The Effects of Fear-Arousing Communications
Upon the Attitude and Behavior of Copers and Avoiders

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THE EFFECTS OF FEAR-AROUSING COMMUNICATIONS
UPON THE ATTITUDE AND BEHAVIOR OF COPERS AND AVOIDERS

BY

OLIVER PETERS
B.A., Florida Technological University, 1975

THESIS
Submitted in partial fulfillment of the requirements
for the degree of Master of Arts: Communication
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Orlando, Florida
1977
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Chapter 1

INTRODUCTION

In the last quarter century one of the most interesting areas of study in the growing field of communication research has been the effect of fear-arousing messages. The work of such researchers as Janis and Feshbach (1953), and Leventhal, Ely and Watts (1966), has covered much of the findings in this area. Unfortunately, most of the previous studies in fear-arousal deal with habits and are more akin to the desires of behavior-modification, i.e. anti-smoking messages or dental health care, than to the persuasive effects of the message upon normal decision-making processes. Despite early findings that point to the defensive-avoidance reaction of the audience to high-fear messages, many advertising campaigns still employ these type of messages.

It has generally been accepted that the use of fear-appeals, i.e. messages that are designed to raise the level of anxiety associated with a topic by the message recipient, will enhance persuasion if the arousal of anxiety can be taken on by the recipient as a drive. Once this occurs it can then be effectively used by the communicator to channel the arousal of his audience towards a desired goal. The purpose of this study is to investigate the use of fear-appeals dealing with salient, controversial message
topics that fall into the realm of daily decision-making issues, not habits such as smoking or dental care. This study will also investigate the personality trait of coping/avoiding, defined as the ability to handle threatening stimulation in a problem-solving manner, in its relationship to persuasion when subjects are exposed to different levels of message anxiety. Finally, I hope to clarify some flaws that I see in many earlier fear-appeal studies. These include accounting for variables that might serve as contaminants, the verification of the perception of distinct levels of message anxiety, and the relationship between stated attitude change and actual behavioral commitment as a result of true persuasion and attitude change.

In persuasive communication, much thought has been given to what type of appeals prove to be the most effective in arousing motives to accept an attitude change. These studies have tested the effects of factual vs. emotional communication, the effects of fear-inducing appeals, and the effects of fear with reassurance, etc., in attempts to determine message characteristic effectiveness. Most of the studies tend to support earlier findings, and therefore, it was my intention to survey the most recent literature to find what directions have been taken along these lines within the last five to seven years. In these later studies, there has been an emphasis on arousal in general, rather than purely attributing this arousal to fear. There is also an attempt to define what types
of fear have been really tested in the past and, also, to determine the interrelationships of physiological and situational cues as perceived by the subjects tested.

Since the replication of early fear arousal research tends to show no dramatic differences, and newer research has progressed along other lines, it will be necessary to reiterate these earlier findings. In reviewing numerous studies designed to test communication characteristics, Hovland, Janis, and Kelley (1953), concluded that results have been inconsistent in showing the superiority of "emotional" vs. "rational" appeals, and that very few studies have tested the effects of particular kinds of motives. There are also few clear-cut criteria for "emotional" and "rational" appeals. Hovland, Janis, and Kelley (1953) mention three aspects of audience responsiveness:

1) Attention to message content.
2) Message comprehension.
3) Acceptance of conclusions that are advocated by the communicator.

Any one of these effects or any combination could account for the effectiveness of an appeal, so it is necessary to distinguish these effects from each other. In the Janis and Feshbach (1953) study of fear appeals (those that allude to unfavorable consequences) it was concluded that an audience would accept the communication, if, 1) the emotional tension aroused is sufficiently intense to constitute a state of drive, and 2) acceptance of the recommended
attitude leads to reduction of tension (Hovland, Janis, Kelley, 1953). Thus the most effective appeals are likely to be those that serve as reassurances and elicit anticipations of escaping from or averting the threat (Cohen, 1964).

The factors that influence arousal include the content of the appeal, nature of the evidence for the dangers, source credibility, and the audience's prior experiences and view of their reality. Factors that lead to acceptance of the communication include the order of presentation and time lapse between arousal and reassurances, the degree to which acceptance will bring relief, and most importantly the degree to which defensive reactions occur when emotional tension is strongly aroused. Generally, with the respect to fear-arousing communications and attitude change, the evidence indicates that fear appeals facilitate persuasion (Leventhal, 1970) and that this takes the form of fear-as-an-acquired-drive (Hovland, Janis and Kelley, 1953; Janis, 1967).

In the Janis and Feshbach (1953) study of fear appeals in dental hygiene messages, minimal arousal (in a low-, medium-, high-fear paradigm) produced the greatest attitude change. Additionally, audiences in the medium, and high-fear groups were more inclined to accept counter-communications which discounted the original talks, than were the audiences in the minimal-fear group. In examinations of the data it was found that all three
conditions were equally effective in imparting factual information as measured by an information post-test. It may be suggested that the effects of the strong fear-appeals are modified by aggressive feelings towards the experimenter, though Janis and Feshbach claim that hostility was equal in all levels, or that the audience was subject to a defensive-avoidance reaction to the strong fear-appeals. That is, when fear is strongly aroused but is not adequately relieved by the reassurances in the communication, the subject is motivated to ignore or minimize the importance of the threat. In Janis and Terwillinger (1962) resistances that tend to be mobilized by strong fear-appeals were measured directly. Results of this study provide support for the notion that when a relatively high level of fear is induced by the warnings present in the communication, the recipients will tend to develop psychological resistances to the communicator's arguments, conclusions and recommendations (Janis and Terwillinger, 1962). In general, later studies tend to corroborate these earlier findings which have laid the groundwork for the research that I have investigated for this study.

Since I started my introductory comments with references to Janis and Feshbach, it is fitting to start with an analysis of a study by Cope and Richardson (1972) of the effects of reassuring recommendations in a fear-arousing speech. It was the contention of Cope and Richardson (1972) that the classic study by Janis and
Feshbach (1953) established the concept of a reassuring recommendation with the fear-arousing speech, and that virtually all fear-appeal studies accept and/or assume the Janis-Feshbach implication that the accompanying reassuring recommendation must be of sufficient strength to dissipate the arousal tension. "No one has systematically explored what happens if the reassuring recommendations are omitted altogether" (Cope and Richardson, 1972, p. 148).

