| 11. I love to go to meetings in which I have to give a speech.   | 0 1 2 3 4 5 6 7 |



Public Speaking

38

- |  |   |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|---|
| 12. I believe that people would like me more if I could speak in public. | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. When in buses, trains, etc. I often speak to strangers.              | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. I wish that I would never have to speak to a group.                  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Score \_\_\_\_\_

## Appendix D

Category	Variable	Wt.	Rating	Score
Voice	1. Quivering or tense voice	1.33	_____	_____
	2. Too fast	1.03	_____	_____
	3. Too soft	0.40	_____	_____
	4. Monotonous, lack of emphasis	.66	_____	_____
Verbal Fluency	5. Nonfluencies, stammers, halting	1.42	_____	_____
	6. Vocalized pauses	1.13	_____	_____
	7. Hunts for words, speech blocks	1.28	_____	_____
Mouth and Throat	8. Swallows	0.82	_____	_____
	9. Clears throat	0.68	_____	_____
	10. Breathes heavily	0.98	_____	_____
Facial Expression	11. Lack of eye contact, extraneous eye movements	1.18	_____	_____
	12. Tense face muscles, grimaces, twitches	1.22	_____	_____
	13. "Deadpan" facial expression	0.73	_____	_____
Arms and Hands	14. Rigid or tense	1.20	_____	_____
	15. Fidgeting, extraneous movement	1.39	_____	_____
	16. Motionless, lack of appropriate gestures	0.55	_____	_____
Gross bodily movement	17. Sways, paces, shuffles feet	1.00	_____	_____
Overall	18. Overall anxiety estimate	1.00	_____	_____

## Appendix E

Directions: Rate the extent to which you were able to use the instructions given to you by the experimenter. Please rate how much you think you actually used them, not the extent to which you think the experimenter wanted you to use them. Also try to avoid a middle response if you can help it. Commit yourself one way or the other. (Circle one number on each line)

1                      2                      3                      4                      5                      6                      7  
 |-----|-----|-----|-----|-----|-----|-----|  
 At all times                      Half the time                      Never

1                      2                      3                      4                      5                      6                      7  
 |-----|-----|-----|-----|-----|-----|-----|  
 Very vividly                      Somewhat clearly                      Very vaguely

1                      2                      3                      4                      5                      6                      7  
 |-----|-----|-----|-----|-----|-----|-----|  
 Very successfully                      Moderate success                      No success

For the next question, rate the extent to which you think the experimenter's instructions actually helped you to reduce your anxiety after you were introduced and while you were giving your speech.

1                      2                      3                      4                      5                      6                      7  
 |-----|-----|-----|-----|-----|-----|-----|  
 Very much    Much                      An average amount    A little    Not at all

