A COMPARISON OF GROUP SYSTEMATIC DESENSITIZATION,

GROUP COVERT POSITIVE REINFORCEMENT, AND TEST
RETEST IN THE TREATMENT OF TEST ANXIETY

THESIS

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The investigation was concerned with determining the effectiveness of group systematic desensitization and group covert positive reinforcement, with a control group. The two treatment conditions were to be compared if both were effective in reducing test anxiety as measured by the College Form of the Test Anxiety Questionnaire. Three groups were employed, two treatment and one control group, with four subjects in each. An analysis of covariance yielded insignificant results at the .05 level. A review of the literature was presented, procedural aspects of the treatments were covered, and possible reasons for the insignificant results were discussed.

TABLE OF CONTENTS

	•		Pa	ıge
LIST	OF	TABLES	• ,	v
Chapt	er			
]	Γ.	INTRODUCTION	•	1
		Statement of the Problem Purposes of the Study Hypotheses Selection of Test-Anxiety as		•
		the Target Behavior		
		Definition of Terms		
II	Ι.	RELATED RESEARCH	•	8
·		Introduction Test Anxiety Desensitization Studies of Group Systematic Desensitization Covert Positive Reinforcement Group Covert Positive Reinforcement		
IIJ	• /	PROCEDURES AND DESCRIPTION OF THE INSTRUMENT	. •	15
		Source and Selection of Subjects Treatment Conditions Systematic Desensitization Group Covert Positive Reinforcement Group		
		Test-Retest Group Description of the Test Anxiety Questionnaire		
		Description of the <u>Reinforcement Survey</u> Schedule Anxiety Hierarchies Data Analysis		e
IV	7.	RESULTS	•	23
		Evaluation of the Hypotheses		
V	7.	DISCUSSION		26

TABLE OF CONTENTS (cont.)

;			Page
VI. SUMMARY AND	CONCLUSIONS		. 30
APPENDIX	• • • • • • • • • • • • • • • • • • • •	• • • • • • •	. 33
BIBLIOGRAPHY			. 53

LIST OF TABLES

Table		Page
I.	Summary of Analysis of Anxiety Reduction	Covariance of Scores 23
II.	Pre-Test and Post-Test by Individual and	Scores on the TAQ by Group 28

CHAPTER I

INTRODUCTION

It appears that anxiety is a major component of most behavioral and emotional disorders. Anxiety alleviation or reduction seems to be inherent in most of the therapies today, so that new, more adaptive responses can be learned in place of maladaptive ones. Test anxiety is a particularly pervasive problem in this country, with the emphasis on higher education and its importance. Alleviation of this particular form is especially important. There is much supporting evidence that high anxiety levels result in lowered grades and academic performance (1, 2, 8, 11).

In the last ten to fifteen years there has been a steady growth of interest in the behavioral approaches to counseling and psychotherapy. There has been substantial advocacy and demonstration of the efficacy of the behavioral techniques to support the growth of the behavioral approach. During the same period, there has been an upsurge of interest in the group therapy method of counseling and therapy. Wrenn refers to the increase in behavioristic and group approaches as "two of the most significant new directions in counseling" (16, p. 1).

The interest in behavioristic techniques seems to have begun with the publication of Joseph Wolpe's <u>Psychotherapy</u> by <u>Reciprocal Inhibition</u> (15) in 1958. The buttress of Wolpe's system is systematic desensitization, a technique which is widely used in the treatment of various anxiety and phobic disorders. Several research investigations have supported this technique as being effective for reducing anxiety and alleviating phobias (6, 9, 15).

Newly emerging behavioral techniques are the use of covert process with operant principles to manipulate and change overt behavior. These techniques were developed by Joseph Cautella and appear to work quite well. However, so far little research has been published to support Cautella and his findings.

With the various behavioral techniques and group methods emerging at about the same time, it seemed logical to combine the two processes. Several recent investigations (4, 5, 12) have attempted to evaluate the effectiveness of group systematic desensitization procedures. All of these have been successful to some degree in utilizing group systematic desensitization to effect significant reductions in anxiety. However, various methodological inadequacies have limited the generalizability and left questions unanswered. Covert reinforcement for the treatment of anxiety is a relatively new technique, and a review of the literature revealed only one incidence of its use. The technique was administered

in a group situation for the treatment of test-anxiety, with significant results (14).