From a theoretical standpoint, the arousal of a fear response could create a drive-state which would persist and continue to influence the subjects' behavior until the drive is in some way reduced or dissipated. In the absence of a reassuring recommendation, the continuance of the drive might influence the retention of information from the message, opinion change, and attitudes toward the message source (Cope and Richardson, 1972).

In this study Cope and Richardson used 16 Basic Speech classes (278 students) at Auburn University, divided equally into "Reassuring recommendation" and "no reassuring recommendation" groups (8 classes per group). Both groups heard the same basic speech designed to produce fear about the threat of nuclear attack, except that the "R" group also heard reassuring recommendations with their speech, while the "NR" group did not. Students in the advanced public speaking class delivered all the speeched with each speaker delivering at least one R and one NR speech. Subjects were given a post-test in the form of a
20-item quiz: 17 items tested factual retention of the speeches while 3 tested for opinion change, worry and concern about nuclear attack and danger from fallout. Following the post-test, students filled out an 8-item speaker evaluation form. An analysis of the forms served to indicate whether the unresolved emotional tension generalized to the audiences attitude toward the communicator.

Results indicated that there was no significant difference in the amount of information retained in these two groups, and that the communication was successful in changing the opinions of the subjects. Both the "R" and the "NR" groups shifted in the direction of the speakers' thesis with the "R" group exhibiting a significantly greater shift than the "NR" group.

The t-ratio indicates that the subjects in the "R" group expressed significantly more worry about nuclear attack than did the "NR" group. An explanation for this might be that threat appeals are more successful when directed at the listener, his family, or close friends than those of a less personal nature (Powell, 1965). Since the reassuring recommendations mentioned specified fallout shelters nearby, and a lack of strategic targets near Auburn University, the danger was actually more personalized than in the "NR" group, which failed to mention Auburn specifically.

The speaker evaluation form showed that subjects in the "R" group rated the speaker significantly more favorably than he was
by the "NR" subjects. The authors believe that the audiences' attitudes about the speech were "generalized to the speaker, and therefore unresolved tension generates a degree of hostility towards the source of the tension" (Cope and Richardson, 1972, p. 150).

Further delineation of the effects of fear arousal and the degree of reassurance on attitude change can be provided in an earlier study by Rogers and Thistlethwaite (1970). According to the authors, a more complete formulation of the suggested interaction (of fear arousal with the degree of reassurance as hypothesized by Janis and Feshbach, 1953) would predict that increments in fear arousal should produce greater increments in acceptance of the recommended action when the audience is given high, rather than little or no reassurance of the efficacy of the action. The purpose of Rogers' and Thistlethwaite's (1970) study was to examine the joint effects of fear arousal and reassurance in both punishment and avoidance situations with smokers. It was assumed that depiction of potential dangers to health from smoking is punishment for smokers. Among such subjects it was predicted that increases in fear arousal would produce greater acceptance of the recommendation to stop smoking when the recommended action was said to have a high rather than low efficacy. It was predicted that among non-smokers fear-arousal and efficacy would have additive effects upon acceptance of the recommendation not to start smoking.
Forty smokers and forty non-smokers served as subjects in a 2x2x2 factorial design (post-test only) with manipulations of high vs. low fear arousal and high vs. low reassurance. Subjects were exposed to lung cancer films or film clips and given reassuring paragraphs afterwards.

From biographical analyses administered before the treatment, it can be seen that smokers had higher average vulnerability and anxiety scores than non-smokers. Arousal scores for the fear manipulation indicates that smokers tended to have greater arousal scores than non-smokers and that the high-fear condition produced high arousal scores than the low-fear condition. Similar analyses of efficacy scores revealed that the high-reassurance condition produced higher efficacy scores than the low-reassurance condition. The predicted triple interaction of smoking status, fear, and reassurance was not confirmed.

The authors contended that a main effect for reassurances upon beliefs was present because the low reassurance message directly weakened beliefs in a causal link between smoking and cancer, thus removing the principal incentive to stop smoking for smokers and having little effect on non-smokers (presumably their reasons for not smoking are based on many other factors). The predicted interaction between fear and reassurance effect was found for smokers' beliefs in the link of smoking and lung
cancer, but not for their intentions to stop smoking. The data suggests that as the level of fear arousal increased, smokers given low reassurance tended to react primarily by disavowing a causal link between smoking and cancer, while those smokers given high reassurances tended to react primarily by accepting the recommendation to stop smoking. The absence of an interaction between smoking and fear and of related higher-order interactions raises doubt in the importance of distinction between punishment and avoidance paradigms in analyzing the effects of fear appeals (Rogers and Thistlethwaite, 1970).

Since the previous results were from experimental manipulation of smokers (which I personally believe to be a poor test group because the habit extends beyond cognitive awareness, and is therefore, difficult to use in treatments to gather data from) it is of some importance to refer back to a study by Leventhal, Ely, and Watts (1966) of sources of resistance to fear-arousing communications on smoking and lung cancer. This study also incorporated a measure between belief change and behavior change and a measure of the effectiveness of the arousal over time.

Leventhal and Niles (1964) studied fear-arousal upon the intentions to stop smoking and the actual taking of chest X-rays. The investigators found that low fear-appeal was most effective in strengthening intentions to stop smoking, though there was no
difference in all conditions in subjects compliance with X-ray taking. In later research, a positive correlation of the level of fear reported with the strength of intentions to stop smoking and X-ray taking was found. Leventhal, Ely, and Watts (1966) attempt to account for the inconsistencies with the results of Janis and Feshbach (1953), which I have stated earlier. It was the purpose of this study to test fear-arousing communications in terms of self-perceived subject vulnerability.