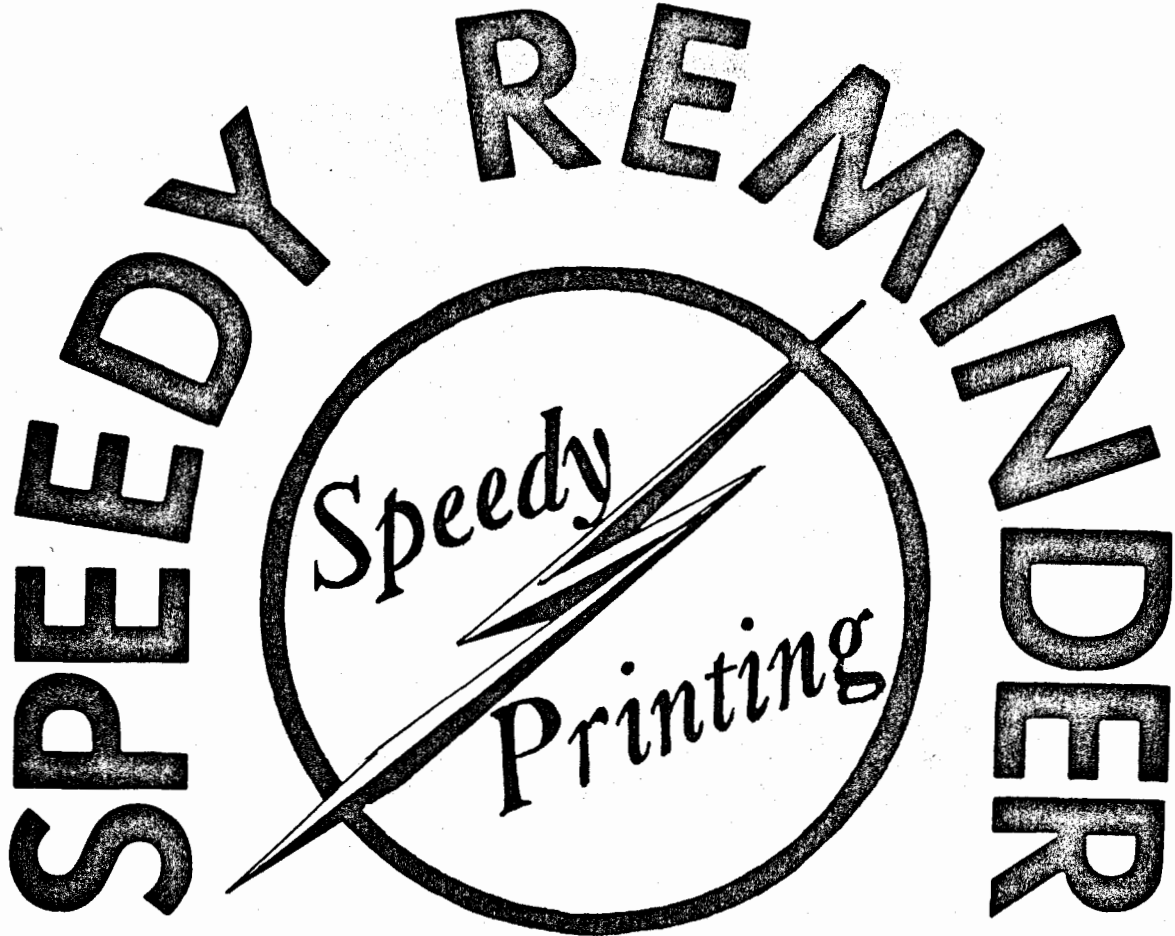
-----  
 For this question, rate the extent to which you noticed your eyes blinking during the speech.

1                      2                      3                      4                      5                      6                      7  
 |-----|-----|-----|-----|-----|-----|-----|  
 Very much    Much                      An average amount    A little    Not at all

## Appendix F

Group	Subject	MAACL		BASA	
		Pre	Post	Pre	Post
RAT	1	14	13	50.5	53.5
	2	16	15	84.8	77.9
	3	13	13	92.6	90.2
	4	13	11	75.3	66.1
	5	9	7	81.3	64.5
	6	13	13	63.1	57.3
	7	9	7	48.3	41.9
	8	6	5	40.2	46.0
REV	1	10	8	28.6	31.8
	2	12	12	41.2	50.1
	3	7	8	28.7	24.1
	4	8	8	54.9	43.1
	5	14	12	76.2	61.9
	6	10	4	99.7	72.4
	7	1	9	56.4	64.3
	8	12	10	58.0	68.3
MIS	1	17	8	87.3	101.7
	2	11	13	76.1	74.3
	3	6	12	71.0	65.1

Group	Subject	MAACL		BASA	
		Pre	Post	Pre	Post
MIS	4	11	6	91.7	101.3
	5	15	15	38.7	29.1
	6	13	12	48.2	36.3
	7	6	4	27.4	23.3
	8	12	6	62.2	30.9
MRT	1	6	6	47.3	42.6
	2	17	12	53.6	52.6
	3	12	10	63.9	60.1
	4	11	12	67.7	71.5
	5	14	12	45.7	103.0
	6	14	14	73.1	61.1
	7	16	14	61.3	41.1
	8	12	12	46.8	41.0
PTC	1	19	12	50.6	45.5
	2	11	3	47.4	28.3
	3	14	8	63.5	38.0
	4	13	7	71.4	38.1
	5	12	9	40.5	54.3
	6	11	13	72.6	51.9



**RUNNING LOW?**

*SPEEDY* Says "Order Now!"

BROCHURES  
BUSINESS FORMS  
LETTERHEADS  
BULLETINS  
PROGRAMS

ADVERTISING  
PRICE LISTS  
LETTERS  
ENVELOPES  
CATALOGS  
RESUMES

FOLDING  
CUTTING  
COLLATING  
BINDING  
HOLES PUNCHED



**SPEEDY PRINTING**

4619 West Broad Street  
Commonwealth Bldg.  
Richmond, Virginia 23230

Phone: 358-7161