Statement of the Problem

The problem of the present investigation was to determine the effectiveness of group systematic desensitization and group covert positive reinforcement procedures in the reduction of test-anxiety among college students.

Purposes of the Study

The purposes of the study were (A) to determine if covert positive reinforcement could be administered in a group setting, (B) to partially replicate and extend Taylor's research (13) regarding group systematic desensitization, and (C) to compare the two in terms of effectiveness in reducing test-anxiety when administered in a group context.

Hypotheses

The following hypotheses were advanced in keeping with the problem and purposes of the study:

- 1. Subjects participating in group systematic desensitization for test-anxiety will demonstrate significantly greater score reductions on the College Form of the Test Anxiety Questionnaire (TAQ) than will non-participating control subjects.
- 2. Subjects participating in group covert positive reinforcement for test-anxiety will demonstrate significantly

greater score reductions on the TAQ than will non-participating control subjects.

3. Subjects participating in group covert positive reinforcement and group systematic desensitization for the reduction of test anxiety will not demonstrate significantly greater score reductions between the two groups.

Selection of Test Anxiety as the Target Behavior

The problem behavior which was chosen as the target for the two treatments was test anxiety. The choice was based on several factors.

First, several researchers (1, 2, 8, 11) have found that a negative correlation exists between scores on test anxiety scales and various measures of academic performance. The universities place much emphasis on grades and achievement. If both systematic desensitization and covert positive reinforcement could be offered as a service through the schools, the number of students who could take advantage of this much needed service would be greatly increased.

Secondly, test anxiety is a particular case of the more general class of performance anxieties. If both treatment methods are effective in reducing test anxiety then they could be expected to be effective in reducing other types of anxiety.

Finally, there exist several standardized scales for the assessment of test anxiety. The College Form of the TAQ has been used in other investigations of test-anxiety and has been found to correlate quite well with other comparable scales of test-anxiety (1, 3, 7, 10).

Definition of Terms

In the present investigation, test anxiety has been operationally defined in terms of a score on the College Form of the TAQ. High test anxiety was defined as a score at or above the upper seventy-fifth percentile of the distribution obtained from previous normative data taken on undergraduate students at North Texas State University. The seventy-fifth percentile corresponds to a score of 212 or higher.

The data was analyzed by an analysis of covariance, with the pretest being the covariate. The required level of significance was .05.

Systematic desensitization is a therapeutic technique which was developed by Joseph Wolpe and is based on the learning principle of counterconditioning. Covert positive reinforcement is a technique developed by Joseph Cautela based on reinforcement learning theory. The overt behavior is learned and reinforced covertly.

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CHAPTER II

RELATED RESEARCH

Introduction

There is a rising demand for psychological services in both education and society in general. This points out the need for effective short-term therapeutic services to large numbers of persons. In education, test anxiety is a pervasive problem and can have severely debilitating effects on academic performance. Group behavioristic methods are one logical answer to this need.

DeBlassie (5) points out that.

Anxiety is considered a learnable reaction which has the properties of a response, a cue of danger, and a drive. Anxiety is internalized fear aroused by the memory of painful past experiences associated with punishment for the gratification of an impulse. Anxiety in the classroom interferes with learning, and whatever can be done to reduce it should serve as a spur to learning. Test anxiety is a near-universal experience, especially in this country, which is a test-giving and test-conscious culture. Evidence from clinical study points clearly to the disruptive and distracting power of anxiety over most kinds of thinking.

In short, much evidence has been compiled to point out the detrimental effects of anxiety on learning and test taking. Behavior therapy, born out of the empirical study of learning, has been rather effective in dealing with anxiety and other behavior disorders. Two specific techniques,

systematic desensitization and covert positive reinforcement, have both been used in test anxiety reduction with success (3, 15). Desensitization has been used widely in both individual and group administration with success (8, 15), while covert positive reinforcement, as reported in the research, has not been administered individually and has been administered only once in a group setting (14).