✓ When "high vulnerable" subjects are exposed to a highly threatening communication, their convictions as to the inevitability of the threat and the futility of protective action may be reinforced. Such subjects are frightened by the communication and reject the recommendations as ineffective or feel unable to carry them out. On the other hand, "low vulnerable" subjects require an intense stimulus to activate desire to take protective actions. These contrasting reactions to strong threats ("high vulnerabilities" showing resistance and "low vulnerabilities" showing increased compliance) may account for the finding that the strong threat communication was not more persuasive than the mild threat appeal (Leventhal, Ely and Watts, 1966). Niles (1964) showed results that support the idea that the relationship between fear arousal and persuasion is basically positive, but that dispositional vulnerability may sometimes interact with fear in such a way as to weaken or reverse the facilitating effects of fear on acceptance.
Another influencing factor is the relevance of the message to the recipient. Prior contact may also sensitize a person to danger cues. The present study investigates the effects of threatening characteristic of the communication, the perceived susceptibility to health hazards, and the strength of the smoking habit upon reactions to communications concerning smoking and lung cancer.

Twenty-three groups of from 20 to 30 subjects were randomly assigned to one of three experimental conditions. Fear arousal was varied by presenting different films and identical recommendations to take chest X-rays and to stop smoking were made in each condition. Questionnaire measures of susceptibility to health hazards and strength of smoking habit were obtained immediately before the film. Dependent measures consisted of questionnaire and behavior responses recorded after exposure to the films. The study was conducted at the New York State Exposition in 1963 and a free chest X-ray unit was located near the entrance to the building.

A summary of the results shows that both "high vulnerability" and smoking of a moderate number of cigarettes seem to sensitize subjects to the threat stimuli. High-vulnerable-light smokers report more emotional arousal than every other group except low-vulnerable-light smokers in the MF condition. Conversely, heavy smokers combines with low-vulnerability to make for resistance to arousal. There were no difference measurements for source credibility.
As far as verbal attitudes and intentions to comply with the recommendations are concerned there was only one significant effect attributable to the treatments: a significant increase in the belief that smokers should take X-rays. In general, light smokers who saw themselves as susceptible to health hazards showed the most persuasion while heavy smokers who considered themselves not susceptible showed the best persuasion (Leventhal, Ely, Watts, 1966).

In a measure of X-ray taking by eligible subjects to whom the threat was most relevant, increasing fear had no effect on their willingness to undertake the recommended action. Differences among groups were not significant.

A count was made 5 months later of those smokers that had either given up or decreased the number of cigarettes they smoked. Here the results are quite different. The proportion of subjects who tried to give up or cut down was not significantly different among the treatment groups. However, reported success increased from the LF and MF conditions to the HF condition. The proportion of successes among high and low susceptibles was not significantly different (in all fear conditions). Caution should be used in accepting these findings because of the considerable loss of subjects through failure to reply to the questionnaire. The authors do contend that this follow-up sample is representative of the original sample and conclusions about the smoking behavior of this sample may be generalized to the original sample.
In summary, while increasing fear did not increasingly motivate subjects to decrease their smoking, it appears to have increased the proportion of successes among those who tried. These results are the reverse of those for X-ray taking where far fewer subjects in the HF condition took X-rays than in the MF and LF conditions (Leventhal, Ely, Watts, 1966). Although the research is not supportive of this, due to the absence of field tests in fear-arousal studies, and the lack of follow-up post-tests, it may well be that high-fear-arousal communications produce resistance after the initial communication is received; but, because the information is generally equally retained in all conditions, this high-fear message is cognitively contemplated by the subjects and its acceptance is increased when he has more time to allow it to "soak in" - resulting in increased attitude change for high fear-arousal after a period of time, and after the initial resistance has worn away.

In the Leventhal, Ely and Watts (1966) study, it is clear that antecedent dispositions are critical in affecting the intensity of reported arousal. Thus, high levels of susceptibility sensitize subjects to threat stimuli, while being a smoker both sensitizes and creates resistance to arousal (the sensitization effect appearing for light smokers and resistance effect for heavy smokers) (Leventhal, Ely, Watts, 1966).

It should be noted that smokers have probably heard all the
possible arguments and fear-appeals regarding smoking and cancer and other health hazards. Heavy smokers are prepared to receive anti-smoking appeals and are inoculated against arousal and attitude change (McGuire, 1964). Smoking is also a result of factors other than these and by the time a smoking person may be a subject, he has had sufficient reinforcement to make the habit so ingrained that he probably isn't even aware of his smoking. Finally, X-ray taking may actually be a greater evil in the mind of a smoker, if he is fearful of the X-rays or is afraid of finding out that he has cancer. Therefore, X-ray taking may not provide reassurances. All in all, I feel studies along these lines should be done with groups other than smokers or non-smokers.

Several studies have attempted to investigate whether different types of arousal might be measured in anxiety-arousal. It was the purpose of Leventhal and Trembly (1968) to try to determine if there may be two types of fear in effect when viewing such stimuli as highway accident films: anticipatory fear - characterized by muscle tension and methods of avoiding danger; and inhibitory fear - characterized by inner tension (nausea) and self-protection. The experimenters manipulated both screen size and two levels of fear (movie goriness) and found that both films succeeded in stimulating different emotions and strengthened protective intentions. The intensity manipulation (large vs. small screen) strengthened nausea and defensive avoidance and interacted strongly with classification of subjects into High, Medium, and Low esteem groupings. Middle and
High esteem subjects reacted with increased effort to protect themselves as the film conditions changed from no film to small film to large film. Low esteem subjects reversed this, thus pointing to a defensive reaction.

Further experimentation was done by Higbee (1974) in an attempt to see if different emotions can be classified as fear-arousal and if these emotions could result in different findings when experimenters assume they are really stimulating the same emotion. Higbee (1969) found that both nausea-type fear and a cognitive-type fear exist.

In the present study Higbee (1974) manipulated fear-arousal about marijuana in a simple pre-, post-test design among students of junior high school to university age.

It was found that although fear-arousal studies may not have measured the same thing they did measure similar variables. Correlations are also consistent with the suggested two types of fear, a nausea type (fear, anxiety, nausea, worry) and a concern type fear (concern). One implication of the conflicting results in fear-arousal studies, is that different variables (other than the groups that covary) were actually tested, leading to different conclusions concerning the persuasiveness of fear-arousing communications.

However, according to research cited by Goldstein (1959), there may be no uniform defense reaction to the heightening of emotional tension. Goldstein hypothesized that certain defense reactions may facilitate the acceptance propaganda, while others interfere with
its acceptance. Response to propaganda is thus construed as an interaction between the person's characteristic mode of responding to tension-arousal and the level of tension stimulated by the appeal (Goldstein, 1959).

