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The Effects of Stimulus Flooding Procedures with Acrophobia: A Test of Nonspecific Treatment Effects

Gil Krawitz
Old Dominion University

THE EFFECTS OF STIMULUS FLOODING PROCEDURES WITH ACROPHOBIA: A TEST OF NONSPECIFIC TREATMENT EFFECTS

by

Gil Krawitz
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Approved by:

Glenn R. Caddy (Director)

Raymond H. Kirby

Glynn D. Coates

ABSTRACT

THE EFFECTS OF STIMULUS FLOODING PROCEDURES WITH ACROPHOBIA: A TEST OF NONSPECIFIC TREATMENT EFFECTS

Gil Krawitz
Old Dominion University
Director: Dr. Glenn R. Caddy

Twenty acrophobics recruited from the community and 11 undergraduate student acrophobics were assigned randomly to either a stimulus flooding condition or a placebo control condition. Initially, care was taken to ensure that the treatments were not significantly different on the dimensions of treatment credibility and generated expectancy for improvement. Additional measures of expectancy for improvement and treatment believability were taken during and after treatment. Results indicated that neither treatment was significantly different on any of the expectancy measures or on behavioral and self-report measures of outcome performance. Furthermore, subjects' belief in the efficacy of treatment was significantly correlated with improvement on the outcome measures. In a separate analysis of the data obtained from student and nonstudent subjects, it was found that only nonstudents responded differentially to treatment. The need to employ experimental procedures controlling for equality of treatment credibility and generated expectancy for improvement in studies examining the effectiveness of flooding therapy and the

implications for differing response to treatment for different subject populations are discussed.

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Introduction

Since Wolpe (1958) described systematic desensitization (SD), numerous studies have verified its positive therapeutic effects on a variety of different target behaviors. Although the efficacy of SD has been well documented (e.g., Bandura, 1969; Paul, 1969), theoretical explanations for the observed therapeutic effects are still under contention (e.g., Davison & Wilson, 1973).

Most studies investigating SD contrast SD or some combination of hypothesized essential components of SD with a placebo treatment to control for nonspecific treatment effects (e.g., Paul, 1966). Recently, this design, and the conclusions that have been drawn from it, have been criticized on a number of grounds (Kazdin & Wilcoxon, 1976; Lick & Bootzin, 1975; Davison & Wilson, 1973). These criticisms have centered on the effects of differential therapeutic expectancies, and the failure of the design to fully control for nonspecific treatment effects. Research conducted within the framework of this criticism has investigated (a) the effects of varying expectancies in SD treatment groups, (b) the comparison of SD with high credibility pseudotherapy control groups, and (c) the differential credibility and expectancy for improvement of treatment and control procedures. These research areas will now be discussed in greater detail.

(a) Investigators seeking to manipulate expectancy for change in SD procedures have attempted to increase the efficacy of SD by increasing the subject's belief that the treatment will work. In all cases, the therapy itself (SD) remains constant for all subjects. Expectancy manipulations have generally followed one of two tracks: either the subjects had been informed they were receiving therapy and expectancies for improvement were then altered by administering different instructions to groups, or the subjects had been informed that the SD they received was either an established therapy technique or some experimental or neutral procedure. Studies which have followed the first strategy have shown nonsignificant differences in improvement with groups receiving positive, neutral, or negative suggestions for improvement (McGlynn, Mealiea, & Nawas, 1969; Fishman, 1970; Lomont & Brock, 1971; McGlynn, Reynolds, & Linder, 1971b; McGlynn & Mapp, 1970; Wilson & Thomas, 1973). Studies which have followed the second strategy have demonstrated inconsistent results. Some studies have suggested that presenting SD as therapy was more effective than the same procedure presented as an experiment (Miller, 1972; Leitenberg, Agras, Barlow, & Oliveau, 1969; Oliveau, Agras, Leitenberg, Moore, & Wright, 1969). Other studies have found SD presented as therapy to be no more effective than SD presented as an experimental procedure (Borkovec, 1972; McGlynn, Reynolds, & Linder, 1971a; Rosen, 1974). Evaluation

of these experiments is difficult because many of these studies did not independently assess the effects of differing instructions or manipulations on the subjects' actual expectancies (Rosen, 1976). Certainly, for example, subjects who are therapeutically oriented are provided with information (e.g., rationales, instructions, goals, etc.) which experimentally oriented subjects may not have available to them. The effects of such differences in treatment have yet to be determined.

(b) The possibility that SD induces behavioral change by nonspecific treatment effects also has been investigated by contrasting SD and highly credible placebo therapies. Marcia, Rubin, and Efran (1969) improved upon highly popular attention placebo manipulations (e.g., Lang, Lazovik, & Reynolds, 1965; Paul, 1966) by comparing SD with a placebo treatment (T-scope therapy) high in credibility and expectancy for improvement. This experiment was the first to report a failure to achieve a significant difference between SD and a placebo control treatment. Although this study has been severely criticized on methodological grounds (Bandura, 1969; Davison & Wilson, 1973; Rimm, 1970) it raised the question that SD might be better than some control conditions because of its greater credibility and because it generated greater expectancies for improvement. Marcia et al.'s basic findings have been replicated and confirmed by Lick (1975), Tori & Worell (1973), D'Zurilla, Wilson, & Nelson (1973),

and McReynolds, Barnes, Brooks, and Rehagen (1973). On the other hand, several studies have demonstrated greater improvement for SD over highly credible control procedures (Brown, 1973; Wilson, 1973; Steinmark & Borkovec, 1973). It is difficult to evaluate and compare these conflicting results due to several factors. Firstly, there are several uncontrolled and unassessed sources of variance in these experiments, as pointed out by Lick and Bootzin (1975), (e.g., subjects' attitude and motivation for treatment, and differing levels of subjects' fear intensity). Secondly, even though the SD and placebo groups did not differ significantly in the amount of improvement of the subjects within them, it does not necessarily follow that the SD subjects improved because of the same nonspecific treatment effects which were presumed to be functioning in the control procedures. In this regard, Kazdin and Wilcoxon (1976) note that different mechanisms may lead to very similar therapeutic ends. Thirdly, and most importantly, although the pseudotherapies used in these experiments were high in credibility and positive outcome generation, they may not have been equal to SD on these dimensions. Hence differing expectation of therapeutic gain may still account for outcome differences.

(c) Studies examining the possibility of differential credibility of treatment and control procedures have been stimulated by the criticism that unless the active treatment and inert placebo therapies provide the same degree of expectancy for therapeutic gain, the placebo group cannot be

said to control for nonspecific treatment effects. Borkovec and Nau (1972) compared the rationales of various treatment and control conditions on the credibility dimension using college students to rate each rationale for treatment credibility. It was found that the rationales employed in SD and implosion therapy were more credible than the rationales employed in the control group condition.

Nau, Caputo, and Borkovec (1974) asked their subjects to simulate the outcome effect they thought would be appropriate for different treatment (SD and implosion) and control procedure rationales. Again, these investigators found the treatment rationales to be more credible than control rationales. Studies such as these suggest that the treatment and control conditions typically employed in behavior therapy research may provide differential expectancies for improvement.

Additional, and probably more valid, data bearing on this issue come from studies which assessed subjects' expectancies of therapeutic gain while they were actually undergoing treatment. McReynolds and Tori (1972) compared a SD treatment and a pseudo treatment control condition (i.e., relaxation treatment) on veridical and bogus measures of anxiety and found that SD was superior to the control procedure when measured in terms of a behavioral approach task and also in terms of a bogus fear assessment. In this study the differences in treatment effects appeared both on the

target fear assessment and also on the nontarget fear assessment. Such a finding suggests the existence of a generalized nonspecific treatment effect. In a somewhat similar vein, Wein, Nelson, and Odom (1975) compared SD with two forms of the control condition used by D'Zurilla et al. (1973). In this study all the conditions initially were equated for the generated degree of expectancy for improvement. Wein et al. found the SD procedure to be equal to one of the control groups on reducing behavioral avoidance, and inferior to both control groups on reducing self-reported fear. Further, Lick (1975) found equivalent therapeutic effects for SD and a placebo control condition equated with the SD condition in its capacity to induce positive expectations of therapeutic improvement.

Given the weight of the aforestated research findings, it seems most reasonable to suggest that the design comparing SD to some inert pseudotherapy control procedure may not be parceling out nonspecific treatment effects. In fact, Kazdin and Wilcoxon (1976), in their comprehensive evaluation of the SD methodology, reviewed the literature and cited 98 SD studies which included at least one attention placebo or treatment element control condition. These control procedures were expected to balance nonspecific treatment effects upon resultant improvement for all treatment groups. However, of these 98 studies, only six actually measured the subjects' expectancy for improvement and credibility of

treatment condition, thus allowing for a comparison of treatments across these dimensions. The other studies did not address the issue. Of the six studies which assessed the credibility and expectancy dimensions, five compared SD to an equally credible control condition. Remarkably, only one of these studies (Gelder, Bancroft, Gath, Johnston, Mathews, & Shaw, 1973) demonstrated SD to be superior in therapeutic gain to the placebo control. The other studies did not find SD to be significantly more effective than equally credible pseudotherapy procedures. Thus empirical support for the capacity of SD therapies to effect change because of specific treatment ingredients independent of treatment credibility and expectancy parameters is provided by only one study.

While most of the research evidence bearing on the aforestated issues has been collected with investigations of SD, there is reason to believe that the same phenomenon may be observed in other behavior therapies, especially stimulus flooding (sometimes termed implosion).[1] Beyond apparent treatment similarities, there is some experimental evidence suggesting that nonspecific treatment effects (e.g., clients' differential expectancies for success generated by treatment and control groups) may be valid for these types of therapy as well as with SD. Borkovec and Nau (1972) and Nau, Caputo, and Borkovec (1974) found SD and flooding to be equally credible therapies, with both being more credible than several control procedures. Other studies, which compared SD

with flooding in terms of therapeutic outcome found no significant differences between the two conditions when both had generated equal credibilities and expectancies (D'Zurilla et al., 1973; Gelder et al., 1973). The difficulty with extending these conclusions more generally to flooding is that flooding treatment lacks the kind of procedural standardization found in the SD literature. A brief review of the flooding literature will indicate some of the problems involved.

One of the most crucial areas lacking empirically supported standardization is the optimum time necessary for the extinction effect. Stampfl and Levis (1967) recommend holding a patient at a high level of anxiety in a number of hierarchically organized scenes until a significant diminuition of anxiety occurs. However, it does not seem to be necessary to diminish anxiety significantly to each scene. There may be a carry over of residual anxiety from one scene to the next, such that the total length of the session, not the length of each scene, may be the critical factor, especially as the optimum time necessary for the flooding of each scene appears to be in doubt. Rachman (1966) flooded three spider phobics with 10 two-minute scenes through 10 sessions and found no improvement for the flooding group over a control group. On the other hand, Mathews and Shaw (1973) flooded 10 spider phobics with 6 eight-minute scenes in a single session, and achieved significant improvement.

Of course, Rachman's low number of subjects may have accounted for these differing results. Borkovec (1972) flooded 12 snake phobics with multiple scenes of 2-3 minutes duration each for a total of 50 minutes through four sessions. Results showed that flooding treatment produced a decrease in fear. In addition, varying results between studies have been reported with different session durations, and differing numbers of flooding sessions, even when similar designs were employed. Table 1 presents a number of studies using similar designs giving rise to divergent conclusions. The top half of the table includes studies which flooded subjects in a single session. The bottom half includes studies in which subjects were flooded over multiple sessions.

Furthermore, flooding may be conducted by a live therapist or by taped therapy. Levis (1974) claims that "tape-recorded presentations violate the implosive (flooding) therapy procedure in two respects: (a) the cues presented are not tailor-made to a given subject's history or altered by a subject's feedback or lack of it; and (b) avoidance responses on the part of the subject during the session cannot be blocked or extinguished" (p. 156). However, in defense of taped therapy, it must be pointed out that escape prevention is a matter of degree, even with a live therapist. Human subjects are at all times free to leave treatment either overtly or covertly. Some investigators (e.g., Rachman, 1966) have reported that several subjects admitted covert escape-avoidance responses during live therapy.

Table 1

A Summary of Some Flooding Studies

Study	Number of Sessions	N	Session Duration	Results
Kirchner & Hogan, 1966	1	20	39 min.	a
Orenstein & Carr, 1974	1	8	39 min.	b
McCutcheon & Adam, 1975	1	4	20 min.	b
		6	60 min.	a
Mathews & Shaw, 1973	1	10	48 min.	a
Hekmat, 1973	1	10	40 min.	b
DeMoor, 1970	5	9	20 min.	a
Everaerd et al., 1973	6	14	90 min.	a
Boulougouris et al., 1971	6	16	50 min.	a
Fazio, 1970	3	6	29 min.	b
Mealiea & Nawas, 1971	5	10	30 min.	b

a = significant improvement
b = no significant improvement

Recent studies which have used taped therapy and demonstrated significant fear reductions for flooding therapy are further support for the efficacy of tape-recorded therapy (e.g., Mathews & Shaw, 1973; McCutcheon & Adam, 1975).

Aside from lack of standardization in the treatment packages, comparison of these studies and others concerning the efficacy of flooding procedures is hampered because of gross methodological errors present in much of the research. For example, Stern and Marks (1973), in a direct comparison of in vivo (i.e., in real life feared situations) and imaginal flooding, argue for the superiority of in vivo flooding. However, because the therapists conducted behavioral tests for the in vivo subjects while experimenters conducted the behavioral tests for imaginally flooded subjects, undue influence may have been exerted for in vivo subjects to show greater improvement. Thus their findings can be accepted only with caution. Other methodological errors throughout the flooding literature are discussed in reviews by Smith, Dickson, and Sheppard (1973) and Morganstern (1973).