Test Anxiety

Test anxiety exists among a large number of college students and is viewed as a learned inappropriate physiological reaction to the stimulus cues of the testing situation Spielberger and Katzenmeyer (12) reported that students with high levels of anxiety receive lower grades and have a higher failure rate when compared to students of similar ability with low anxiety. Alpert and Haber (1) reported a significance relationship between academic performance and scores on the TAQ. Those with high scores on the TAQ generally had a lower grade-point average than students who had lower scores on the TAQ. Easterbrook (6) argued that anxiety disorganized the effective utilization of stimulus cues involved in learning and performance by disrupting and narrowing the attention span and range, as well as concomitantly limiting perceptual cue utilization. In a study conducted by Mandler and Sarason (9), it was found that students who had high drive anxiety in testing

situations reacted to the testing situation with a larger number of responses not relevant to the test.

Desensitization

Desensitization is based on Wolpe's principle of reciprocal inhibition, which states that no two incompatible responses can occur in an organism at the same time. Desensitization is based on the learning principle of counterconditioning. In this procedure, a new response is conditioned in the place of an unwanted response. The new response is incompatible with the old response, as both cannot occur at the same time. Desensitization consists of the following three procedures: (1) training in deep muscle relaxation, (2) construction of anxiety hierarchies, and (3) pairing the anxiety stimuli with the feeling of deep relaxation until anxiety is no longer felt in the presence of the stimuli.

The literature has reported very high improvement rates. Wolpe reported 89.5 percent cured or very much improved in 210 cases. Lazarus used a similar method of treatment and reported 78 percent recovery in 408 cases. Unfortunately the above results were contaminated due to the possibility of experimenter bias. Wolpe also went so far as to screen those whom he felt he could help and reject those he felt would not be amenable to the treatment. However, Paul (11) in a carefully designed and executed comparison study,

demonstrated the superiority of systematic desensitization over insight-oriented psychotherapy in reducing anxiety due to public speaking.

Studies of Group Systematic Desensitization

Many studies have attempted to evaluate the results of group systematic desensitization (7, 8, 13), and each of the investigations demonstrated anxiety reduction following group desensitization. However, methodological inadequacies in the studies make the obtained results questionable. Lazarus (8) found group systematic desentization to be superior to insight-interprative group therapy but had confounding evidence due to possible differential therapist effectiveness and experimenter bias. Katahn, et al. (7) combined directive counseling and group desensitization to produce significant test anxiety reductions among college students, but the combining of the treatments makes it impossible to determine which technique was responsible for the reduction.

Covert Positive Reinforcement

Covert processes are the result of work by Joseph Cautela and include covert sensitization (2), covert positive reinforcement (3), and covert extinction (4). The techniques are based on operant learning theory but differ in that they are applied covertly as opposed to overtly. Cautela reports success with his techniques, but to date no

investigation using covert reinforcement on an individual basis for anxiety relief could be found.

Group Covert Positive Reinforcement

At the time of this investigation, there was only one account of covert positive reinforcement being used in a group context. The technique was used to reduce the test anxiety of college students and was successful (14).

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CHAPTER III

PROCEDURES AND DESCRIPTION OF THE INSTRUMENT

Source and Selection of Subjects

The subjects were drawn from undergraduate psychology classes during the second summer semester at North Texas State University. The College Form of the TAQ was administered to two sections of undergraduate psychology, one freshman and one junior level. The questionnaires were scored and all students scoring 212 or above (the upper quarter) who were between the ages of eighteen and thirty became potential subjects. This resulted in twenty-one possible subjects. The potential subjects in the freshman class were individually interviewed by a standard format (see Appendix E) and given an opportunity to participate in the study. Names and class schedules were collected from those students expressing a desire to participate. Times were then arranged in accordance with the schedules of those wishing to participate. One group was scheduled to meet on Monday, Wednesday, and Friday mornings from 10:00 through 10:45. The second group was scheduled to meet on Monday, Wednesday, and Friday from 12:30 through 1:15. The groups were formed at convenient times of necessity and random assignment of subjects was impossible. A

coin toss was used to randomly assign treatment conditions. The morning group was the desensitization group, and the afternoon class was the reinforcement group. It was not believed that the two groups differed systematically from each other. Four subjects were in each group.