Goldstein's (1959) data demonstrated the superiority of minimal fear appeal with avoiders; however, copers did not respond particularly well to either appeal. The author ended his study on a rather puzzled note: since the recall of factual information was not significantly different across treatment groups, he felt that the coping-avoiding trait did not sufficiently explain the disparity in attitude change from low to high intensity. Minimal fear appears to be best since neither appeal seems to work well with copers. He also felt that the strong appeal did not constitute an adequate level of threat to elicit the predicted manner of behavior (attitude change).

It is the purpose of this study to reinvestigate the effect of fear-arousing communications upon coping and avoiding subjects. It is my contention that past studies in fear-appeals have designed in their own discrepancies and are therefore subject to some strong validity questions. Nearly all previous research has been conducted using message topics such as smoking, dental hygiene, chest x-rays, etc. The trouble is that these things are activities and habits that go beyond the stage of conscious decision-making and, therefore, are less subject to attitude change by persuasive messages. In this study I am employing a topic that is both salient and open to persuasion, i.e. the subject can make a decision on the basis of
facts and appeals, because the topic does not involve an ingrained habit, like smoking. (Smokers and non-smokers will say that it is bad because that response is socially acceptable.) Therefore, a salient topic provides a better test for "real-world" communication because fear-arousing appeals are presented to us on a multitude of topics, most of which involve us in decision-making processes.

Finally, it must be noted that we cannot afford to rely on attitude sampling alone for valid results. Such authors as Festinger (1964), Rokeach (1968), and Seibold (1975) have pointed to the so-called attitude-behavior disparity, i.e. that the verbal report of one's attitude on a researcher's questionnaire may in fact give a false version of one's true underlying attitudes. According to Rokeach all beliefs are predispositions to action, and an attitude is thus a set of interrelated predispositions to action organized around an object or situation (Rokeach, 1968).

Therefore the subject's stated opinion (verbal/written report of attitude) is a function of his attitude toward the object and towards the situation, i.e. whether it is to his advantages to commit himself to something publicly at that time; and thirdly, the amount of effort that is involved in doing so.

Because of these considerations, one must try to produce test situations that are as "real" as can be, so that we can see what the likely public response will be under that situation.

In Rokeach (1968) the author pointed out that conflicting attitude tests and actual behavior are not really that at all but
rather two overt behavioral forms of the same attitude (opinion/verbal report and overt behavior). Rather than engage in a seemingly inconsistent action, the subject is actually responding to a more important attitude.

In regards to these questions, this study will seek to find the relationships of opinion to overt behavior when attitude is changed through the use of fear-arousing messages.

Hypotheses and Variables

The present study applied the view that there are individual differences in defensive reactions to the type of response shown to fear-arousing appeals. It can be predicted that acceptance or non-acceptance of the recommendations contained in an appeal is related to the subject's characteristic reaction to anxiety-producing communications. This prediction is based on Janis and Feshbach (1953, 1955) in which the authors speculated as to the effect of "defensive reactions."

Subjects in this experiment were divided up into groups of copers and avoiders on their ability to handle and/or defend themselves from arousing messages. Copers were considered to be people who perceive aggressive and sexually related material as being related to themselves and, therefore, are able to handle threatening stimulation directly by problem-solving in a decisive manner; avoiders find safety in ambiguity and try to bypass and put aside the intrusion of threatening material (Goldstein, 1959).
The following predictions were made in this study:

1. Message intensity will affect copers and avoiders differently.

2. High-intensity messages will be as effective as low-intensity messages in persuading copers.

3. Low-intensity messages will be more effective than high-intensity messages in persuading avoiders.

It was expected that copers would be persuaded by both levels of intensity because of their nature to deal with threat in a problem-solving manner. Since they can handle high-message intensity, they would be persuaded by it. Avoiders would be persuaded by the low-intensity message, because it would produce less anxiety than the high-intensity message. They can handle the low-intensity message but would avoid the threat of the high-intensity message and, therefore, would not be persuaded by the high-intensity message, because they would reject its premise and recommendations.

The independent variable was varied message intensity (high and low fear) presented by a live speaker. An assigned independent variable of coping/avoiding was also used. The effects of these variables and their possible interactional effects on the attitude of the subjects towards the speaker's topic was tested attitudinally with a questionnaire and behaviorally through the use of a masked letter in the mail. No prediction could be made as to the relationship between the opinion of the subjects as reported
on the questionnaire and their response to the behavioral (mail-out) because insufficient research exists in this area as related to fear-appeal.

Pilot Studies

In the course of preparation for this research, three pilot studies were conducted to improve the experimental design and to identify potential sources of bias.

The original messages used in the first pilot study were one-page articles presenting high-fear and low-fear messages that argued for the elimination of nuclear power plants for electrical power generation because of the dangers of these plants. These messages were presented under the guise of a reading comprehension test. No significance was found in any of these results. It was decided that since the nuclear power argument was relatively salient, a one-page written argument would not be effective, because the subjects had probably already heard many pro and con arguments.

In the second pilot study high-fear and low-fear anti-nuclear power speeches were presented to an audience by a speaker who was introduced to them as a graduate student in physics. Questionnaires administered after the speech measured the perceived differences of source credibility, speaker bias and intentions, use of sources and facts, and the bias of the speech. Analyses were made by comparing one group's results (high-fear) to another's (low-fear).
There were no significant differences on any of these variables between high-fear and low-fear speeches. However, there was also no perceived difference on the level of anxiety in each speech, i.e. high and low fear speeches were perceived as equal in their level of arousal. Therefore, the high-fear speech was intensified with the use of added visuals and more evidence, while the low-fear speech was reduced towards a more neutral tone.

The third pilot tested the modified 20-minute speeches. This time the difference in the levels of perceived anxiety was significant at the .01 level of significance (F 1,18 = 8.3). The messages were then judged appropriate for use in the actual experiment.
Subjects

In order to test the hypotheses of this study, experimentation was carried out during the fall quarter of 1976 at Florida Technological University. Seven Speech 101 classes were used to comprise the total number of treatment and control classes. Speech 101 is a required course at Florida Technological University and it was assumed that any outstanding individual characteristics would be randomized out in such classes. Unsuccessful attempts were made prior to this to use classes at Rollins College and Valencia Community College with more age and experience variance, such as those in the Continuing Education programs. These seven classes provided a potential of 180 subjects. However, only 124 were usable since data from subjects not present at all sessions, or whose questionnaires were improperly completed had to eliminated.