Different subject populations have also contributed to the confusion of reported results. Some studies have been conducted on clinical patients, both in-patients and out-patients. Others (the vast majority) have used clinical analogue subjects, who are presumably normally functioning people with levels of fear only approximating those found in clinical populations. Most of the differences between

different subject populations relate to degree of generalizability to actual therapeutic situations. The main difficulties with using clinical patients as subjects are: (a) the small number of subjects available, and (b) ethical considerations of using experimental procedures on patients. Bernstein and Paul (1971) have provided an excellent summary of the difficulties encountered when using clinical analogue subjects. Briefly, the experimenter must (a) "demonstrate that his subjects exhibit a measurable anxiety response which is not a function of situational artifacts" (p. 228), and (b) insure that the subjects are interested in relief from inappropriate anxiety--not some payoff (e.g., course credit). In addition, it has been suggested that improvement on a behavioral avoidance measure may be due in large degree to the social cues associated with the test (Bernstein, 1973). It is further suggested that the typical "phobic" analogue subject, the undergraduate student, is likely to be more sensitive to and strongly influenced by these social cues than clinical patients. Rosen (1975) has proposed recruiting highly fearful subjects from general area populations instead of using mildly phobic analogue subjects. He claims success in obtaining large numbers of snake phobics while also being able to use "high" demand screening assessments (c.f. Bernstein & Paul, 1971).

It is clear that much research work should be done investigating flooding with respect to the standardization of

techniques as well as the avoidance of methodological pitfalls which pervade the literature at the present time. However, before initiating such a venture serious consideration needs to be given to the recent work being conducted within the area of SD. Most investigations of flooding employ the same type of design commonly used in SD research, namely, comparing treatment packages, or hypothesized essential components of treatment packages, with an "inert" placebo group to control for nonspecific treatment effects, such as expectancy of improvement. If, as is apparently true in SD research, differential credibilities and expectancies of conditions differentially effect outcome measures, care must be taken in research on flooding to control for such possibilities. It may be that, as Kazdin and Wilcoxon (1976) have suggested, differing credibilities and expectancies for positive outcome may explain the positive treatment effects found in SD and other behavior therapies. Future work designed to explore the efficacy of flooding, and to delineate its critical parameters, may be wasted effort if expectancy for improvement turns out to be the major critical element. If this were the case, future research should not be aimed at the treatment components considered to date but, rather at attempts to maximize client expectancies for improvement.

The study to be reported herein was a direct attempt to investigate the validity of Kazdin and Wilcoxon's suggestion that nonspecific treatment effects could not be ruled

out as a plausible explanation for treatment improvement reported in the SD research. Also, stimulus flooding therapy was used to broaden the hypothesis from SD to another behavior therapy, one which has had varying experimental success, but which is being used clinically. Two conditions were compared: one, a flooding treatment group, and the other, a placebo group, theoretically inert in terms of behavior therapy. It was hypothesized that if the two groups did not generate significantly different treatment credibilities and expectancies for improvement, then no significant differences would be found on outcome measures between the groups.

Furthermore, within-group correlations between credibility and expectancy assessments and self-report and behavioral outcome measures were also examined. As Kazdin and Wilcoxon (1976) have pointed out, "investigators have often spoken of client expectancies for change in a dichotomous fashion, assuming that they were either present or absent. It appears more meaningful to view these effects on a continuum, as a matter of degree, and to speak of the extent to which such effects are generated by various conditions" (p. 732). Few investigators have reported these correlations. Nau et al. (1974), found significantly positive correlations between credibility ratings and simulated treatment responses in three experiments across treatment and control conditions. In an actual therapy study, Wilson and Thomas (1973) found subjects' high expectancy ratings were significantly

correlated with improvement on self-report measures but were not significantly related to behavioral avoidance test performance, across SD and placebo conditions. However, in both studies, credibility and expectancy were not assessed until after treatment. Lick and Bootzin (1975) contend that "once treatment is substantially under way or completed, subject's expectation of therapeutic benefit is likely to be partly a function of treatment-produced improvement" (p. 925). Wein et al. (1975) obtained results in accord with this statement. Equivalent expectancies between groups were obtained before and during therapy, but not at a post-test. It appears that timing of expectancy assessment may be critical. The present study assessed credibility and expectancy before, during, and after treatment. Thus, separate correlations could be obtained between these assessments and outcome measures to investigate this reported pattern. Lastly, differences between mildly phobic undergraduate students, and phobics recruited from the general population could be examined to see if level of fear had a differential effect in this situation.

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Method

Experimental Design

A two group design was used in this experiment. The first group received stimulus flooding therapy in a single one-hour session. The second group received a theoretically inert pseudotherapy, also delivered in a single one-hour treatment session. Outcome measures (self-report and behavioral assessments of subjects' fear of heights) were obtained prior to and subsequent to the treatment session. Ratings of treatment credibility and expectancy for improvement were completed by subjects on three occasions during the study: (1) immediately after reading the treatment rationale appropriate to each subject's experimental condition, (2) midway through the one-hour therapy session, and (3) upon completion of the treatment session.

Therapy Rationales and Treatment Tapes

The therapy rationales and taped therapy procedures for the two treatment conditions were developed prior to the recruitment of any experimental subjects. These procedures, however, underwent modification after pre-therapy assessment interviews were conducted, and subject input was used to modify the flooding material employed.

Therapy rationales. Two page descriptions and theoretical explanations of each of the two treatments, flooding and

the inert placebo therapy, imagery control, were developed. After composition, these rationales were presented to a group of 67 undergraduate students from an introductory chemistry class. Thirty-three students, selected randomly, read the flooding rationale. The remainder were presented the imagery rationale. Students were instructed to rate on a 10-point scale the answers to five questions about the rationales as if they, the subjects, were strongly afraid of heights. The questions (similar to those used by Borkovec & Nau, 1972) were: (1) How effective would this treatment be in treating large numbers of people afraid of heights?, (2) How effective would this treatment be in alleviating your own fear of heights?, (3) With what confidence would you recommend this treatment to a friend?, (4) How logical would this treatment be for treating people who are afraid of heights?, and (5) How successful would this treatment be in treating other types of fear?. Analysis of the ratings indicated no significant differences between the two groups on any of the five questions or on a combined mean.

Therapy tapes. Taped therapies were developed in the following manner: For the flooding tape, 10 self-assessed acrophobics from the general community who also scored five or above on item #23 (fear of heights) of Geer's (1965) Fear Survey Schedule II (FSS) were asked to rate a list of 72 situations that were hypothesized to elicit fear from acrophobics. The 30 scenes with the highest mean ratings of

fear were then used to form a new list, called Feared Situations. Twenty non-student acrophobics who were experimental subjects rated the Feared Situations at the close of their pre-therapy fear assessment interviews (see Procedure section). The three scenes receiving the highest mean ratings (skydiving, standing at the roof edge of a tall building, and riding a roller coaster) were selected, and to these was added a scene of the actual target behavior (climbing an open fire-escape). Together, these formed the scenes to be employed in the flooding therapy. Each scene was then expanded into a more complete 15-minute scenario. A 60 minute tape recording of these four scenarios was then produced, using a male voice (normal conversational tone).[2]

The imagery therapy tape first presented subjects with 20 minutes of deep muscle relaxation instructions, ostensibly to aid the recall of potentially anxiety-producing material. For recall practice, the subject was then instructed to recall frightening and pleasing scenes from childhood, none of which involved heights. Following this, each subject was asked to recall numerous scenes from his or her past, involving parents and significant others, that did pertain to heights. An attempt was made to avoid high levels of anxiety or to simulate flooding techniques in any way. In addition to a short period of free association to images of their parents, subjects were asked to recall events from the recent past in which they were afraid and not afraid of heights, and

to try to notice differences between the situations. Again, these exercises were constructed in such a way that flooding techniques were avoided. The end of the taped therapy contained instructions for the subject to reflect upon past and present experiences and to look for patterns that might expose unconscious factors that caused and maintain their fear of heights. The order and length of exercises were arranged so that with time for relaxation and reflection, the total treatment time was 60 minutes. This tape utilized the same male voice as the flooding tape. It was thought that this brief presentation would be theoretically inert.

The two tapes were rated in terms of credibility and expectancy generation before use. Twenty undergraduate students who were self-labeled acrophobics and who volunteered to participate in the experiment, but who were not used in the actual treatment experiment, were randomly divided into two groups of 10. One group listened to the flooding tape and the other listened to the imagery tape. Subjects rated the tape they heard according to the same five questions used after the rationale. No significant differences were found between the groups on any of the individual question ratings or on the mean of the questions.

Subjects

Forty-four, self-labeled, acrophobics were recruited from the general community, primarily through newspaper announcements. Sixteen of these subjects did not pass the

screening criteria (see under pre-therapy assessment interview). An additional eight who were accepted into the experimental program did not complete all phases of the study, hence their data were not included. Of these dropouts, only three received treatment (one from the flooding group and two from the imagery control group). The 20 subjects from the general community who completed the study comprised four males and sixteen females. Their mean age was 39.8 years and ranged from 19 to 59 years.

Eighteen undergraduate psychology students from Old Dominion University responded to a research participation sign-up sheet. Seven of these subjects did not meet the selection criteria. The remaining 11 all completed the program. Four of these subjects were males and seven were females. Their mean age was 25.3 years and ranged from 18 to 49 years. These subjects all received course research credit for their participation.

Apparatus and Setting

All therapies were delivered by tape recording in a 3 x 4 m windowless office, furnished with a desk and comfortable chair. Behavioral avoidance tests (BAT) were conducted on a nearby outside fire-escape. The height from the ground to the first level was 5.03 m in 22 equal steps. Four additional levels, each measuring 3.20 m in 14 equal steps were used, giving a total height of 17.83 m. All steps and landings were composed of metal grids through which the ground was visible.

Procedure

Pre-therapy assessment interview. All subjects were thoroughly assessed by interview prior to final acceptance into therapy. At the start of this phase, the investigator explained that no therapy was to be given during that session, but that the purpose was to assess the subject's fear of heights. It was emphasized that the subject's participation was completely voluntary, that participation could be terminated at any time, and that he or she would in no way be pressured to do anything that made him or her unduly anxious. All subjects signed an informed and voluntary consent form, and then completed a personal history questionnaire which requested information on the development of their primary fears. Subjects next completed the FSS. Community recruited acrophobics also rated their fear to the Feared Situations list, which was used to construct the flooding therapy tape.

Subjects were then asked to perform the behavioral avoidance test. They were driven to the site by a second experimenter, who was blind to the experimental conditions to which subjects were assigned, the therapy content, and the credibility and expectancy ratings. Subjects were given a copy of and were read the following BAT instructions:

> There are many ways to evaluate fears. We can ask people to tell us how afraid they are or think they would be in a given situation, and some of the paper-and-pencil tests we use are these types of fear assessments. However, the easiest, most efficient way to measure fear is simply to observe people in fear situations, and that is what we will be doing here at the fire-training tower today. In order to obtain an

> extremely objective measurement of your fear of heights, we are going to give you the opportunity to see how high you are willing to climb on the tower. Please do not be alarmed at this because you do not have to do anything you are too afraid to do.
>
> The test is very simple, and this is how it works. There are six stair landings, counting ground level. At each landing, as you ascend, you are asked to stop and rate your level of fear on the provided form with 10-point rating scales. When you decide that you are unwilling to climb any higher, stop, and record the highest point you have reached. Also, when you reach your highest point, we would like you to estimate the amount of fear you think you would have at each of the remaining levels. If you climb to the top, obviously, you need not do this.
>
> Remember, it is important that you climb the fire-training tower only as high as you feel comfortable. One index of how afraid you are is, of course, that point where you decide to come down. The other will be your ratings of fear.

After the fear assessment procedure, subjects were included in the experiment if they met two criteria: (a) they scored five or above in response to item #23 on the FSS, and (b) they failed to climb to the top level of the fire-escape (level 6).

Treatment session. Phobic subjects were assigned to one of two treatment conditions, with the constraints of equal proportions of male and female subjects, and student and non-student acrophobics in each group. Subjects were greeted in the therapy office by the experimenter and were given the rationale appropriate to their treatment condition. After reading the rationale, subjects were asked to rate their treatment on the five standard questions. Instructions

emphasized that these treatments had not been previously used to treat acrophobics, and that they were to judge the treatment from their perspective as acrophobia experts. Following the rationale, subjects completed a Frustration Tolerance Test (FTT). This was a bogus task similar to that used by McReynolds and Tori (1972). It was designed as a measure of treatment credibility and expectancy for change.[3] Upon completion of these tasks, subjects were instructed to turn on the tape recorder, following which time the experimenter left the room. Taped instructions preceding both therapies stated the necessity for subjects to participate actively in the session by using their imagination. Approximately halfway through each tape there was a brief pause. During that interval, subjects were instructed to rate the treatment to that point on the same questions that followed the rationale. At the conclusion of each tape, subjects rated the entire treatment on the standard questions, and summoned the experimenter, who then scheduled a post-therapy fear assessment interview.

Post-therapy assessment interview. At this interview, subjects again completed the FSS and FTT. Subjects were then asked to complete a post-therapy BAT identical in form and procedure to the pre-therapy BAT, including the subjective anxiety ratings. Lastly, at the end of the experimental program, subjects were mailed a debriefing statement which explained in detail all aspects of the study and their

part in it. Subjects were invited to mail back comments and to contact the experimenters if they wished personally to discuss the study.