The test-retest group was also comprised of four subjects, but the subjects were taken from a junior level psychology class. These subjects had scores on the TAQ falling in the upper quarter of the distribution but did not know that they were serving as control subjects. The subjects were not interviewed and were merely retested at the end of the treatment period.

Treatment Conditions Systematic Desensitization Group

The systematic desensitization group consisted of three males and one female with the average age being 23.75 years. The group met for nine sessions of approximately forty-five minutes each. The first three meetings were devoted to an explanation of the rationale of systematic desensitization (see Appendix C), anxiety hierarchy construction, and training in deep muscle relaxation. The remaining six sessions were spent in systematic desensitization to the individualized anxiety hierarchies.

The desensitization process went as follows: The subjects came into the room where the treatment was being given

and lay down on quilts which had been placed on the floor. The subjects were then instructed to close their eyes and begin to relax. The experimenter then read the relaxation script from Krumboltz and Thoresen's Behavioral Counseling (4), pages 270-277. After the relaxation was completed, the subjects were instructed to take one card from the anxiety hierarchy stack and read it to themselves. They immediately shut their eyes and began to imagine themselves in the anxiety-provoking scene. If any member of the group felt the least bit anxious, he was instructed to signal by raising the index finger on his right hand. If one of the subjects signaled, the entire group was stopped and given one of the relaxation scenes from the Behavioral Counseling book. The group moved through the hierarchy as a unit. All of the items in the hierarchy were covered at least once and most were covered twice. All of the subjects had a class immediately after the session and did not interact with other subjects in the group.

Covert Positive Reinforcement Group

The covert positive reinforcement group consisted of two males and two females with the average age of 24.5 years. The group met for nine sessions of approximately forty-five minutes each. The first three meetings were devoted to the explanation of the covert positive reinforcement rationale (see Appendix D), anxiety hierarchy construction, and filling

out the Reinforcement Schedule Survey (see Appendix F). The remaining six meetings were spent in covert positive reinforcement of the relaxation response to anxiety-provoking stimuli.

The procedure was as follows: the subjects came into the room where the treatment was being administered. They were instructed to sit down in chairs and make themselves comfortable. Two stacks of cards were then passed out to them, a stack containing their hierarchies and a stack containing their reinforcement cards. Each subject had fifteen cards in the hierarchy stack and ten cards in the reinforcement stack. The reinforcement cards had been made from the Reinforcement Survey Schedule and were either graphic, descriptive scenes or pictures cut from magazines. The subjects were then asked to shut their eyes and do a very brief body relaxation. At a given signal each subject took one card from the hierarchy stack, read it, closed his eyes, and began to imagine himself feeling relaxed and confident in the anxiety situation. When everyone was imagining himself relaxed in the situation, at a given signal each would take one reinforcement and read it or look at the picture and begin to vividly imagine the scene. This was followed by a brief period of re-relaxation; and then the group would move on to the next hierarchy card. The group made it through the entire hierarchy at least once, and most of the items twice.

Test-Retest Group

The test-retest group consisted of three males and one female, with the average age being 22.25 years. On the day that the TAQ was administered to the freshman class it was also administered to a junior level class. The students whose scores fell in the upper quarter of the distribution were chosen to serve as control subjects. They were retested at the same time that the other two groups were retested. Out of six who qualified, only four were available for retesting. None of the students were informed that they were being used as control subjects for the investigation and they probably did not know that the investigation was being conducted.