Treatment Procedure

The treatment consisted of two forms of a speech, approximately 20 minutes long, that stressed the inherent dangers of nuclear power in electrical power generation and urged for legislation to reduce or eliminate its use. The low-fear speech was given to two separate
classes, one in the morning, and one in the afternoon, and stressed the economic problems rather than the physical danger to one's personal life if nuclear power generation was allowed to continue.

The high-fear speech was given to two other classes, also with one in the morning and one in the afternoon, and stressed the physical dangers of the use of nuclear power from cancer, terrorism, and plutonium poisoning. **Visuals**, depicting the skin tumors and cancers that are now being discovered on Japanese as a latent result of radiation exposure 30 years after Hiroshima and diagraming the possible accidents and their results in a nuclear reactor, were used in the high-fear speech. In general the tone of the high-fear speech conveyed a greater sense of concern for personal safety than did the low-fear speech.

In all experimental sessions under both treatment conditions, the speaker was introduced as a graduate student in nuclear physics from the University of Florida. He was alleged to be working on an internship in Central Florida and registered with Florida Technological University's Speakers' Bureau, and therefore, went around to classes to convey some of his ideas to students. The guest speaker presented the treatment on a Friday when the regular instructor was away on business.

**Attitude Measure**

The questionnaire (See Appendix A) to test for the attitude
change as a result of having heard the speech was given to the subjects on the following Monday by their instructors. Subjects were told that the questionnaires were an opinion survey of issues in light of the upcoming November elections. They included questions on abortion, nuclear power, and the economy. All responses took the form of a 5-point scale, semantic differential-type test. Each question required 3 responses. Subjects were to indicate their attitude by marking a single position on each scale. Only the three responses dealing with the issue of nuclear power were used to evaluate attitude change and comprised a range of one to five points each. The question tested for attitude towards nuclear safety, use of it as a solution to the energy crisis, and its desired future use.

The bottom part of the questionnaire contained an eight-stem, Mainford-type sentence completion test, using the same sentence stems and responses as utilized by Goldstein (1959). The sentence stems had six forced-choice responses to each stem which were weighted according to decisiveness, aggression, or sexuality and which allowed for the determination of coping/avoiding in the subjects. This part of the test was explained as a method by which the survey researchers (under the guise of the Department of Communication members) could see if any large personality traits affected certain opinions on issues. All eight responses were used and had a range of zero to 16 points. Zero to seven point responses were coded as avoiders. Any scores of eight were eliminated from coper/avoider date because eight was the midpoint of the scoring range. Nine to sixteen point
responses were coded as copers.

On the same day two sessions of control subjects (two Speech 101 classes that had heard no treatment messages) were given the same questionnaire under the same guise. This set up a post-test only design.

All subjects receiving the questionnaire were told to put the last four digits of their social security number on the top right corner of the questionnaire. They were told that this was necessary for the computer so that a random sample of the completed questionnaire could be eliminated. This number was actually used by the experimenter to compare completed questionnaires with responses on the overt-behavioral measure through the use of the class computer roll, thus masking the fact to the subjects, that the experimenter had their identity, in order to avoid suspicion when they received the overt behavioral test in the mail.

Overt Behavioral Measure

On the same day that the questionnaires were given to the subjects, the experimenter mailed them a test for overt behavioral response. Their addresses were obtained from the instructor's records and/or the University Records Department. This test for behavioral response took the form of a letter sent to them by the Florida League for Environmental Concern (non-existent; See Appendix B) which explained present efforts to enact legislation to reduce or eliminate the use of nuclear power in electrical power generation.
Included with the letter was a self-addressed, stamped post card which they were to sign and mail if they supported such a moratorium on nuclear power (See Appendix C). The letter told subjects that the post cards would be forwarded to the Congress and State Legislature to show the public's support for such a moratorium. Comparison of the number of the returned cards from treatment groups to the number of the returned cards from the control groups allowed the experimenter to compare behavioral responses with the attitude responses with the attitude responses on the questionnaire.

In addition to the four treatment sessions (two treatment conditions) and the two control sessions (one control condition), a seventh class was used as a second control condition. This class only received the letter with the post card, and thus allowed the experimenter to test for sensitization to the questionnaire, either through subjects' suspicion, or through the heightened awareness to nuclear power by the questionnaire's mention of it, by comparing their response to that of the first control condition classes (in total, both copers and avoiders).

Two weeks were allowed for the mail service to deliver the letter and the return of the post card before the data on the behavioral measure was evaluated. The data from this part of the study allowed the experimenter not only to determine what number of subjects would take the public commitment to mail in their signed post card, but also whether or not the return differed from the stated opinion on the attitude change questionnaire.
Chapter 3

RESULTS

Ninty-seven subjects comprising two treatment conditions and one control condition compose the data for the questionnaire results and 124 subjects comprised of the aforementioned groups plus an additional control group compose the data for the test of behavioral response. Data has been evaluated according to the differentiation of coping/avoiding and also in terms of the combined results of both copers and avoiders within the same message type.

Attitudinal Data

From both treatment conditions and one control group (a total of six classes) the experimenter was able to retrieve 97 pieces of usable data. Since coping/avoiding was an assigned independent variable the experimenter could not control for cell size. The test for this personality trait covered a scoring range of zero to 16 points. All scores of eight, the midpoint, were eliminated and are not reflected in these results. Since all attitude questionnaires were masked and appeared to have come from Florida Technological University's Department of Communication, no subject refused to fill out the questionnaire. However, forms that were improperly completed, or data from subjects not present at both sessions, were eliminated. This procedure produced 97 usable questionnaires for
analysis. See Table I.