Results

Outcome Analysis

There were two demographic variables utilized; the age of the subject and the number of years that each subject reported being acrophobic. The three dependent variables used were the highest level achieved on the BAT, a mean of the self-reported fear at each level of the BAT (called Fear), and the self-rated fear in response to item #23 (fear of heights) on the FSS. In addition, there were two populations of interest; student and nonstudent subjects.

Demographic variables analyses. Table 2 shows the means and standard deviations of both demographic variables for all subjects combined and for the two subject samples, separated into treatment conditions. A 2 x 2 factorial unweighted-means analysis of variance was performed on these data. Factors were subject population (students or nonstudents) and treatment condition (flooding or imagery control therapy). Results of analyses (Table 3) indicated a significant main effect for population; nonstudents being significantly older than students. Simple main effects analyses showed that this relationship held for both the flooding and imagery conditions. No other significant differences were found for the age variable. Similar analyses for the reported number of years being phobic revealed that nonstudents reported being

Table 2

Demographic Variable Scores

	Flooding Condition		Imagery Condition	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.
All Subjects Combined	(n = 15)		(n = 16)	
Age	32.3	14.9	37.1	12.1
No. Years Phobic	20.1	11.9	25.2	11.6
Student Subjects	(n = 5)		(n = 6)	
Age	21.8	5.3	28.8	11.9
No. Years Phobic	12.2	5.3	20.5	13.6
Nonstudent Subjects	(n = 10)		(n = 10)	
Age	37.6	15.6	42.0	9.7
No. Years Phobic	24.1	12.5	28.0	9.8

Table 3

Demographic Variables Analysis of Variance

Source	SS	df	F
I. Age of Subjects			
Treatment (T)	218.05	1	1.52
Population (P)	1498.04	1	10.51**
P for Flooding	891.21	1	6.25*
P for Imagery	634.38	1	4.45*
T X P	27.48	1	<1
Residual	3848.00	27	
II. No. Years Phobic			
Treatment (T)	265.67	1	2.16
Population (P)	671.80	1	5.48*
P for Flooding	505.50	1	4.12
P for Imagery	200.81	1	1.63
T X P	34.55	1	<1
Residual	3307.20	27	

* $p < .05$

** $p < .01$

phobic for a significantly longer period than students. However, this difference was no longer significant when subjects were contrasted within each treatment condition.

Dependent variables analyses for pre-therapy scores. Table 4 contains the means and standard deviations of the three dependent variable pre-therapy scores for all subjects and for student and nonstudent subjects separately, further subdivided into the two treatment conditions. A 2 x 2 (population by treatment) unweighted-means analysis of variance was conducted for each variable. Results for the BAT, summarized in Table 5, show that students climbed significantly higher than nonstudents on the pre-therapy BAT within both treatment conditions. Analysis of the Fear variable, also presented in Table 5, demonstrates that students reported significantly less fear than nonstudents while performing the initial BAT. This relationship existed within each treatment condition as well as overall. No significant differences were found between the flooding and imagery control groups on any of the pre-treatment dependent measures, nor were any significant differences indicated between subject populations on the pre-therapy FSS (Table 5).

Dependent variables analyses for post-therapy scores. Because of the significant differences found between the two subject populations on pre-therapy assessment, analyses of covariance were performed on the BAT and Fear post-therapy scores, using the respective pre-therapy scores as the

Table 4

Dependent Variable Scores

	Flooding Condition		Imagery Condition	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Pre-Therapy Measures				
All Subjects Combined	(n = 15)		(n = 16)	
BAT	3.2	1.1	3.2	1.4
Fear	6.8	1.0	7.2	1.1
FSS	6.5	0.7	6.5	0.5
Student Subjects	(n = 5)		(n = 6)	
BAT	4.3	0.4	4.1	0.8
Fear	5.8	0.5	6.5	0.9
FSS	6.2	0.8	6.5	0.5
Nonstudent Subjects	(n = 10)		(n = 10)	
BAT	2.7	0.9	2.6	1.3
Fear	7.3	0.8	7.7	0.9
FSS	6.6	0.7	6.5	0.5
Pre- to Post-Therapy Change				
All Subjects Combined				
BAT	1.1	1.5	0.8	1.0
Fear	1.0	2.0	1.2	1.1
FSS	0.5	1.2	0.6	1.0
Student Subjects				
BAT	0.2	1.2	1.2	1.2
Fear	0.0	1.8	1.6	1.1
FSS	0.4	1.1	0.7	0.8
Nonstudent Subjects				
BAT	1.5	1.4	0.5	0.8
Fear	1.5	1.9	1.0	1.1
FSS	0.6	1.3	0.6	1.1

Table 5

Pre-Therapy Dependent Variables Analysis of Variance

	Source	SS	df	F
I.	BAT			
	Treatment (T)	0.0	1	<1.00
	Population (P)	17.1	1	16.10**
	P for Flooding	9.3	1	8.75**
	P for Imagery	8.0	1	7.57*
	T x P	0.7	1	<1.00
	Residual	28.8	27	
II.	Fear			
	Treatment (T)	2.1	1	3.05
	Population (P)	12.4	1	17.74
	P for Flooding	7.9	1	11.30**
	P for Imagery	4.7	1	6.71*
	T x P	0.2	1	<1.00
	Residual	19.1	27	
III.	FSS			
	Treatment (T)	0.7	1	<1.00
	Population (P)	0.3	1	<1.00
	T x P	0.3	1	<1.00
	Residual	11.2	27	

* $p < .05$

** $p < .01$

covariates. Factors were treatment condition (flooding or imagery control) and subject population (student or nonstudent). The results are summarized in Table 6, showing that main effects were not significant in either analysis, but that the two-way interaction was significant for the BAT. Figure 1 illustrates the greater improvement shown by nonstudents over students in the flooding condition, and by students over nonstudents in the imagery condition, as measured on the BAT. Thus, behavioral response to treatment was influenced by the population from which the subject came.

Expectancy Analysis

Measures of treatment credibility and expectancy for improvement consisted of five questions asked of each subject at three stages. The identical questions were asked after the presentation of the treatment rationale, half-way through treatment, and after completion of the entire therapy. A mean score was obtained for each subject's rating of all five questions, designated as A (taken after the rationale), B (taken half-way through treatment), and C (taken after the entire treatment).

Comparison of mean expectancy ratings between treatments and populations. Means and standard deviations of expectancy ratings are shown in Table 7. A 2 x 2 factorial unweighted-means analysis of variance, similar to that employed in the outcome analysis, was applied to these data. Results are summarized in Table 8. For the mean treatment credibility and

Table 6

Analysis of Covariance:

Treatment Condition by Subject Population

	Source	SS	df	F
I. Post-Therapy				
BAT	Covariate	27.58	1	20.09***
	Treatment (T)	.91	1	<1.00
	Population (P)	.15	1	<1.00
	T x P	6.52	1	4.75*
	Residual	35.70	26	
II. Post-Therapy				
Fear	Covariate	20.60	1	8.31**
	Treatment (T)	.20	1	<1.00
	Population (P)	.22	1	<1.00
	T x P	7.59	1	3.06
	Residual	64.40	26	

* $p < .05$

** $p < .01$

*** $p < .001$

Figure 1

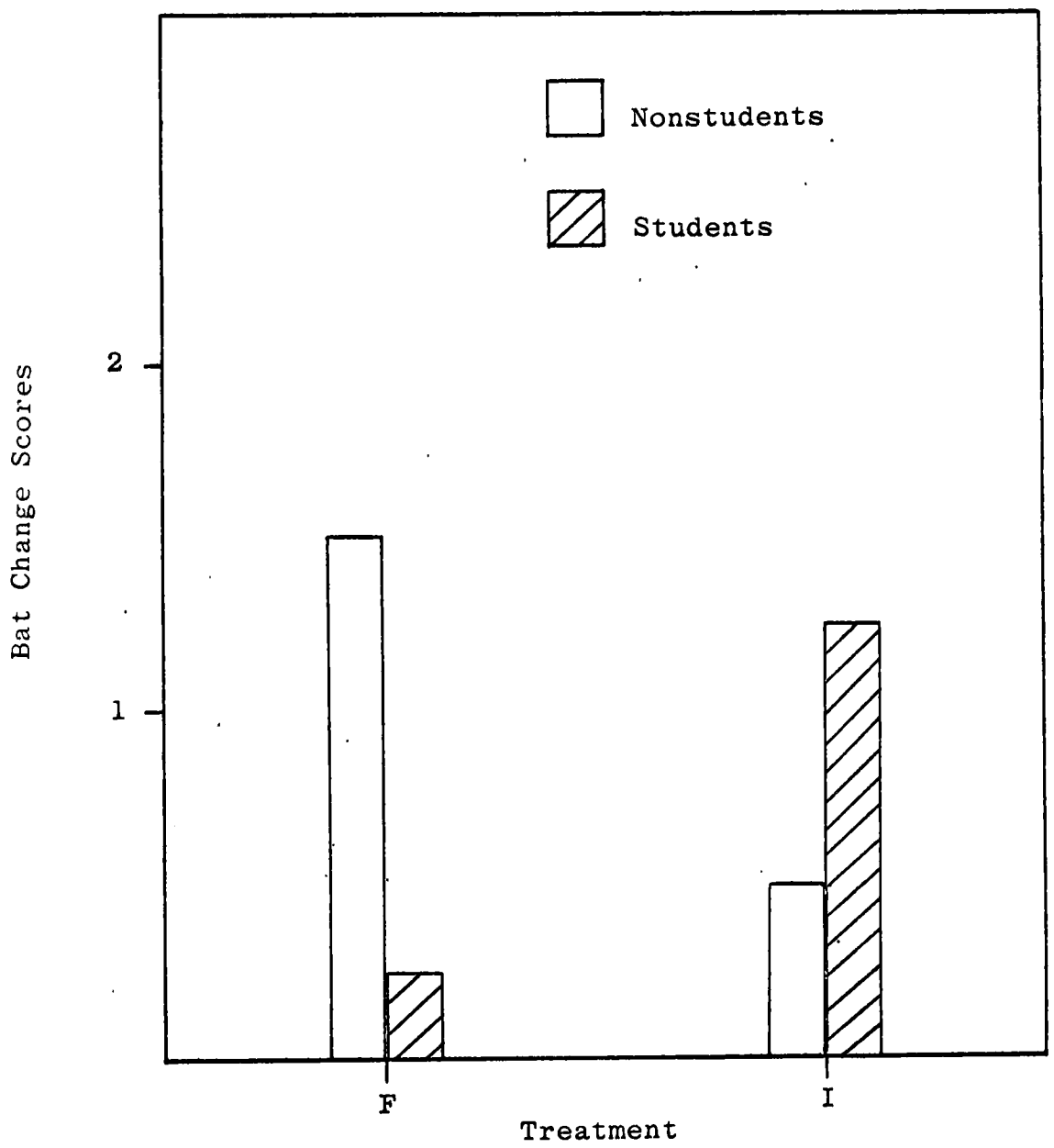

Table 7

Comparison of Treatments on Expectancy Measures

Variable	Flooding Condition		Imagery Condition	
	All Subjects Combined			
	(n = 15)		(n = 16)	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.
A	6.5	1.7	6.6	1.3
B	6.1	2.5	6.4	2.0
C	6.1	2.7	6.1	2.0
	Nonstudent Subjects			
	(n = 10)		(n = 10)	
A	7.0	1.5	6.5	1.5
B	6.9	2.0	5.6	1.7
C	6.9	2.2	5.3	1.6
	Student Subjects			
	(n = 5)		(n = 6)	
A	5.6	1.8	6.7	0.9
B	4.5	2.8	7.8	1.7
C	4.5	3.1	7.5	1.9

Table 8

Expectancy Measures Analysis of Variance

	Source	SS	df	F
I.	A			
	Treatment (T)	0.6	1	<1.00
	Population (P)	2.1	1	<1.00
	T x P	0.7	1	<1.00
	Residual	59.3	27	
II.	B			
	Treatment (T)	7.1	1	1.79
	Population (P)	0.7	1	<1.00
	P for Flooding	20.6	1	5.16*
	P for Imagery	17.3	1	4.33*
	T x P	37.3	1	9.37**
	Residual	107.6	27	
III.	C			
	Treatment (T)	3.5	1	<1.00
	Population (P)	0.7	1	<1.00
	P for flooding	20.6	1	4.81*
	P for Imagery	17.3	1	4.04
	T x P	37.8	1	8.82**
	Residual	115.5	27	

* $p < .05$

** $p < .01$

expectancy ratings obtained after the presentation of treatment rationales, no significant differences were found between subject populations, treatment conditions, or on interaction effects. Analysis of mean ratings obtained halfway through treatment showed an absence of significant findings for main effects. However, the interaction between subject population and treatment condition was determined to be significant. Further inspection indicated that nonstudents rated the flooding treatment significantly higher on the expectancy measures than students did, with the reverse being true for the imagery control treatment. This pattern of students having higher expectancies for improvement in the imagery group and nonstudents showing greater outcome expectancy in the flooding condition was repeated in expectancy measure analysis at the point of treatment completion. In addition, these findings directly parallel those found for the post-therapy BAT scores in the outcome analysis. Thus, nonstudents found the flooding therapy to be more credible and expected greater improvement than students both during and after treatment, and in fact evidenced greater behavioral improvement on the post-therapy BAT. Conversely, students believed more in the efficacy of the imagery control treatment, and demonstrated greater behavioral improvement in that treatment condition.