Description of the Test Anxiety Questionnaire

To assess test-anxiety of the population chosen, the College Form of the Test Anxiety was used. The TAQ is a self-report device consisting of thirty-nine questions to which the subject is asked to respond. For each item there is a statement and a scale underneath. The ends of the scale represent opposing reactions, and the middle of the scale contains the word "Mid-point." The subjects were asked to place an X on the line at the point most representative of their response for the particular question. Four of the thirty-nine items are fillers and are not scored. The remaining thirty-five items are scored by hand on a

scale of one to ten, using a plastic overlay prepared for scoring purposes. The end of the scale representing the highest level of anxiety is scored as ten, and the end of the scale representing the lowest anxiety is scored as one. Possible scores on the TAQ range from a low of 35 to a high of 350.

A test-retest reliability of .91 and a split half reliability of .91 are reported by Mandler and Cowen (5). A correlation of .64 was reported by Albert and Haber (1) between the TAQ and the Debilitating Achievement Anxiety Scale. Raphelson (7) reported a correlation of .59 between the TAQ and the Manifest Anxiety Scale. Endler, Hunt, and Rosenstein (3) reported a correlation of .66 between the TAQ and the S-R Inventory of Anxiousness.

The Reinforcement Survey Schedule (RSS), by Cautela and Kastenbaum (2), was used to identify potential reinforcers for the covert positive reinforcement group. The RSS is a survey to identify potential reinforcing stimuli and their relative reinforcing value. The survey is divided into four sections, as follows: reinforcers that can be presented in palpable, facsimile, or imaginary form; reinforcers that can be presented only in facsimile or imaginary form; contextual situations that are reinforcing; and a survey of frequently occurring behaviors. There are sixty-three items

and the subjects were instructed to rate the items according to their potential reinforcing value or rate of occurrence. The ten items rated the highest for each individual were then put on cards in either picture form or in descriptive verbal form. This was designed to enhance visualization and clarity of imagery.

Anxiety Hierarchies

Both groups were presented with sheets containing fifteen test-anxiety situations. They were then asked to rate the items according to the anxiety-provoking potential of each item. The item with the least anxiety-provoking potential was rated as fifteen down to the greatest anxiety-provoking item, rated as one. The sheets were then collected and individual hierarchies were constructed on cards for each subject. The items were read by the subjects during the treatment process, and the groups moved through the hierarchy as a unit.

Data Analysis

An analysis of covariance (6, 8) was carried out on the pre-test and post-test scores of the three groups to determine if there were any significant differences between the three groups. The pre-test was used as the covariate to adjust for any initial differences between groups.

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CHAPTER IV

RESULTS

The results of analysis of covariance (1, 2) of anxiety reduction scores are presented in Table I. The obtained \underline{F} ratio was non-significant at the .05 level. The results indicate that there were no significant differences between the three groups in terms of anxiety reduction.

TABLE I
SUMMARY OF ANALYSIS OF COVARIANCE
OF ANXIETY REDUCTION SCORES

Source	SS	df	MS	F
Between Groups	11645.3516	2	5822.6758	2.9697
Within Groups	15685.6563	8	1960.7070	*
Total	27331.0078	10		·
			`	

Evaluation of the Hypotheses

Hypothesis number one stated that subjects participating in group systematic desensitization for test-anxiety would demonstrate significantly greater score reductions on the TAQ than would non-participating control subjects.

The results of an analysis of covariance indicates rejection of the hypothesis.

Hypothesis number two stated that the subjects participating in group covert positive reinforcement for test anxiety would demonstrate significantly greater score reductions on the TAQ than would non-participating control subjects. The results of the analysis of covariance indicate rejection of the hypothesis.

Hypothesis number three stated that subjects participating in group systematic desensitization and in group covert positive reinforcement would demonstrate equally significant score reductions on the TAQ. The first two hypotheses, on which the third hypothesis was contingent, were rejected and thus made the third hypothesis no longer applicable.

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CHAPTER V

DISCUSSION

The results of the present investigation were non-significant and showed no significant differences between the three groups. There are several possible reasons for this.

The most obvious explanation for the insignificant results is that the methods effect no change. However, this position is highly untenable, as the study by Taylor (1) showed group systematic desensitization to be effective in reducing test-anxiety, and the study by Wisocki (2) showed group covert positive reinforcement to be effective in reducing test-anxiety.