### TABLE I

**Cell Means**

<table>
<thead>
<tr>
<th>Q.1. Attitude towards safety of nuclear power</th>
<th>COPERS</th>
<th>AVOIDERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIGH FEAR</td>
<td>LOW FEAR</td>
<td>NO MESSAGE</td>
</tr>
<tr>
<td>3.2, n=10</td>
<td>2.955, n=22</td>
<td>2.64, n=25</td>
</tr>
<tr>
<td>3.857, n=14</td>
<td>3.429, n=14</td>
<td>2.67, n=12</td>
</tr>
</tbody>
</table>

| Q.2. Attitude towards nuclear power as an energy solution |
| COPERS | AVOIDERS |
| 3.2, n=10 | 3.136, n=22 |
| 3.357, n=14 | 3.286, n=14 |

| Q.3. Attitude towards the use of nuclear power in the future |
| COPERS | AVOIDERS |
| 3.3, n=10 | 2.86, n=22 |
| 3.43, n=14 | 3.36, n=14 |

These six cells were subjected to a 2 x 3 factorial analysis of variance for unequal cell frequencies. A separate analysis was run for each of the three responses. See Table II.
TABLE II

Analysis of Variance for the Main Effects of Message Types and Coping/Avoiding on the Attitudes towards the Safety of Nuclear Power

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Ss</th>
<th>df</th>
<th>Ms</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping/Avoiding</td>
<td>2.044</td>
<td>1</td>
<td>2.044</td>
<td>2.643</td>
</tr>
<tr>
<td>Message Types (High-Fear, Low-Fear, and no message)</td>
<td>15.328</td>
<td>2</td>
<td>7.664</td>
<td>9.909*</td>
</tr>
<tr>
<td>Coping/Avoiding x Message Type</td>
<td>3.199</td>
<td>2</td>
<td>1.600</td>
<td>2.069</td>
</tr>
<tr>
<td>Within cell error</td>
<td>70.381</td>
<td>91</td>
<td>.773</td>
<td></td>
</tr>
</tbody>
</table>

*p < .001
F(2,91) = 7.54

A significant main effect (p < .001) was found for the message types. On the subjects' response of their attitude towards the safety of nuclear power generation. The main effect of coping/avoiding and the interactional effect was non-significant. Subsequent t-tests run on the message types (combined copers and avoiders) showed that the high-fear message significantly changed attitudes over the no message condition at the .005 level (t = 4.348, 1,91 d.f.) and was also significantly more effective than the low-fear message at the .05 level (t = 1.93, 1,91 d.f.). The low-fear message was
significantly effective in changing attitude from the no message condition at the .005 level ($t = 2.719, 1.91 \text{ d.f.}$).

The second part of the question, measuring attitude towards the use of nuclear power as a possible solution to the energy crisis, also showed a significant main effect for the message types ($p < .005$), but no significant differences for the main effect of coping/avoiding or for any interaction. See Table III.

TABLE III

Analysis of Variance for Main Effects of Message Types and Coping/Avoiding on Attitudes toward the Use of Nuclear Power as a Solution to the Energy Crisis

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Ss</th>
<th>df</th>
<th>Ms</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping/Avoiding</td>
<td>1.629</td>
<td>1</td>
<td>1.629</td>
<td>1.394</td>
</tr>
<tr>
<td>Message Types (High-Fear, Low-Fear and no Message)</td>
<td>13.670</td>
<td>2</td>
<td>6.835</td>
<td>5.852*</td>
</tr>
<tr>
<td>Coping/Avoiding x Message Type</td>
<td>.637</td>
<td>2</td>
<td>.319</td>
<td>.273</td>
</tr>
<tr>
<td>Within cell error</td>
<td>106.290</td>
<td>91</td>
<td>1.168</td>
<td></td>
</tr>
</tbody>
</table>

* $p < .005$

$F(2, 91) = 5.67$

To probe the significant main effect of the message types t-tests were administered and it was found that both the high fear message...
(t=3.390, 1,91 d.f.) and the low fear message (t=3.439, 1,91 d.f.) significantly changed attitudes over the no message condition at the .005 level. There was no significant difference between high- and low-fear message types.

The final analysis of variance on the attitudes towards the desired use of nuclear power generation showed a significant main effect (p < .001) of the message types and no significant main effect of coping/avoiding nor any interactional effect. See Table IV.

**TABLE IV**

Analysis of Variance for the Main Effects of Message Types and Coping/Avoiding on Attitudes toward the Desired Use of Nuclear Power in the Future

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>ss</th>
<th>df</th>
<th>Ms</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping/Avoiding</td>
<td>3.850</td>
<td>1</td>
<td>3.850</td>
<td>3.532</td>
</tr>
<tr>
<td>Message Types (High-Fear, Low-Fear</td>
<td>19.490</td>
<td>2</td>
<td>9.745</td>
<td>8.940*</td>
</tr>
<tr>
<td>and no message)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping/Avoiding x Message Type</td>
<td>.948</td>
<td>2</td>
<td>.075</td>
<td>.068</td>
</tr>
<tr>
<td>Within Cell error</td>
<td>99.214</td>
<td>91</td>
<td>1.090</td>
<td></td>
</tr>
</tbody>
</table>

* p < .001
F(2,91) = 7.54
The t-tests on this data showed again, that both the high-fear message \((t=4.427, 1.91 \text{ d.f.})\) and the low-fear message \((t=3.649, 1.91 \text{ d.f.})\) changed attitudes significantly from the no message condition at the .005 level. No significant difference was found between the high-fear and low-fear message.

**Overt Behavior Test Data**

Two weeks were allowed before the overt behavior test, in the form of a letter from the non-existent Florida League for Environmental Concern with an enclosed self-addressed, stamped post card, was evaluated. This allowed for receipt of the letter and the return of the post card through the U.S. Postal Service. One hundred twenty-four letters were mailed to subjects of both treatment conditions and both control conditions. A signed post card returned to the experimenter's address indicated support for a legislative moratorium against nuclear power and was considered to be a measure of the persuasive effect of the speech. All post cards returned were signed. Not returning a post card was interpreted as indicating that the subject was not persuaded towards the recommendations of the speech. Chi-squared analyses were run on the overt behavioral test results (post cards returned vs. not returned). See Table V.
**TABLE V**