Correlations. As seen in Table 9, mean credibility and expectancy ratings at A were significantly correlated with

the self-report change scores, but not with the behavioral change scores. Ratings at B and C were significantly correlated with all three of the dependent variables. Thus, as more of the treatment was experienced, expectancy measures were positively related to change in the behavioral outcome measure, as well as with change in the self-report outcome measures. As Figures 2 and 3 illustrate, the same patterns follow when student and nonstudent subjects were examined separately.

Bogus Outcome Measures

Two bogus measures of outcome were used to assess expectancy effects, which together were termed the Frustration Tolerance Test. First was the subject's self-rated frustration to a task of crossing out the digits "2" and "6" from a table of random numbers. Second was the number of rows completed during 15 minutes of the task (see p. 21).

Between treatment differences. Table 10 contains the means and standard deviations for the FTT. There were no significant differences between the two treatment groups on the two bogus-measure change scores for all subjects combined, for student subjects alone, or for only nonstudent subjects. Neither were there any significant differences between students or nonstudents on these two variables across treatments or within the imagery condition. However, in the flooding condition, student subjects showed a significantly greater decrease in rated frustration than did nonstudents ($t[13] = 3.94$, $p < .005$).

Table 9

Correlations Between Expectancy Measures and Dependent Variables (Change Scores)

Expectancy Measures	Dependent Variables		
	BAT	Fear	FSS
All subjects combined (df = 29)			
A	.227	-.590****	-.503***
B	.498***	-.572****	-.378*
C	.550****	-.631****	-.467***
Nonstudent subjects only (df = 18)			
A	.229	-.557***	-.573***
B	.415*	-.457*	-.308
C	.481*	-.584***	-.429*
Student subjects only (df = 9)			
A	.289	-.631*	-.354
B	.631*	-.748***	-.528
C	.672*	-.726**	-.573*

* $p < .05$

** $p < .01$

*** $p < .005$

**** $p < .001$

Figure 2

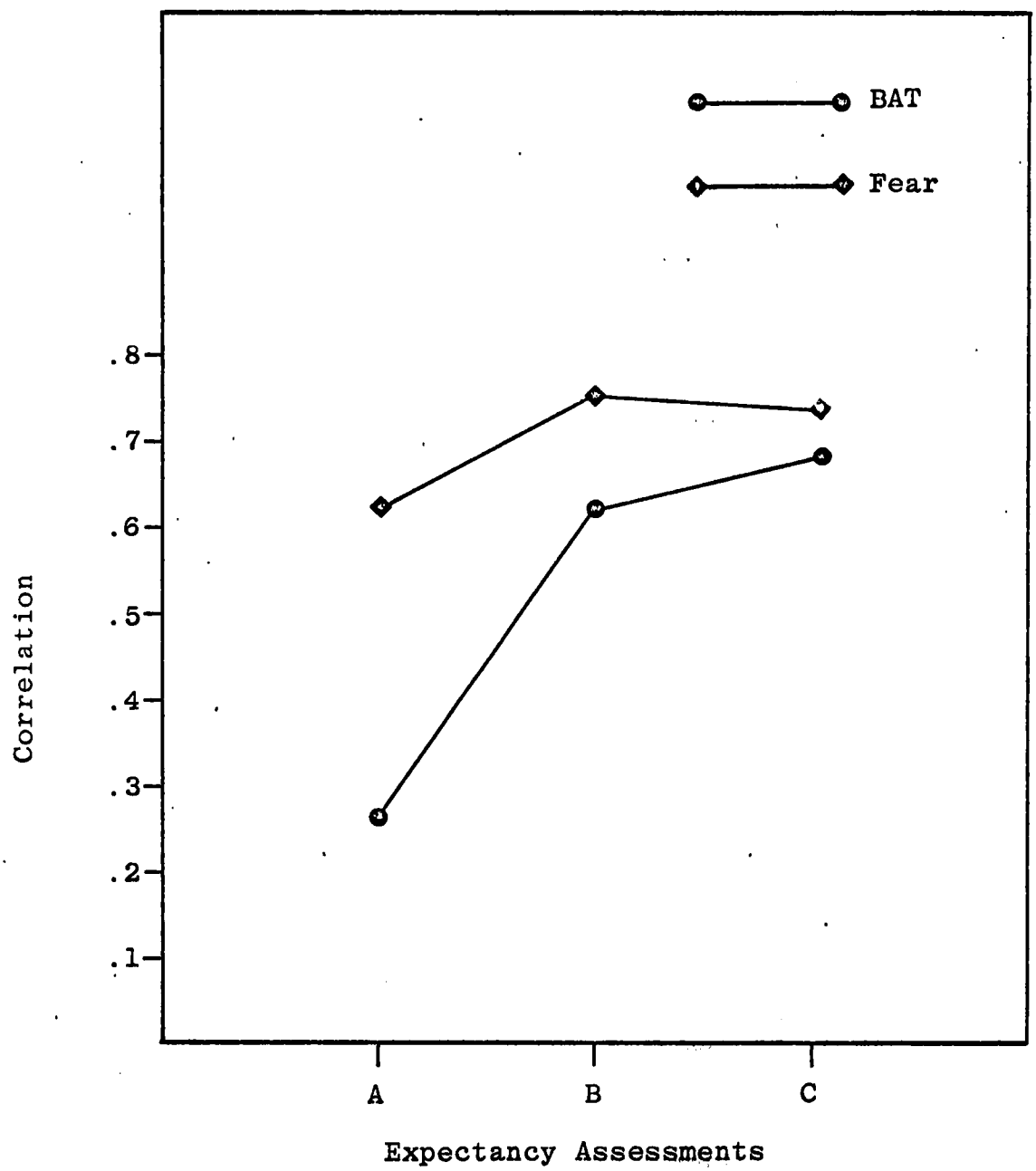
BAT
Fear
.8
.7
.6
.5
.4
.3
.2
.1
Correlation
A
B
C
Expectancy Assessments

Figure 3

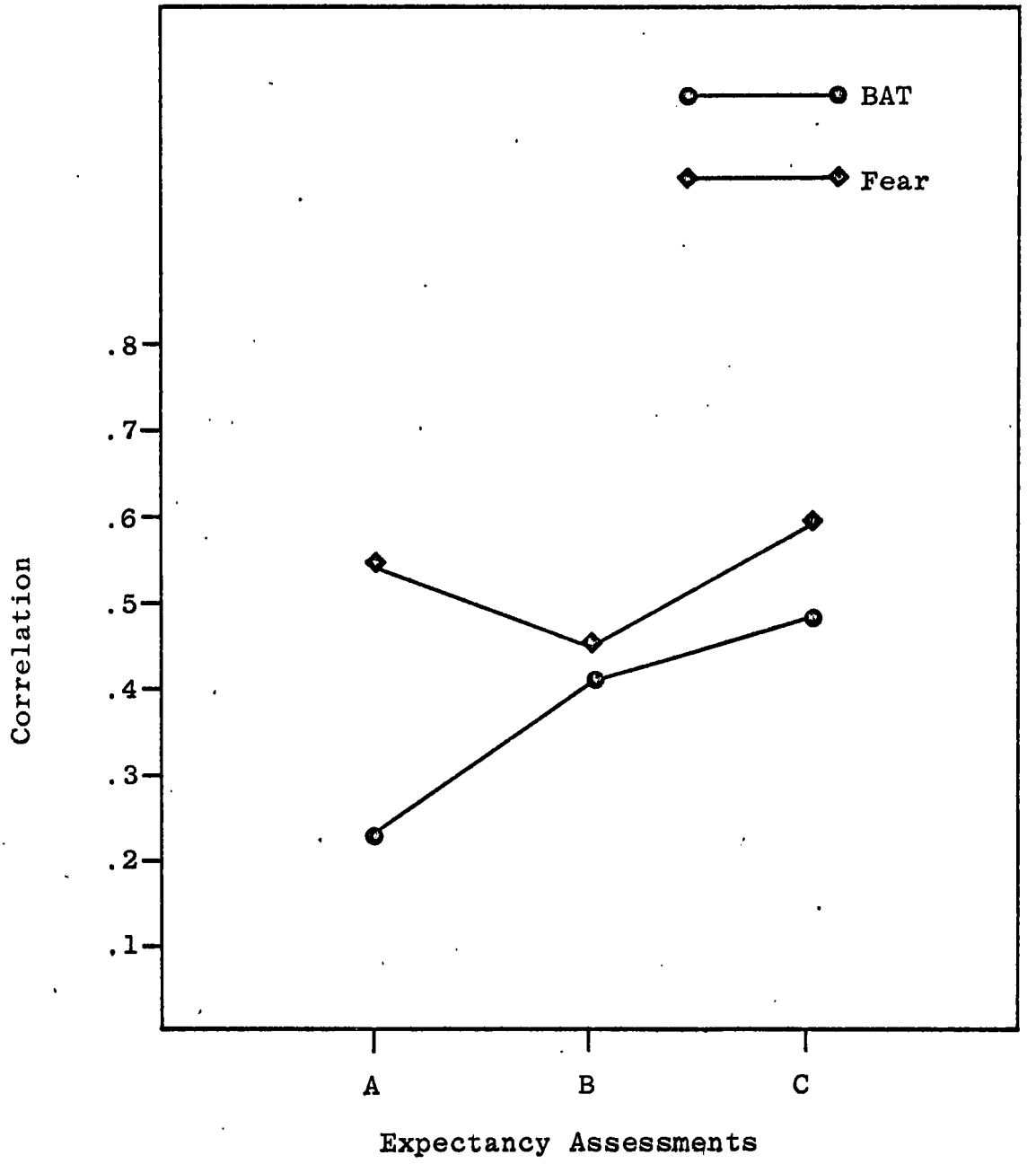
BAT
Fear
.8
.7
.6
.5
.4
.3
.2
.1
Correlation
A
B
C
Expectancy Assessments

Table 10

Means and Standard Deviations for Frustration Tolerance Test Variables

		N	$\bar{X}$	S.D.	t
All subjects combined					
Rated Frustration	I	16	.39	2.25	<1.00
	F	15	.05	1.58	
No. Rows Completed	I	16	12.19	10.49	<1.00
	F	15	5.60	12.20	
Nonstudent subjects	I	10	.54	2.63	<1.00
	F	10	.85	1.14	
No. Rows Completed	I	10	9.30	8.87	1.19
	F	10	3.60	12.34	
Student subjects					
Rated Frustration	I	6	.13	1.63	1.98
	F	5	-1.54	1.03	
No. Rows Completed	I	6	17.00	12.00	1.01
	F	5	9.60	12.18	
Across treatments					
Rated Frustration	S	11	-.63	1.59	1.90
	N	20	.70	1.98	
No. Rows Completed	S	11	13.64	12.09	1.69
	N	20	6.45	10.86	
Flooding treatment					
Rated Frustration	S	11	-1.54	1.03	3.94*
	N	20	.85	1.14	
No. Rows Completed	S	11	9.60	12.18	<1.00
	N	20	3.60	12.34	
Imagery treatment					
Rated Frustration	S	11	.13	1.63	<1.00
	N	20	.54	2.63	
No. Rows Completed	S	11	17.00	12.00	1.48
	N	20	9.30	8.87	

I = Imagery treatment
F = Flooding treatment
S = Student subjects
N = Nonstudent subjects

* $p < .005$

Correlations. Change scores from pre- to post-therapy of the two bogus measures failed to correlate significantly with any of the other expectancy measures for any subject sample. The change score of one bogus variable, rated frustration, did correlate significantly with the change score for self-reported fear on the BAT ($r[29] = .368$, $p < .05$). However, as there were no other significant correlations of bogus measures with outcome variables for any subject population, the single significant correlation appears to be a chance occurance. These results are summarized in Table 11.

Table 11

Correlations Between Outcome Variables and

Frustration Tolerance Test Variables

	BAT	FEAR	FSS	A	B	C
All Subjects Combined						
Rated Frustration (N = 31)	.299*	.368**	.030	.144	.094	.153
No. Rows Completed	.277	.115	.062	.134	.042	.096
Student Subjects						
Rated Frustration (N = 11)	.416	.384	.036	.111	.337	.354
No. Rows Completed	.140	.320	.025	.445	.109	.107
Nonstudent Subjects						
Rated Frustration (N = 20)	.235	.340	.043	.153	.118	.113
No. Rows Completed	.337	.328	.074	.095	.157	.155

** $p < .05$

* $p < .06$

Discussion

In this experiment, overall, flooding therapy was not found to be significantly more effective than the equally credible placebo treatment. This finding parallels that reported by Kazdin and Wilcoxon (1976) for the SD literature. Further support for the potency of the credibility and expectancy for improvement variable is seen in the significant correlations of this measure with self-reported and behaviorally indicated improvement. These results strongly suggest that, within the limits of the present study, subjects' beliefs in the effectiveness of their treatment corresponded to a decrease in fear, regardless of the specifics of the treatment package presented.

As there was reason to believe that student subjects and nonstudent subjects would respond differently to treatment, the data were analyzed separately along this dimension. In the analysis of student subjects' data, subjects in the two treatments did not differ significantly on the two demographic variables measured, age and number of years being acrophobic, nor did they differ significantly on any of the three pre-therapy dependent variables. As treatment progressed, student subjects did not differ significantly in their expectancies for improvement after reading the treatment rationale. However, after receiving half the treatment,

students rated the imagery control treatment significantly higher than the flooding treatment on the expectancy measures. This significant difference endured through the completion of the treatment program, and is reflected in the greater improvement on outcome measures as shown by student subjects in the imagery control condition. In addition, student credibility and expectancy ratings at mid-treatment and post-treatment were significantly correlated with all three of the dependent variables.