A second possible explanation for the results is that the subjects were unable to vividly imagine the scenes. The only way at the present time to indirectly measure visual imagery is by electromyograph (EMG). This apparatus measures muscular contractions which are said to be present in the area of the subject's visual imagery. For example, if the subject were instructed to imagine himself running, then the legs should give off impulses and be picked up by the EMG. The EMG apparatus was not used and self-report was relied upon. An attempt was made to describe the scenes

as graphically as possible to aid in visualization. However, if the subjects were deficient in vocabulary or verbal ability, poor imagery would probably result. It was assumed that the above was not the case.

The treatment duration (number of sessions) was rather short, and this could have had an effect on the outcome. However, the Taylor study (1) used an even smaller number of sessions and obtained significant results. The subjects in the present study went through the hierarchies at least once and most items were covered twice. The above explanation no longer seems tenable.

A third possible explanation for the insignificant results is that the sample size (\underline{N}) was so small. The use of parametric statistics with such a small \underline{N} requires a very large treatment difference to compensate for the lack of df. Also, if the subjects within each group exhibit great variability in their scores, any significant differences can be cancelled out. The subjects in the groups were quite variable (see Table II) in their test-retest scores. The fact that the \underline{N} was so small and the variability within the groups was so great probably accounts for the insignificant results.

Some of the experimental treatment subjects had greatly reduced scores while other subjects had very small score reductions. The subjects who had large score reductions

attended regularly, were punctual, reported clarity of visualization, and seemed motivated. Subjects who were absent, were frequently tardy, reported difficulty in visualization, and who seemed apathetic tended to have very small score reductions.

TABLE II

PRE-TEST AND POST-TEST SCORES ON THE TAQ
BY INDIVIDUAL AND BY GROUP

Group	Member	Res-test	Post-test
· · · 1 - · _/ · · ·	e Stewart file was ending	sa franci 28.0 7-y	231
	n 7 - 2 - 7 - 2 - 7 - 2 - 1	236	142
	3	318	253
	4	242	89
2	1	273	133
	2	236	215
	3	240	180
	4	292	208
3 .	1	236	252
	2	276	230
	. 3	244	238
	4	227	212
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CHAPTER VI

SUMMARY AND CONCLUSIONS

During the past ten to fifteen years there has been a growing interest in both behavioral techniques and group counseling methods for use in counseling and psychotherapy. Systematic desensitization has been widely used to alleviate various fears and phobias, with positive results. Covert positive reinforcement has also been successfully used to alleviate anxiety, but is relatively new, and little research has been done.

The purpose of this investigation was to partially replicate and extend Taylor's investigation (1), using both group systematic desensitization and group covert positive reinforcement to reduce test anxiety. The experimenter hoped to obtain results that both techniques would be equally effective in reducing test anxiety. It was hypothesized that both techniques would be equally effective in reducing test anxiety when compared to a control group.

The sample consisted of twelve highly test-anxious college students at North Texas State University. The students were placed into two experimental groups and one control group. Group systematic desensitization was administered to one experimental group and group covert positive reinforcement was administered to the other experimental group.

The control group received no treatment. The two treatment groups met for a total of nine sessions, forty-five minutes each, three times a week for three weeks. Anxiety levels were measured pre-test and post-test, using the College Form of the Test Anxiety Questionnaire.

The results were obtained by an analysis of covariance on pre-test and post-test scores, using the pre-test as the covariate. Non-significant results resulted in rejection of the first two hypotheses, and thus invalidated the third hypothesis. The obtained \underline{F} was non-significant at the required .05 level. No follow-up was done.

There are several possible reasons for the insignificant results. The subjects were not randomly assigned to the two treatment times, and the number of treatment sessions was relatively short. No EMG apparatus was used to measure visual imagery, and some subjects attended more sessions, were more punctual, reported better visualization, and were more highly motivated than others. The most probable reasons for insignificant results are that the groups were comprised of a very small N and the scores within the groups were highly variable, thus canceling the differences.