Chi-Square Analysis of Cell Comparisons for the Overt Behavior Test

<table>
<thead>
<tr>
<th>Groups Compared</th>
<th>Cell Frequencies:</th>
<th>df</th>
<th>$X^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cards Returned</td>
<td>Not Returned</td>
<td></td>
</tr>
<tr>
<td>High Fear Copers vs.</td>
<td>3</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>High Fear Avoiders</td>
<td>2</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Low Fear Copers vs.</td>
<td>3</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>Low Fear Avoiders</td>
<td>2</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Combined High Fear vs.</td>
<td>6</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>Combined Low Fear</td>
<td>5</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Combined Copers vs.</td>
<td>6</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>Combined Avoiders</td>
<td>4</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Combined High Fear vs.</td>
<td>6</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>Combined Controls</td>
<td>2</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Combined Low Fear vs.</td>
<td>5</td>
<td>35</td>
<td>1</td>
</tr>
<tr>
<td>Combined Controls</td>
<td>2</td>
<td>63</td>
<td></td>
</tr>
</tbody>
</table>

* $p < .05$

$X^2 = 5.41$ needed for $p < .05$

The only significant difference ($p < .05$) was the comparison of all combined high-fear cells to all combined control cells. Comparison of the Combined Low-fear cells to Combined Control cells constituted a trend at the .15 level. All the other comparisons yielded non-significant differences. It should be noted that these results are probably unreliable because of the low cell frequencies.
Chapter 4

Discussion

This study set out as a reinvestigation of the effects of high and low fear messages on the attitude and behavior of copers and avoiders. Although based strongly in earlier studies, particularly Goldstein (1959), it was the intention of the author to extend those results to problems more basic to contemporary social intercourse. Primarily, this research sought to test the effects of anxiety-arousing speeches, when salient, controversial topics were used, rather than messages dealing with lung cancer or dental hygiene. It was the premise of this research that a political topic, such as an anti-nuclear power message, which is salient and controversial, is the type of topic with which fear messages are most closely associated in real-life persuasion. Therefore, using it in research would provide valuable data.

The predictions related closely to Janis and Feshbach (1955) and Goldstein (1959), who felt that a person's characteristic mode of responding to tension-arousing material would determine the acceptance of propaganda and that certain "defensive reactions" would facilitate acceptance, while others would hinder it. Goldstein (1959) found a different acceptance among copers and avoiders, but his hypotheses were couched in terms of the actual recall of tension-
arousing stimuli, which actually remained the same across all groups. I felt that decisions were based more on so-called "gut reactions" to such stimuli, rather than the recall of information, and that these "reactions" were based in whether one could accept tension-arousing stimuli (whether one was a coper or an avoider). In short, acceptance of an issue would be controlled by reaction to the stimuli at the time of presentation and on thinking about it later, rather than the conscious retention of specific facts after the speech.

It was predicted that copers and avoiders would respond differently to high and low fear messages, with avoiders being persuaded more by low fear, and copers being persuaded by both. As the results showed, no support was found for any difference in acceptance of anxiety-arousing messages by copers and avoiders. The only significant results were for the main effects of the speech types on the change of attitude in each of the three attitude test measures.

In the first part of the question about subjects' attitudes towards nuclear power, which dealt with attitude towards its safety, the high fear message was more persuasive across all cells than the low fear message in changing opinion (from that indicated in the control responses). This seems logical, because the high-fear message dwelt heavily on reactor failures, human error, and details of accidents and near-accidents in a highly documented fashion. The high-fear message spoke more in terms of personal danger than the
low-fear message and was, thus, more tailored to responses on safety.

Both in the second and in the third parts of the question, dealing with the use of nuclear power as a solution to the energy crisis and its desired use in the future, respectively, the high fear and low fear messages proved equally persuasive in changing attitudes from that indicated in the control responses. In short, when looking at the overall results, the hypotheses were partially supported, but only in the sense that the speeches were persuasive, though, not especially different from each other, except on the question of nuclear safety (directly related to the language of the high-fear speech).

The results from the overt behavioral test showed slightly different results. In this portion of the test a second control condition (totally uncontaminated by earlier experimenter materials) was added, in order to check for the possible effects of sensitization to the issue by the questionnaire: either, by its mention of nuclear power, or by the subjects' suspicion of a connection between the questionnaire and the letter. No such evidence was found. The purpose of this overt behavior test was to see if any persuasive effects of the speeches were strong enough to engender public commitment to a controversial issue. Response on behavioral testing is an indication of both the attitude towards the issue and the attitude towards the situation (Rokeach, 1968). Such letters in
the mail are a common form of solicitation for support in our lives, and so this overt behavioral test was used to measure attitude change in a less "academic" setting. Results of this test indicate that only the high-fear speech had a significant \( p < .05 \) persuasive effect. This might indicate that over several days, the low-fear attitude change is lost while the high-fear attitude change stays strong or gains; or, it might indicate that the initially, more-intense high-fear message is strong enough to persuade the subjects to provide their public support. Actually, these results are probably unreliable due to the small cell size and give results that would be more meaningful if they could be tested in terms of ego involvement and whether certain subjects are more inclined than others to sign and return such post cards. The test results generally support those of the attitude data and point to the fact that the attitudes towards the issue. A total field experiment of this form would be highly interesting, but would be quite costly due to the characteristically low percentage of return from mailed solicitation, and would, therefore, require a high amount of mailing.

This research differs greatly from earlier fear appeal studies in the efforts taken to assure a convincing and effective treatment. The pilot studies established that there were no audience-perceived differences of source credibility, the speaker's
intentions and speech bias, and the use of sources and facts between both speeches. The only measured active variable was anxiety. Comments from the audience after the speech indicated that the quise of the speaker was effective and that even when subjects disagreed with his conclusions, they still retained a favorable personal attitude towards him.

In terms of fear appeal research in general, these findings do not take away from any earlier conclusions, which generally show that increased message intensity, coupled with increasing reassurances and recommendations will be more persuasive than less intense messages. This assumes, of course, that source credibility is not harmed, that the premises and recommendations of the message are accepted by the recipient, and that the intensity of the message has not passed some personal threshold of rejection of the recipient.

Finally, I have some doubt whether the high-fear message used with this topic constitutes the same amount of intensity as high-fear messages in previous studies. With salient, controversial topics, subjects have already heard all of the possible argument and a very intensive message is probably required to change their opinions firmly in any direction. Even though both high- and low-fear messages in this fear-appeal research were pushed to both extremes, the high-fear speech was not as intense as it could have been. However, at that level of intensity, the speech would
have sounded totally ridiculous and alarmist. In all probability, this study's high fear message might be more closely related to the medium-fear speeches in earlier research.