Nonstudent subjects also indicated no significant differences between treatment conditions on the demographic variables or on the pre-treatment dependent measures. Likewise, no significant differences were found between those subjects in the flooding and imagery treatments on expectancy ratings following presentation of the treatment rationales. However, nonstudents significantly favored the flooding treatment midway through and following therapy on expectancy measures, and showed greater improvement in that condition as measured by the dependent variables. As was true for the student subjects, the correlations between expectancy measures and outcome variables were significant both during treatment and following treatment.

Comparisons of student subjects with nonstudent subjects indicated that nonstudent subjects were significantly older than students and reported having been phobic for significantly longer periods. Pre-therapy dependent variables

analyses showed that students performed better and with less reported fear on the BAT than did nonstudents. Adjusting for these pre-therapy differences it was found that students favored the imagery control treatment behaviorally, and nonstudents improved significantly more after receiving flooding treatment. These results suggest that although expectancy for improvement and treatment credibility have much influence on outcome performance, nonstudents, unlike students, were also affected by the active treatment condition (flooding), at least as measured by improvement on the BAT, the main criterion of treatment benefit.

The conventional wisdom of experiments using analogue models of clinical populations is that the use of students as subjects is likely to result in a finding of significant treatment effects. Conversely, the more the subject sample approximates a true clinical population, the less likely are significant treatment effects obtained. The results of this study suggest that just the opposite may be true. That is, the closer the subject sample resembles a true clinical population, the more prominent a role specific treatments play. Interestingly, in the only study mentioned by Kazdin and Wilcoxon in which SD was found to be more effective than an equally credible pseudotherapy, actual patients were used as subjects. Those studies which did not show SD to be more effective used analogue student subjects.

As mentioned previously, stimulus flooding techniques share much in common with SD techniques. However, as the two

procedures are not identical, the generalization of these findings to the SD literature may be open to question. Also, although the nonstudent subjects utilized in this experiment more closely approximated a clinical population than students, their use may have affected the results. Therefore, a study contrasting student subjects with real patients using SD may be valuable.

In this study, bogus outcome measures proved disappointing in their ability to further exemplify expectancy effects. Although it is unclear why these results differed from those reported in the literature, the use of such techniques still appears promising to supplement self-reports of treatment believability and expectancy for improvement.

Lastly, one possible argument pertaining to the failure to obtain stronger treatment effects in this study is that delivery of treatment as an audio-taped procedure may be ineffective. In retrospect, this criticism may have merit. However, the successful use of audio-taped therapy as reported in the flooding literature (e.g., McCutcheon & Adam, 1975; Mathews & Shaw, 1973), gave reason to believe that this mode of treatment would be therapeutically operative. Empirical evidence is required to satisfy this question about the efficacy of taped flooding therapy.

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Footnotes

[1]Stimulus flooding treatment for excessive fear and anxiety has become an important tool for behavior therapists. Originally distinct from a similar treatment known as implosive therapy, the two have become synonymous terms describing a wide divergency of specific techniques. Implosion and flooding share many similar components. Each confronts the patient with feared stimuli for a period long enough for hypothesized extinction procedures to reduce fear levels (c.f. Malleson, 1959, and Stampfl, 1961). Their theoretical differences have become less sharp, in practice, over time. For example, originally Stampfl (1961; Stampfl & Levis, 1967) included hypothesized sequential anxiety cues (involving dynamic themes) with situational anxiety cues when, in the opinion of the therapist, repressed reactions to stimuli contributed to the patient's fear. However, two associates of Stampfl, in early implosive therapy investigations, completely omitted hypothesized sequential anxiety cues, but nevertheless, obtained positive results (Kirchner & Hogan, 1966; Hogan & Kirchner, 1967). Prochaska (1971) attempted to evaluate the need for hypothesized sequential cues. One of his groups was treated for test anxiety by implosive therapy utilizing only symptom cues. Another group was similarly treated for test anxiety by implosive therapy, but

utilized only dynamic (sequential cues. Results showed that both symptom and dynamic cues groups improved significantly more than three control groups on an intelligence test, grade point average, and self-reported anxiety on final exams following treatment. However, the study contains so many problems in design, that these findings must be interpreted cautiously. It seems, however, that the large number of studies reporting success with implosive therapy which did not include hypothesized sequential cues argues for the redundancy of using these cues. Furthermore, the need for horrifying, unrealistic cues to elicit maximum levels of anxiety (and as a result, maximum fear reduction), as posited by Stampfl for implosion, has been questioned. Mathews and Shaw (1973), in a comparison of highly arousing, and less arousing situational cues, found maximal fear reduction when less arousing material was used. For these reasons, the term flooding will be used to reference both flooding and implosive procedures in the presented paper, reflecting common practice in this area.

[2]It was felt that these four scenes would: (a) be consistent to some degree with other phobia analogue studies which used stages of the target behavior for flooding or SD material, (b) allow the subjects some degree of control of selecting the flooding material, (c) include as flooding material those particular situational cues which the majority of acrophobics in this study reported as most fear eliciting,

APPENDIX A

Flooding Therapy Rationale

The therapy program you are about to participate in has been used to treat many people with fears other than fear of heights. To the best of my knowledge, it has not been used with acrophobics before, that is, people who fear heights. From your frame of reference as a person familiar personally with fear of heights, and therefore somewhat as an expert in experiencing and perhaps understanding parallel phobias, I would like you to rate the effectiveness of this therapy at several points during the course of the program. These ratings will be your own subjective judgments; there are no expected correct or incorrect answers.

Before the therapy begins, you will be given a complete explanation of the theoretical underpinnings of the treatment program. Following this I would like you to rate the therapy according to the five questions at the end of this form. Please answer them in terms of the special knowledge and experience which you have regarding height phobia.

Lastly, please make sure you have filled in your name in the space provided below. Thank you.

Name:_____ Date:_____

Some psychologists believe that strong fears and the avoidance of feared situations are learned behaviors. The individual is rewarded for that avoidance behavior by fear reduction, and avoidance thus becomes stronger. Consequently, the best way to overcome a strong fear is to unlearn being afraid and learn more adaptive behavior. One technique for doing this is called "flooding."

Flooding is the name for the procedure whereby an individual is asked to imagine a situation which he or she fears, and to keep on imagining it until anxiety and fear reach a maximum. The rationale for this treatment program is that if the individual is prevented from avoiding the situation, eventually the fear and anxiety may diminish. Having learned not to be afraid in one's imagination, the person is then expected to generalize this to real-life situations.

The therapy you will receive consists of a series of situations which you will be asked to imagine, and which may, if you are highly phobic regarding these situations, evoke strong feelings of fear and anxiety. You will be asked to maintain your visualization of these situations, even though you may be temporarily uncomfortable. The therapy has been tape recorded to assure that everyone receives identical therapy, that is, the same order and

intensity of situations. Your therapy will be one session lasting for 60 minutes, and will be conducted in an individual session.

APPENDIX B

Imagery Therapy Rationale

The therapy program you are about to participate in has been used to treat many people with fears other than fear of heights. To the best of my knowledge, it has not been used with acrophobics before, that is, people who fear heights. From your frame of reference as a person familiar personally with fear of heights, and therefore somewhat as an expert in experiencing and perhaps understanding parallel phobias, I would like you to rate the effectiveness of this therapy at several points during the course of the program. These ratings will be your own subjective judgments; there are no expected correct or incorrect answers.

Before the therapy begins, you will be given a complete explanation of the theoretical underpinnings of the treatment program. Following this I would like you to rate the therapy according to the five questions at the end of this form. Please answer them in terms of the special knowledge and experience which you have regarding height phobia.

Lastly, please make sure you have filled in your name in the space provided below. Thank you.

Name:_____ Date:_____

Some psychologists believe that one way to get over a strong fear is to bring to conscious awareness those factors which are responsible for causing and maintaining that fear. These factors may be completely hidden in the unconscious part of the mind, or they may merely be unorganized in the conscious part of the mind. This procedure, whereby an individual recognizes previously unknown factors which determine his or her behavior, is called "insight."

Insight may be gained in a number of ways. Occasionally a person will spontaneously become aware of some of these hidden factors. Other times, someone may tell you directly of the existence of those factors. The rationale for this treatment program, however, is to discover those unconscious factors yourself, through a systematic procedure of investigation. This is usually accomplished with the assistance of a trained professional who can ask probing questions and direct the individual's thought processes.

The therapy you will receive consists of a series of questions, designed by a psychologist, to lead you to insight about those factors which cause and maintain your fear of heights. The questions have been tape recorded and allow plenty of time for you to reflect upon and record your answers. We use tape recorded questions to assure that everyone receives identical therapy, that is, the same order

and manner of questioning. Your therapy will be one session lasting for 60 minutes, and will be conducted in an individual session.

APPENDIX C

Flooding Therapy Instructions and Tape Transcript

Flooding tape instructions:

In the session you are about to participate in, it is of the utmost importance that you be an active participant. Don't passively sit back and listen to the tape. You should try to imagine as clearly and vividly as you can the scenes that are being described to you. Let your imagination flow freely. The more real the scenes can become for you, the better. The more you can feel what you would actually feel in such situations, the better. Don't worry about whether these scenes apply to you or whether they would or could actually happen; just try to imagine them as if they were going on right now. Remember, it is important to actively participate and to freely experience your emotions.

One final instruction. Approximately 30 minutes after the start of the tape there will be a brief pause. During this interval you are asked to rate the tape in answer to the five questions on the form provided. You will have plenty of time to complete this task. Now sit back in your chair, make yourself comfortable, and we will begin.

Imagine yourself standing in line at an amusement park, a very long line, waiting to get onto the roller coaster, one of the highest roller-coasters in the world. You look around you at the other people, wondering if they're as nervous as you are, wondering if they can tell how afraid you really are. See yourself in that line, look up at the roller-coaster and notice how high it is. The latticework of supports is painted white and it doesn't look very sturdy to you. See it, see it clearly. Suddenly a roller-coaster car filled with people goes roaring past. Hear the roar of that car--the sound of the wheels on the rails. Hear the screams of all the people, and think of what it'll be like to be riding that yourself.

The line moves up and it's almost your turn to get on. You're feeling nervous and afraid, you've never done this before. Concentrate on that feeling--you know it well, you feel it every time you have to go somewhere high that you don't want to. Look around and you see the rules to ride written on a wall. You have to be a certain height, you aren't allowed to stand up, and you have to keep your hands in the car at all times. Even the rules make you afraid--maybe you could fall out. You start to sweat as you get to the front of the line. A car pulls up and people rush to get in. The attendent seats everybody and there isn't a

seat for you this time. You have to wait for the next car, but before you can feel any relief you realize that you'll have to sit in the front of the next car and your fear gets worse. The car is coming now and stopping right in front of you. The attendent makes you get on--right in the first seat--and no one else sits with you. See yourself all alone in the front seat of that roller-coaster car. The bar closes you in, not tightly enough you think. Your heart is racing and all that anxiety makes you feel a pit in your stomach. You're really sweating and you're having trouble breathing. The fear is so real you can feel it. You want to get out but you force yourself not to.

It's too late anyway, the car is filled, and it starts to move to the first hill. You can look right over the front edge of the car and see the chain pulling it around the turn. You grip the steel bar tightly with both hands to hold yourself in and you look up to see how high the first hill is. You can really see it clearly; it just seems to go up and up. You can't do anything now but hold on--you feel powerless and panicky.

Suddenly you're thrown against the seat as the car tilts up. You're going up the hill. You can hear the chain as it pulls you up. Listen. It makes a clicking noise as each link of the chain engages. The sound of it causes goosebumps on your skin. You're going higher now, up, up to the top. You look around you and your gaze is drawn to the ground. It

looks so far away, people down there getting smaller and smaller. It scares you so much you have to look away. You look around and see that the crest of the hill is just ahead. It's terrible to be so high up, but you know the worst is yet to come. The car is moving so slowly now--just inching along--you think why can't it go faster so you can get it over with. You're almost to the crest and now the front of the car, where you are, is going over. You look down and see the tracks falling away, so steeply that you can barely see them. And it looks so far down to the bottom. Your stomach is in knots, the sweat is pouring off you. Concentrate on that awful feeling--and suddenly you're over the edge and falling. Your stomach rises to your throat. Only the rail is holding you in the car--you've risen right off the seat. You're falling, falling--that feeling you've always dreaded. You want to scream but can't. The wind is in your face. You can't breathe. It seems that you're falling forever. Just down, down, all the way to the bottom. The fear is horrible.

And then with a rush the roller-coaster hurtles you around a corner. Even though you're going incredibly fast you feel a little relieved because you think you'll never have to feel that horrible feeling again. But then the car starts to slow down, and you see that you're going up the second hill-almost as high as the first--and you think you can't stand it. The car slows down, almost to the top, so

slowly, right up to the crest, and then you're looking over the edge again. Feel it as you start to fall over the edge again. Fear takes control as you grip the rail, trying to stay in the car. You've lifted off the seat again--it feels like the whole car has lifted off the rails and is just falling to the bottom. You're perspiring heavily, your heart is pounding. You pray that the ride will end but it doesn't. As soon as the car hits bottom it rushes up to the next hill.