In closing, it is safe to say that increased intensity, presented logically and factually, produces increased attitude change. Future research is needed in the areas of ego involvement and overt behavioral response and how they relate to anxiety-arousing messages with salient, controversial issues.
SUMMARY

This study hypothesized that persons are differently persuaded by varying levels of anxiety-arousing messages according to their personality trait for coping/avoiding, defined as the ability to deal with threatening situations in a problem-solving manner. Copers were expected to be equally persuaded by high- and low-fear messages, while avoiders, who could not handle the intensity of the high fear message, would be more persuaded by the low-fear message than by the high-fear message. This was tested using the highly salient, controversial topic of the danger of nuclear power for electrical power generation. Speech 101 students served as subjects.

Four treatment sessions were held in which two classes heard a high-fear message and two classes heard a low-fear message from a speaker presented to them as a graduate student in physics. Three days later their attitudes toward nuclear power were measured by a masked questionnaire (this also provided data to divide copers and avoiders). Two additional classes were measured to provide a control. An overt behavioral test was mailed to all treatment and control groups (along with a second unexposed control group). This took the form of a letter soliciting support for anti-nuclear legislative action and included a post card which was to be
returned if the subject agreed with the letter (an indication of attitude change as a result of the speeches).

The questionnaire results showed a main effect of the message types on attitudes toward nuclear power. There was no main effect for coping/avoiding nor any interaction of message types with coping/avoiding. This was measured on three issues: safety (high-fear was more persuasive than low-fear which was effective also over the control), whether nuclear power was a solution to energy problems, and the desired uses for nuclear power in the future (both showed equal persuasive effect over control responses). Results from the overt response test showed only a significant difference of high fear groups (combined copers and avoiders) compared to combined control groups. The return on the post cards were low, so cell frequencies were small and these results are unreliable.

Predictions for the differences of copers and avoiders were not supported. The speeches proved to be persuasive, but not greatly different from each other in their overall persuasive effect.
This is a survey by the FTU Department of Communication to assess the attitudes of students towards these issues in light of the upcoming 1976 Presidential Elections in November. Please check off the blank which best describes your honest attitudes toward the statement in each one of the THREE response to each statement.

1. Abortion must be considered in this way:

2. The sale of military weapons by the United States to other countries is:

3. The economy of the United States can be described as:
   - must be saved: ___ : ___ : ___ : ___ : ___  must be radically changed: ___ : ___ : ___ : ___ : ___

4. The use of nuclear power for electrical power generation can be described as:
   - must be increased: ___ : ___ : ___ : ___ : ___  must be eliminated: ___ : ___ : ___ : ___ : ___

5. Welfare in the United States is:

The following section will allow us to determine if any personality biases affect groups of attitudes. Please check off the ending which you feel best completes the sentence stem.
1. A crippling disease is:
   - a handicap.
   - very painful.
   - jealousy.
   - my greatest concern for someone.
   - polio.
   - God's Will.

2. If I am ignored:
   - I get very upset.
   - it hurts me.
   - I feel self-conscious
   - I resent it.
   - so what.
   - I can amuse myself.

3. My greatest fear is:
   - dying.
   - surgery.
   - being alone.
   - flying in an airplane.
   - facing the unknown.
   - the way war is going.

4. If I were struck:
   - I would strike back.
   - I would be angry.
   - I'd call for help.
   - I would be in pain.
   - I don't know.
   - by a car, it would shock me.

5. A man's body is:
   - not a thing of beauty.
   - great when it's the right man.
   - a wonderful machine.
   - healthy.
   - different
   - his own to take care of.

6. I get most angry when:
   - someone tries to put me down.
   - I'm accused falsely.
   - nothing goes right.
   - I meet ignorant people.
   - I don't get angry.
   - never
7. I hate:
   ___ being incapacitated.
   ___ bigots and bigotry.
   ___ bickering.
   ___ dirty pictures.
   ___ no one.
   ___ certain TV shows.

8. I cannot control myself when:
   ___ I lose my temper.
   ___ I get excited.
   ___ children are mistreated.
   ___ I'm happy.
   ___ mostly at all times.
   ___ I never lose my temper
APPENDIX B

Dear Citizen,

In recent years, the fight to preserve the environment has taken many forms and has had to face many areas of concern - air pollution, water pollution, overdevelopment, and much more. In these fights it has been the Florida League for Environmental Concern who has been in the forefront to save our state's natural resources.

In the late sixties we led the fight to save the Everglades and prevent the destruction that would have been caused by the construction of a jetport in that area. In recent years, with the aid of the Sierra Club, we fought for and were granted an injunction against the building of the Cross Florida Barge Canal. And it is finally through the efforts of many environmental groups including the League that strides have been made against the overdevelopment of the Tampa - St. Petersburg area.

But now with rising concerns about the energy crisis many would have us turn away from these concerns and side with the quick "solution" to the electrical demands. Because of the ever increasing needs for power, the energy industry wants to develop the nuclear power plant as the major source for electrical power production. Although the industries have promoted the nuclear plants as totally safe, hardly a month goes by without the news of accidents, increased concern within the industry, leakage of radioactive wastes, and the increased proliferation of nuclear materials from peaceful uses to weapons in the Third World.

But now you can help us reduce this growing potential for destruction. The Florida League for Environmental Concern is now sponsoring legislation to put a moratorium on the use of nuclear power on the state and federal levels. With your support, we can get passage of these proposals:

1) The establishment of sensible and compatible state and national energy policies.
2) The halt of all construction of new nuclear power plants.
3) Stricter control on the operation of all existing nuclear plants and the ultimate phasing out of the plants.
4) Massive research and development of alternate energy sources.
We can only do this with your help. Enclosed with this letter you will find a self-addressed, stamped post card. If you support our efforts, make your voice heard and send us the post card. All cards received by us in support of these efforts will be forwarded by the League to all Florida Senators and Congressmen and state Legislators. With your signature, it will be your voice that is heard.

Kim Peters, President
East Central Florida Chapter of the Florida League for Environmental Concern
APPENDIX C

I support legislation to enact a moratorium on nuclear power plants.

Patricia E. Sarpel

signature

10/21/76—date
LIST OF REFERENCES