Imagine yourself standing behind a closed door with your hand on the doorknob. You know that this door opens directly onto the roof of a very tall building, almost 200 feet to the ground. My God, you realize that's 20 high stories; think about it. You feel very nervous because you know you have to walk out onto the roof. You have to stand on that roof all alone. Your hands are sweaty and you have to grip the doorknob tightly in order to turn it. Turning the knob you swing the door open and look out onto the roof. You squint in the sudden brightness of daylight. As your eyes adjust to the sun you notice that the distance from where you stand to the edge of the roof is about 30 feet. You also notice that there is no railing around the roof, and this really makes you feel even more anxious. You're trembling and can't breathe. Think of how afraid you would be to stand at the edge with no railing to protect you. Concentrate on that thought--it's terrifying. Feel it.

Even though your heart is now beating faster, you step out onto the roof. Feel the roofing material beneath your feet. It's black tarpaper and a little sticky under the hot sun. You feel the warmth of the sun yourself on your face and hands. The breeze blows your hair. You look up at the sky. Notice that there are no buildings higher than the one you're standing on--you see only a few clouds, a blue sky,

and the sun. See yourself standing there in the middle of that very high roof, with nothing around you but open space. See yourself clearly on the roof.

Now your mind shifts and you begin to think about walking to the edge of that roof. You feel scared--your armpits are wet and sweaty. Your heart is beating so fast you can't believe it. You begin to feel a pit in your stomach. Your anxiety is really building up and you say to yourself, "I can't do it." Think about the edge of that tall, tall building. You know it's silly to be so afraid, but you just can't help it. It's there, that feeling you know so well--you feel it every time you get up somewhere high. Concentrate on how afraid you are to be up on top of that building, with no protection around you. You know you have to walk right up to the edge and that terrifies you.

Somehow you force yourself to take slow steps to the edge of the roof. Your knees shake, and your balance is unsteady. You're feeling kind of dizzy. There's nothing to grab onto and you're all alone. Your mouth is so dry and your skin is cold and clammy. You're just walking mechanically like a robot--putting one foot before the other. As you get closer to the edge you can see some rooftops of lower buildings. It's a sight you've never seen before. They stretch out for miles and miles. Whatever kind of exhileration other people feel, you're too frightened to feel. Your heart feels like it's going to explode. The fear

monopolizes your mind as you see that the building edge is only five feet away. The thought of falling from that high place flashes across your mind, and that pit in your stomach grows into one big painful knot. Feel your heart racing as you struggle for control over your fear. You take a deep breath and try to relax, but you can't breathe and it doesn't help. You move your feet slowly and you suddenly notice that you're only one step away from the edge and you feel a momentary twinge of utter panic, and you stop moving. You can see that distance to the edge so clearly. The edge of the roof is made of stone. The tarpaper ends at the stone. Every detail seems to catch your attention. The whole scene is so vivid. See yourself there.

Take one step and realize that you're standing at the edge of the tallest building around. You've never done this before. You're super anxious and trembling you're so afraid. Even though you're scared to death you force yourself to look down. It seems so far to the ground--people below are so tiny. You're drawn to the view, you can't pull yourself away. The ground is so far below. You're scared by the small cars that are moving so slowly it's unreal. You've never looked down from so high a place before. You can barely hear the street noise. Everything below is so tiny and strange--it's as if you're in another world. Your eyes rise and you look directly out. The day is so clear you can see for miles and miles--till the sky and ground blur together at

the horizon. The wind is blowing in your face. You've never been so high up all by yourself. It's terrifying--you're shaking.

You remember again where you are. You see your feet right at the edge. You feel even more afraid. Your heart is racing--your head feels so light and dizzy that you're afraid you'll lose your balance and fall. You want desperately to step back away from the edge but your feet don't move. You're stuck--paralyzed with fear. It gets worse. Concentrate on that feeling. You're so afraid of heights, and here you are; stuck at the rooftop edge of a huge building. No guardrail to protect you--no one to help you. Look down. It's so far to the ground.

Now imagine yourself standing before a very high fire-escape attached to a tall brick building. There you are, at the base, and you look straight up to the top. Notice how high it is--you feel a little dizzy just looking straight up at it. Start to feel those butterflies in your stomach as you think about how afraid you are to climb it. Place your hands on the guard rails and your foot on the first step. Become aware of how cold the black metal feels--notice how solid the fire-escape is--it's heavy and not at all shaky. Begin to notice your fear. Down here, on the ground, you can control it--it doesn't seem so frightening. But you know as you climb higher and higher you will become more afraid and panicky.

Now imagine that you are beginning to climb the fire-escape. See yourself as clearly as you can, putting each foot on the next higher step, tightly clutching the guard rails with both hands. Visualize it, there you are, climbing even though you're afraid. Continue on, going higher and higher with each step. You look down at your feet, carefully, to make sure each step is placed just right. Soon you will be up to the first landing. Keep going--just a few more steps--one more--now you're standing on the first landing. You look down over the railing--this may not be so high but you know you have to go up. Look down and think how it

feels to be 20 feet off the ground. Concentrate on this feeling until it's real for you. Remember how you feel, how scared it makes you to look down.

Now walk around the landing to the next set of stairs. With both hands on the railings start to climb higher. Notice that as you watch the placement of your feet on the steps, you can see the ground below through the open grids. Climb higher now, going up and up. Look up ahead and see that you're almost to the second landing. Keep on going, one foot above the other, automatically, higher and higher,--and now you're there. Pause a moment and look out again. It seems so much higher than the first landing--look down at the ground far below you. Realize that as you're climbing higher, your anxiety is building. Your fear is rising, but you know you have to go on. Look up at the next flight of steps and feel that pit starting to grow in your stomach--that horrible feeling you get everytime you're at a high place. Your stomach feels terrible. Your skin is turning cold and clammy.

Now force yourself to climb the next steps. Hold the railing tightly, and take each step one at a time. Keep going, higher and higher. You can't look down at your feet now because the sight of the ground through the steps terrifies you. As you get closer to the next landing, your fear starts to get worse, verging on panic. Keep climbing--feel that railing in your hands and feel your feet on the steps. One more step and now you've climbed to the third landing.

You're so high up you feel a little dizzy, your heart has speeded up, and your palms and armpits are sweaty and uncomfortable. Concentrate on that feeling. As you stand at the railing and look out, the thought of falling flashes through your mind and scares you so much you automatically step back away from the railing. You turn to the next steps and start to climb on, because you think that actively climbing will keep you from thinking how afraid you are, but it doesn't help. One step after the other, higher and higher. See yourself trying to stay to the inside of the stairs, closest to the building. You can't help yourself--whenever you get to a high edge you want to back away.

Feel that fear in you--you know the feeling very well, ever since you can remember you've been a little afraid of heights. But you've never been in a situation like this and the fear is worse than ever. Keep climbing, slowly and surely, you're almost up to the next landing. Try hard to hold down the panic. Concentrate on that feeling. Think of all the things you do to keep that horrible fear from taking control of you. Don't look down, think of something else, nothing helps. Now step onto that landing. Look up--only one more set of stairs to go. You walk quickly around the landing to the next set of stairs, trying not to look out or notice how high you are. Your heart is pounding--how did you ever get into this situation?

Get your body set and start to climb up the steps--one at a time--slowly, holding tight. That's it, go slow, higher

and higher, just a few steps to go. Force yourself to keep on going. See that you're almost to the top landing. There's no more stairs after this. Two more, one more--now you're there. Step out onto the very top landing of the fire-escape--stand at the railing and look out. Feel how absolutely petrified you are to have climbed to the top--higher than anyplace you've ever been before. Feel that wind in your face. Look out and see only rooftops and treetops for miles around. You're at one of the highest points in the city. Look down--so far below to the ground. Everything below looks so tiny--the cars, the people. Your fear and panic starts to take control of you as you think of falling from this very high place. That pit is back in your stomach, wrenching it into a knot. The butterflies are worse than ever, and you feel awful. The thought of having to come down terrifies you. Concentrate on that feeling. When you come down you have to look down and see the ground through the grating of the steps and landings. You have to look down. You think to yourself "I can't do it," like you always do. You freeze up with fear and you feel all alone; stuck in this terribly high place, ashamed that your fear has overcome you.

You turn to the steps and place both hands on the railing. Looking down is awful but you have to do it. Put your foot on the stair and step down. One step at a time. Hold the railing tightly--you're afraid of tripping and falling.

Keep going--a little lower, a bit more. The ground looks so far below that your panic is on the verge of taking complete control and causing you to become hysterical. Feel it and fight it. You can see yourself clearly and feel all the fear as if it was real.

Imagine yourself sitting in a small airplane. You look around and see two other people sitting in the front seats; the pilot and the copilot. The plane is so small there are no other seats. You're sitting on the floor and you can feel how hard and uncomfortable it is. You can really feel it if you concentrate. You lean back against the cabin wall and become aware of the heavy parachute strapped onto your back. This makes you nervous and you begin to perspire. You raise your gloved hands and adjust the helmet and goggles that you're wearing. You can't believe you're doing this--but you are. And there's no going back. You're going to jump out of that airplane! Already your heart is pounding.

From where you're sitting you can barely look out the front windows of the airplane. You see a few clouds, the blue sky, and you catch a glimpse of the sun. More than you hear the drone of the engine, you feel its vibrations through your entire body. Every nerve is alive--your mouth is dry from fear. You can see the pilot and copilot moving their lips but you can't hear what they're saying. You are totally alone with your thoughts. You feel like you've never been so alone in your entire life. You wonder if you're not making a huge mistake, and you try to hold down the panic.

The pilot turns to you and shouts that the jump site is near. He says you'll be jumping in two minutes from over

10,000 feet. Think about it. That's almost two miles up. This starts your heart racing and makes your anxiety worse than ever. You feel that pit in your stomach beginning to get worse, making you feel awful. Already the reality of jumping has you on the verge of hysteria. Suddenly the door directly in front of you opens and you look out, startled. The checkerboard fields below are spread out before you. You're so high up you can't see any detail on the ground--people, cars, even houses are too small to see. You've never been so exposed so high up. It's terrifying. Your ears fill with the roar of the wind rushing by, your head is spinning. Sweat is pouring off your forehead. Concentrate on that feeling. Feel how afraid you are.

Somehow you get up and move to the door, as if in a dream. The weight of the equipment is pulling at your shoulders and you're aware of all the straps enclosing you. Your hands grip the doorway--tightly, so that your fingers ache. You can really feel it--it seems so real. You look down at your boots balancing at the door edge--below them only space. Your heart seems to stop and you can't breathe. Look down. You're terrified. You feel the wind slipping past, trying to tear loose your grip. Your mind wanders to horrible thoughts of falling.

A hand on your shoulder startles you and brings you back from your reverie, and you realize it's time. Your hands grip the doorway harder, as if they had a will of their own.

Think about jumping from that doorway. Consider it. The panic is becoming overwhelming. You're suddenly drenched in sweat and you feel nauseous. You're afraid something terrible will happen to you. Your whole body is shaking from fear. You look down once more and are really frightened by how high up you are.

From somewhere within you find the courage to release the grip of your fingers on the doorway. You shut your eyes tight and lean forward. Almost immediately the windstream catches hold of you and you are pitched out of the doorway. You have a sudden sinking feeling in your stomach. Fear grabs your mind as you plummet earthwards. You are falling, falling, ever faster, and are only aware of the wind and that awful sinking feeling in your gut. You spin and fall, your hands clutch at empty air. You're able to open your eyes. You are falling incredibly fast with the ground rushing up at you. You've never felt this way before--intense fear and panic.

APPENDIX D

Imagery Therapy Instructions and Tape Transcript

Imagery tape instructions:

In the session you are about to participate in, it is of the utmost importance that you be an active participant. Don't passively sit back and listen to the tape. You should try to imagine as clearly and vividly as you can all that you will be asked to. Let your imagination flow freely. The more real everything becomes for you, the better. You will be asked to recall some scenes. Don't worry about whether these scenes apply to you or whether they would or could actually happen; just try to imagine them as best you can. Remember, it is important to actively participate and to use your imagination.

One final instruction. Approximately 30 minutes after the start of the tape there will be a brief pause. During this interval you are asked to rate the tape in answer to the five questions on the form provided. You will have plenty of time to complete this task. Now sit back in your chair, make yourself comfortable, and we will begin.

I'd like you to sit back in your chair and loosen any clothing that may feel tight or uncomfortable. Find a relaxed position, with your hands in your lap and your feet uncrossed on the floor. (pause briefly) Now I'm going to teach you how to relax the major muscle groups in your body so that any tension you may be feeling will slowly melt away. The way to do this will be to tense opposing muscle groups and then relax them. I want you to become aware of the different feeling--from tension to relaxation. As we relax muscles, I want you to keep those muscles we have already relaxed as loose as possible. Soon your whole body will feel limp and tension free--it's a state I'm sure you'll enjoy.

Let's begin. A good starting place is the muscles in your hands. Often people who are anxious keep their hands clenched in a fist. Now close your eyes, and extend your arms straight out in front of you. Raise your hands so that you're looking at your finger nails. Now really bend your hands back toward your face--keeping your arms extended. Feel that tension in your hands and forearms. Really strain --bend them back--and now relax. Notice the feeling as the tension leaves those muscles. Don't they feel better? Concentrate on the difference between tense muscles and relaxed muscles. Good. Let me caution you against tensing muscle groups other than the ones we want to. For example, try to

breathe as normally as possible throughout all the relaxation exercises.

Now we'll work on the opposing muscle group in your hands. Extend your arms again and tense your fingers into a fist. Make it really tight--work so that you can feel the strain. Clench your fist hard, really hard,--and now relax. Let all the tension drain from your hands. Let your arms down to your lap and notice how relaxed your hands are. We're going to relax your whole body this way.

Extend your arms in front of you again, keeping your hands limp and relaxed. Now tense the muscles in your arms so that they feel really stiff. Really strain hard--feel the tension in your arm muscles. Keep your breathing regular and your hands limp--tense your arms--and now relax your arms and let them fall loosely to your lap. Feel all the tension leave those muscles--notice the difference between tense muscles and relaxed muscles. Breathe normally.

Now extend your arms again, keeping your hands relaxed, and bend your arms bringing your hands near your shoulders, like in a muscle-man pose. Now tense those arm muscles really hard. Strain those muscles. Hold it--and now relax. Let your arms fall limply into your lap. Notice how good it feels to relax your arm muscles. Concentrate on that relaxed feeling.

Now we're going to relax the muscles in your shoulders. Remember to breathe normally and keep your arms and hands

relaxed. Now sit forward in your chair, and try to touch your elbows together behind your back. Really feel the strain in your shoulder muscles. Do it really hard. Make those muscles as tense as you can. Hold it, hold it, really hard--and now relax and fall back in your chair. Feel how good it is to relax those tensed muscles. Notice the difference. That's it.

Now we're going to relax another set of shoulder muscles. Sit forward now and try to touch your shoulders together in front of you. Keep your arms in your lap, and strain your shoulders really hard. Keep them tense--really feel those muscles work. Hold it-- and now relax and fall back in your chair. Relax, relax. Let all the tension flow out of your shoulders, let the muscles go limp. See how much better it feels to relax those muscles.

Keep on breathing normally. Now sit forward and tense your shoulder muscles in an exaggerated shrug. Bring your shoulders up almost to your ears, and really tense those muscles hard. Keep them tense. Really feel the strain. Hold that position, that's it, strain them really hard,-- and now relax and fall back in your chair. Breathe normally, and notice how relaxed your shoulders feel. Concentrate on the difference between tension and relaxation.

Now we're going to relax the muscles in your neck. In all of these exercises, if you feel the slightest twinge of pain, or if you have physical problems in the particular area,

please stop tensing those muscles immediately, and wait until we move on to the next muscle group. Now I'd like you to turn your head as far to the right as you can. Turn it so that you really feel the muscles in your neck stretching and straining hard. Really feel that tension--hold it, strain those muscles really hard,--and now relax and bring your head forward again. Just feel the tension leaving those muscles. It feels so good to relax them.

Now turn your head the other way, to the left, and make those muscles really stretch and strain. Make them as tense as you can. Turn your head as far as you can. Hold it,--and now relax and bring your head forward. Feel how good it feels to be relaxed instead of tense. Just feel all that tension ebbing away. Your hands are relaxed--they're just limp, your arms are relaxed, they're lying heavy in your lap, your shoulders are relaxed, all the tension is gone, and now your neck is relaxed.

Now we're going to relax some of the tense muscles in your face. First I want you to bring your eyebrows down, as if in a frown. Really strain those muscles in your forehead. Make them really tense--hold it, hold it. Breathe normally and strain those muscles, and now relax. Feel the tension just slipping away and relaxation taking its place. Notice how good it feels.

Now we'll relax your tongue. First push your tongue against the roof of your mouth as hard as you can. Feel the

tension, really strain the muscles. Hold it hard, really hard,--and now relax. Let your tongue lie limp in your mouth. That's it. Good. Now push your tongue really hard against the bottom of your mouth. Push really hard, really hard--feel the tension--strain as hard as you can. Hold it. And now relax, feel all the tension drain away, notice how good it feels. Relax, relax. That's it.

Now we're going to relax your jaw muscles. Open your mouth as wide as you can--wider, wider. Feel the strain in your jaw muscles. Do it really hard, and hold it. As wide as you can. Now relax--feel the tension leaving the muscles replaced by a good feeling of relaxation. Your mouth is closed and relaxed--all the muscles in your face are relaxed. Your upper body feels so good and relaxed. Your breathing is regular and easy.

To relax your chest muscles, I want you now to breathe in as much air into your lungs as you can, and hold it. That's it, really fill those lungs with air right to the limit. Now hold it, hold it. Keep that air in. Good. Now let the air out slowly and feel your whole chest relax as you exhale. It seems like all the tension left your body with that air. Breathe deeply and regularly.

Now we'll relax your muscles in your back. Sit forward now, and arch your back, till you can really feel the strain in those muscles. Do it really hard, as hard as you can. Hold it--now relax and fall back in your chair. See how much better it feels to have those muscles relaxed. So good.

Let's move down and relax the muscles in your legs. First I want you to raise both legs together until they're extended straight out in front of you. Tense the muscles really hard. Feel it in your thighs and around your knees. Do it really hard and hold it. Keep them tense. Now let your legs drop to the floor and relax. Notice the difference between tense muscles and relaxed muscles. Your legs are relaxing, your body is relaxing, and your breathing is easy and regular. Now keeping your toes on the floor, raise up your heels so that you can feel the tension in your calf muscles. Be careful not to get a cramp. Really strain those muscles, as hard as you can. Hold it, that's good. Now relax and let your heels down to the floor. Feel all the tension leave those muscles. Feel how good it is to relax them.

Now keeping your heels on the floor, raise up your toes and bend your foot back toward your body. Feel all that muscle tension in your shins. Do it hard and feel it hurt. Keep them tense, really feel the strain--and now relax. Let your toes down and feel the relaxation in your shins. Breathe normally. Your legs are relaxed, your back and chest and shoulders are relaxed, your arms and hands and face feel so good and relaxed. All your muscles are limp, all the tension has gone, and you feel so comfortable.

I want you to use your imagination now and feel a wave of total relaxation beginning in your feet. This wave is beginning to move up your entire body. As it does feel it

overcome any tension that may be left in your muscles. The wave is moving up your shins and calfs now. The muscles just totally let go as the wave passes through them. It's moving up now through your legs--feel your thigh muscles turning limp, your legs are so heavy now, there's no tension left at all. You can feel the wave starting to move up your body now--your stomach and back, all the muscles just totally letting go. Relaxation moves through your chest now and your breathing is so easy and deep and regular. Feel that wave relaxing your shoulders and moving down your arms. Each muscle it touches completely loses any remaining tension. Your hands are relaxed. Feel the wave relaxing your neck and now your jaws and tongue and your entire face and head. Every muscle just totally letting go. Relax, relax. You've never felt so relaxed and peaceful and comfortable. All thoughts have left your mind because you're so relaxed. Your entire body feels so limp and heavy. That's it, just concentrate on how good it feels. Breathe in,--and out,--in,--and out. Deeply and regularly.

Now that you're relaxed, I want you to practice recalling some events from your childhood. I think you'll see that because of your relaxed state it will be easier for you to clearly visualize the situations as they really happened. It may have been many years since you've thought of those things, and you probably have a lot of emotional feelings associated with these memories. Your present state of relaxation will help you overcome possible barriers resulting from these emotional feelings. Keep your eyes closed and try to imagine the following situations as clearly as you can.

The first scene I'd like you to recall is a time in your childhood in which you were very afraid, but one which did not involve heights in any way. Search your memory for a situation in which you were extremely scared, almost terrified. Perhaps you encountered a strange dog, or became lost. Maybe you were involved in an accident of some kind. It could be anything, so long as it doesn't involve heights. Imagine it. You were only a child--it happened many years ago. Think of that scene and how you felt. Can you remember it? See it clearly, with as much detail as you can. Now if you can see it clearly, I want you to imagine yourself leaving that situation. You're just walking away, and as you do, any fear that you may have felt is getting less and less. You're leaving that place and becoming less afraid. That's it.

Now the next scene I'd like you to imagine also happened many years ago, when you were a child. Try to recall any vivid memory in which you were not afraid at all, but rather felt happy and at ease. Perhaps you were at a birthday party, or maybe at a picnic. It could be anything. Just a time when you felt happy and not afraid at all. See it clearly as you can. Try to concentrate and make all the details as vivid as possible. When you can see it, imagine yourself again leaving the scene. No matter where it was, you're leaving, and any emotions you may have felt are just fading away. Good.

Now that you've practiced recalling scenes from your past, bringing forth more memories into your conscious awareness will be easier for you. Before we begin this next phase, I'd like to explain the procedure to you. The sheet of paper on your clipboard contains spaces for you to write in answers to certain questions. This sheet is for your own use only. No one else will see it, so you can write whatever you wish, with absolute confidentiality. The purpose in writing down answers is to refresh your memory at the end of the session, for answers you thought of in the beginning. Also, writing down answers will help you to organize your thoughts, and by seeing your answers to separate questions, patterns in your thoughts and past experiences that you never knew existed may become evident to you.

As you may know, our parents often teach us attitudes, sometimes by example, which we later adopt as our own.

Perhaps you will be able to remember some of these teachings. Try to form a mental picture of yourself when you were a child, as young as you can remember. Now see yourself with your father. He was much younger then. See him clearly, as vividly as real life. Your father and you, together in a situation somehow involving heights. Perhaps you are on an observation platform, you and he, standing by the railing. Perhaps you both are standing by the edge of a cliff or drop-off. Try to recall one situation in which you and your father were at a high place together. It is not necessary to feel the emotions you felt at that time. This is insight therapy and we are primarily interested in your thoughts, rather than your feelings. Take a few moments to visualize the scene clearly in your mind. (pause)

Concentrate now on the actions your father took to caution you about the danger of falling from that high place. Remember, you were only a child and needed to be warned about venturing too close to the edge and possibly losing your balance. Imagine the scene as clearly as you can. Did he hold your hand an unusually long time? Did he tell you not to play at the edge in a commanding way? Did he try to instill a fear in you to assure that you would not stand too close to the edge? Try to remember. If you can remember what your father did, write it down in the space provided. This is question number one. You will be given a few moments to think and write. (long pause)

Our parents also teach us attitudes indirectly. As children we may imitate the actions of our parents, very often unconsciously. Think back now, and try to bring back the image of you and your father, when you were a child and he was a young man. Imagine your father in a situation involving heights, where you were just an observer. It could be anything. Maybe you can remember him on the house roof, or climbing a ladder, or riding a high ride at the amusement park. Try to see him; visualize what he did. Can you notice his attitude about heights--did he seem overly cautious or afraid? Were there things involving heights that he refused to do? Try to remember an event, and if you can, try to recall what he did. Let the images and memories become clear in your mind. (pause) If you can remember your father's attitudes and what he did, write it down in the space provided for question number two. Take a few moments to reflect and write. (long pause)

Sometimes free associations can give us a clue into our innermost thoughts. Close your eyes and let the image of your father appear in your mind. As you do, become aware of the first few words or thoughts that enter your awareness. Write these down now in the space for question number three. (long pause)

Now close your eyes again and try to bring into your mind an image of you and your mother when you were a young child and she was a young woman. Let the image materialize,

see it as clearly as you can. Remember a situation in which you and your mother were at a high place, or near an edge where you might have fallen and injured yourself. It could be anything. When a scene comes to you try to concentrate and notice each detail as sharply and vividly as you can. Don't worry about remembering how you felt. Try to notice how she protected you from the danger of falling. Were you scolded for being too close to the edge, or physically restrained somehow? See if you can recall your mother's behavior. (pause) When you can see it clearly and can remember your mother's actions, write it in the space provided for question number four. Take a few moments. If you can't remember, don't be worried--some memories, for various reasons, are just hard to recall. (long pause)

Now that you have answered, and while the image of your mother is still in your mind, I'd like you to try to imagine another situation involving you and your mother, when you were a young child. Try to see a scene where your mother had to deal with a situation involving heights, and you were there, watching as an observer. Perhaps she was climbing a ladder to wash windows, or went on the roof to retrieve a ball. It could be any situation--perhaps one you've not thought about for years. When you have recalled the memory, notice as many details as you can--make the mental image as clear and vivid as possible. (pause) Now I'd like you to notice your mother's attitude about heights--was she afraid or extremely

cautious? Did she express anxiety or need assistance? Try to recall what she did and how she felt about it. If you can see it all clearly in your mind, and you may surprise yourself at what you can remember when you try, write it down in the space provided for question number five. Take a few moments now to think and write. (long pause)

I'd like you now to free associate to the image of your mother. Close your eyes, and let a mental picture of your mother appear clearly in your mind. As you do, become aware of the first few words or thoughts that enter your awareness. Write these down in the space for question number six. (long pause)

Aside from what you may have learned from your parents, other significant people in your life, especially during your childhood, have contributed to your attitudes. I'd like you to think back upon all the people who had important roles in your childhood. You may be recalling relatives such as brothers and sisters, aunts, uncles, or cousins, or grandmothers and grandfathers. Perhaps you may remember neighborhood friends, teachers from school, or even memorable strangers. Take your time, don't hurry. As you think back on all these people, see if some aspect of situations involving heights and these people are associated. That is, does the memory of a particular person, and a memorable situation involving you and a high place seem to go together in some way? Just let your mind flow freely. (pause) If you can recall an association like this, or maybe several, try to pick out the

clearest and concentrate on this memory. Make the mental image as clear and as sharp as you can. Think and it will be clearer and clearer. When you can notice all aspects of the situation and the person involved, write down what you can remember about the person and what happened in the space provided for question number seven. (long pause)

Now close your eyes and let your mind drift from the past to the present. No longer are you a child. You are afraid of heights and that fear is troublesome to you, or else you wouldn't be here. Of course you can think of times and situations when your fear is mild or even absent. Other times, the fear increases and bothers you, even if you are able to hide it from others around you. Try now to remember a time when you were extremely afraid of heights--a situation in which you were very scared. Visualize the scene clearly, but you needn't feel afraid now. In your mind see yourself in that fear provoking situation and notice the details around you. See the scene as plainly and clearly as you can. When the image is vivid in your mind, I want you to try to notice those aspects which seem most important to you--no matter how unimportant or trivial you think they may seem to others. Remember those aspects, for that is what I want you to write down soon in the space provided for question number eight. Now while you are still imagining the scene, I want you to see yourself leaving the situation entirely. As you go, let any fear that may have been aroused disappear. When

you have left the scene completely, there will be no fear remaining. Good. Now take a few moments to recall the important situational aspects I asked you to remember, and write them in the appropriate place. (long pause)

You may be surprised at what you have written so far. That is not unusual. I'd like you now to visualize a scene involving heights in which you thought you would be afraid, but you weren't. It could be almost anything. Just let your mind float freely until a situation becomes clear. Any experience you've had where you thought your fear of heights would be bad, but it wasn't will do. When you can see yourself in the situation, try to bring it into focus and see it as clearly as you can. Make it vivid. (pause) When you can, I'd like you to again try and notice those aspects which seem most important to you. Remember them. It is your opinion that I want you to go by, no matter how unimportant you think they may seem to other people. Now see yourself leaving the situation--imagine you are going away, and as you do, any fear which you may have felt is just disappearing. When you are completely out, there will be no fear left. Good. Now write down the important aspects that you identified in the space provided for question number nine. (long pause)

Our questioning is over. Perhaps during this session some things may have fit into place, like pieces completing a puzzle. As you know, when a person becomes aware of the

underlying factors which cause and maintain a fear such as yours, very often this awareness may reduce the fear, even down to no fear at all. Examine your answers to questions one through seven. All of these questions were aimed at achieving insight about possible unconscious reasons for your developing a strong fear of heights. Take a few moments to see if you can detect patterns in your answers--they may have a very personal meaning which only you can detect. Let your mind wander freely--try not to rule anything out. Think about your father and mother--how they felt about heights. Think about that other person. In what way does it all seem to come together? (pause)

You should be able to see patterns from your childhood which may account for your developing a strong fear of heights. But what about those hidden factors which maintain your fear to this very day? Questions eight and nine are designed to help you achieve insight about these factors. Look at your answers to the questions. Can you see patterns from the early questions repeated in your answers to the last two? (brief pause) Do you notice a difference, which is meaningful to you, between the important aspects in a highly fearful situation and important aspects in a less fearful situation? Take a few moments to reflect--give your mind freedom. Try to detect those unconscious factors which maintain your fear of heights. (long pause)

APPENDIX E

Frustration Tolerance Tests

Pre-Therapy Rationale

We have found that fears and changes in fears or anxiety like yours are closely related to frustration tolerance. Changes in one area are usually accompanied by changes in the other. We will, therefore, be measuring your frustration tolerance with a very aversive and boring task. Later, after treatment, we'll be measuring your frustration tolerance again as well as fearfulness to see what changes have taken place.

Name:_____

Post-Therapy Rationale

Now that you have completed the therapy program, we are interested in assessing its effects upon you. If your anxiety and fear over heights is diminished as a result of the treatment, your tolerance of frustration should be increased. Thus it would be expected that your performance on the frustration tolerance test will improve, if your fear of heights is reduced.

Please be sure your name is written in the space below.

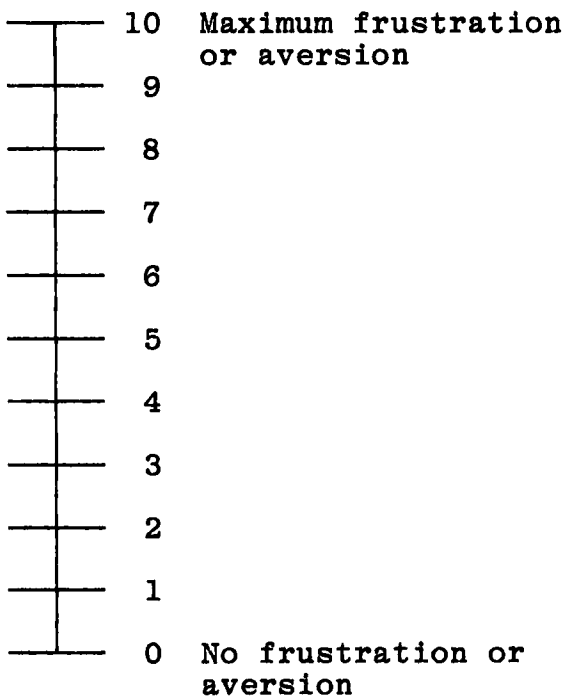
Name:_____

Frustration Tolerance Test

In this test you will have fifteen minutes to cross out two's and six's, row by row, on the following test sheets. Your score will be the number of rows in which you have successfully crossed out the two's and six's. Please work quickly yet carefully, as a single error will invalidate a row. When the time is up, please answer the question on the very last page.

If you have any questions, please ask the tester before the start of the test.

We would like to know how much frustration or aversion you experienced while completing the test. Please make a slash (/) through the line below at whatever point you feel best represents your experience. Of course there are no right or wrong answers, we are interested only in your estimate.



APPENDIX F

Behavioral Avoidance Test Instructions

Instructions:

There are many ways to evaluate fears. We can ask people to tell us how afraid they are or think they would be in a given situation, and some of the paper-and-pencil tests we use are these types of fear assessments. Another way is to record bodily processes such as heart rate and blood pressure while people talk about, or think about, various objects and situations. This is the principle upon which the lie detector is based. However, the easiest, most efficient way to measure fear is simply to observe people in fear situations, and that is what we will be doing here at the fire-training tower today. In order to obtain an extremely objective measurement of your fear of heights, we are going to give you the opportunity to see how high you are willing to climb on the tower. Please do not be alarmed at this because you do not have to do anything you are too afraid to do.

The test is very simple, and this is how it works. There are six stair landings, counting ground level, and each landing has a different colored ribbon attached to the railing. At each landing, as you ascend, you are asked to stop and rate your level of fear on the clipboard form that we will provide you with. Each landing is identified on the form by the color of the ribbon. When you decide that

you are unwilling to climb any higher, stop, and record the highest point you have reached on the form. For example, if you climb four steps past the yellow landing, write Yellow = +4 in the space marked "highest level." Or if you climb one step beyond the red landing write Red = +1. Also, when you reach your highest point, we would like you to estimate the amount of fear you <u>think</u> you would have at each of the remaining levels. If you climb to the top, obviously, you need not do this.

Remember, it is important that you climb the fire-training tower only as high as you feel comfortable. One index of how afraid you are is, of course, that point where you decide to come down. The other will be your fear rating form.

APPENDIX G

List of 30 Acrophobia-Inducing Situations

Instructions:

Try to imagine yourself in the situations listed below, as vividly and completely as you can. Experience the feelings you would have in those situations as fully as possible. When you have successfully visualized the scene and felt your emotions, rate the maximum amount of fear and anxiety elicited according to the scale below. Please use whole numbers only. Try to avoid fractions such as 3.5 or 4½.

1 2 3 4 5 6 7 8 9 10

no fear at all — most fear

Write the number corresponding to your amount of fear in the space provided.

____ 1. Climbing down an open fire-escape
____ 2. Riding on a roller coaster
____ 3. Riding on a Ferris wheel
____ 4. Riding a ski chairlift
____ 5. Driving over a high bridge
____ 6. Riding in a lighter-than-air balloon
____ 7. Looking down a well-hole
____ 8. Standing on the middle rung of a 12 foot ladder
____ 9. Fixing a roof TV antenna
____10. Looking down from an observation tower
____11. Standing five feet from the edge of a tall building
____12. Thinking of jumping from a high place
____13. Standing on a dock over water
____14. Standing on the edge of a tall building
____15. Jumping off a high diving board
____16. Driving down a steep hill
____17. Watching ironworkers walk across girders
____18. Climbing up an observation tower
____19. Skydiving
____20. Walking down stairs with open stairwells
____21. Looking out over a drop
____22. Looking down from a helicopter

____23. Climbing onto a house roof
____24. Hearing that someone jumped off a tall building
____25. Climbing to the top of a 12 foot ladder
____26. Walking over a gang plank
____27. Looking down a high waterfall
____28. Seeing someone fall from a high place
____29. Climbing a telephone pole
____30. Looking over a cliff

APPENDIX H

Subject Debriefing Statement

I would like to thank you for participating in this research project and I want you to know that I appreciate the time and effort you have expended. It is my hope that some benefit from this study will accrue both to you as a participant, and to others who perhaps will benefit indirectly through the project's furtherance of clinical psychology. Although the data have now been collected, they have not yet been analyzed, so I cannot report to you at this time the results in general, or your individual achievements in specific areas. However, if you would like, I will be happy to inform you of the results at a future date.

I would like now to tell you what we did and why, and what your part in it was. As you are probably aware, one of the goals of this project was to evaluate different treatment approaches to help people reduce their fear of heights. There were two different tape-recorded therapies. One followed a learning theory approach and was called "stimulus flooding." This theory is built upon the hypothesis that (1) if a person forces himself to remain in a situation that he fears, without avoiding that fear, then eventually the fear will diminish, if no negative consequences occur, and (2) if a person can reduce his fear by imagining himself in a fantasy situation, this fear reduction will generalize to real-life situations. Behind this is the assumption that people are not born with fears, such as fear of heights, but that they learn to be afraid, in much the same way that they learn other behaviors. To change this fear of heights, which is maladaptive, it is necessary to employ a learning procedure termed extinction. Those people who experienced this therapy were asked to imagine themselves in four different situations: (1) riding on a roller coaster, (2) standing at the edge of a tall building, (3) climbing a fire-escape, and (4) skydiving. They were "flooded" with stimuli which would ordinarily evoke fear and anxiety for a period of time assumed to be long enough to extinguish the fear associated with these stimuli. Hopefully, this fear extinction would generalize to other "real-life" situations, which in the past usually elicited acrophobia (fear of heights) for each person.

The other treatment tape presented "insight" therapy. This treatment was more traditional in nature, relying upon insight into unconscious or conscious principles which serve to cause and maintain a person's acrophobia. Insight may be gained in several ways, but the manner used in this research project was a series of questions about each person's early experiences with heights, concentrating especially on parents'

influence during childhood. These questions were preceeded by 30 minutes of programmed relaxation instructions to reduce anxiety and tension, thereby facilitating recall and imagery formation. Each person was asked to record his answers for patterns which might have emerged from childhood through adulthood.

One of the outcomes of interest in this experiment was to see if those people who experienced one type of treatment would show more improvement than the other group. There is some experimental evidence to suggest that the stimulus flooding treatment would be more efficacious in one session than the insight treatment. On the other hand, there is also some empirical support for the idea that if the treatments were equally believable, i.e., that each generated the same amount of expectancy for improvement, then there would be no significant differences on the improvement measures between the two groups. In other words, if one treatment is thought to work as well as the other, then neither treatment will help people overcome fear more than the other.

Of course, each individual did not completely agree on whether they thought either treatment would help. Some people just did not believe that stimulus flooding would help them. Others believed it could help them completely eliminate their fear of heights. The same was true for those experiencing the insight therapy. Therefore, another outcome of interest in this research project was to see if a person's initial expectancy for being helped would correlate with their subsequent improvement or lack of improvement on outcome measures after treatment.

Let me say a word here about our assessment procedures. Most of these were fairly straightforward. Everyone was asked to fill out several questionnaires, all designed for people to tell us about their fear of heights in general, and also in specific situations. However, as you may know, what a person says about himself does not always agree with their actual behavior. To compensate for this, everyone was asked to demonstrate how high they could climb on the fire-training tower during the behavioral avoidance test. In addition to measuring fear, we were also interested in measuring each person's expectancy for improvement. The rating scales in which we asked people to answer five questions helped achieve this purpose. Here again, however, what a person says does not always agree with what they believe. To allow for this we used a bogus measure of expectancy for improvement--the frustration tolerance test. If you recall, this test asked you to cross out 2's and 6's for 15 minutes. There is some experimental evidence to suggest that people who believe their therapy will help them will perform better

on the test after treatment than before, even though there is no reason why the treatment per se should help them improve on the test.

There is one last point that I would like to emphasize. This experiment has been an analogue of a real treatment situation. That is to say, although we attempted to simulate actual therapy practices as well as possible, there is still a difference between this research project and psychological treatment in the real world. Some of you experienced fear reductions as a result of your participation, others have not. You should not consider your progress or lack of progress as truly indicative of your full potential for overcoming your acrophobia. If you are still troubled by your fear of heights I would like to encourage you to make use of opportunities for overcoming it. This summer, I will be conducting additional therapy for people who fear heights, not in conjunction with any research investigation. We will be meeting over several weeks as a group, and will engage in a more established behavioral therapy called systematic desensitization. I invite you to participate if you would like. There is no fee.

The last page consists of several questions and also a space for you to write any comments you might have to provide me with feedback about your particular experiences. I would truly like to hear from you. Please tear off the last page and mail it to me in the self-addressed stamped envelope I have enclosed. Let me once again thank you for participating in this research project. I hope you have a very pleasant summer.

Sincerely,

Gil Krawitz

GK/bms

Name:_____

Date:_____

Would you like to be called to personally discuss the study?

Yes_____ No_____

Would you like a summary of the results when the data are analyzed?

Yes_____ No_____

Would you like to participate in an additional therapy program?

Yes_____ No_____

Feedback:

Please feel free to make any comments which might be helpful, including suggestions and criticisms.