CHAPTER VI BIBLIOGRAPHY

1. Taylor, D. W., "A Comparison of Group Desensitization with Two Control Procedures in the Treatment of Test Anxiety," Behavior Research and Therapy, IX (October, 1971), 281-284.

APPENDIX A

PROCEDURES FOR CONSTRUCTION

OF ANXIETY HIERARCHY

NAMEGROUP_
Each statement below describes a situation that is in some way related to taking examinations. If you found yourself in any one of these situations, you might be bothered quite a bitsomewhatnot at all. Look over the list of situations. If you can think of other situations which bother you in relation to taking exams, add these situations to the list. You do not have to add any situations, but please feel free to do so. When the list seems to contain all of the situations that might bother you, look it over again for a moment. The pick the situation that would both you the most and place a l beside it. Next, look at the remaining situations. Of these, pick the one that would both you the most and place a 2 beside it. Continue with this procedure until you have ranked all of the items on the list, including any that you may have added.
on the way to school the day of an examination in the process of taking an exam sitting at your desk and waiting for the distribution of the exams cramming for an exam the night before entering the room where an exam is to be given the teacher announces and discusses a course examination with the class having thirty minutes left to complete an examination and an hour's worth of work to do seeing an exam question and not being sure of the answer the examination paper lies face down on the desk one day before an important examination two days before an important examination one week before an important examination two weeks before an important examination one month before an important examination studying for an exam one week before the exam

APPENDIX B

QUESTIONNAIRE ON ATTITUDES TOWARD THREE

KINDS OF TESTING SITUATIONS

(COLLEGE FORM)

NAME:					
	(Please	Print)			
AGE:_		SEX:	MALE	FEMALE	

This questionnaire is designed to give you an opportunity to indicate how you feel in regard to three types of testing situations:

- a) the group intelligence or aptitude test, such as you took upon entrance to college,
- b) the course examination,
- c) the individual (face-to-face) type of intelligence test

One of the main reasons for constructing this questionnaire is the fact that very little is known about peoples' feelings toward the taking of various kinds of tests. We can assume that people differ in the degree to which they are affected by the fact that they are going to take a test or by the fact that they have taken a test. What we are particularly interested in here is how widely people differ in their opinions of and reactions to the various kinds of testing situations.

The value of this questionnaire will in large part depend on how frank you are in stating your opinions, feelings, and attitudes. Needless to say, your answers to the questions will be kept strictly confidential; they will under no circumstances be made known to any instructor of official of the university.

We are requesting you to give your name, age, and sex because this information may be necessary for research purposes.

Each of you has taken a course examination and a group intelligence or aptitude test, but not all of you have taken an individual intelligence test. Those of you who have not taken such a test are requested to answer the relevant questions in terms of how you think you would react to them. We want to know what you think your attitudes and feelings

toward taking such a test would be and not what you think they ought to be. Those who have taken an individual intelligence test will, of course, answer the questions in terms of what they actually experienced.

For each question there is a line or scale on the ends of which are statements of opposing feelings or attitudes. In the middle of the line you will find either the word "Midpoint" or a phrase, both of which are intended to reflect a feeling or attitude which is in between the statements of opposing feelings described above. You are asked to mark (X) on that point on the line which you think best indicates the strength of your feeling or attitude about the particular question. The midpoint is only for your guidance. Do not hesitate to put a mark on any point on the line as long as that mark reflects the strength of your feeling or attitude.

If you have any questions at this time, please ask the person who has passed out the questionnaires.

THERE ARE NO "CATCH" QUESTIONS IN THIS QUESTIONNAIRE. PEEASE READ EACH QUESTION AND EACH SCALE VERY CAREFULLY. THERE IS NO TIME LIMIT.

THE MIDPOINT IS ONLY FOR YOUR GUIDANCE. DO NOT HESITATE TO PUT A MARK (X) ON ANY POINT ON THE LINE AS LONG AS THAT MARK REFLECTS THE STRENGTH OF YOUR FEELING OR ATTITUDE.

SECTION I

The following questions relate to your attitude and experience with group intelligence or aptitude tests. By group intelligence tests we refer to tests which are administered to several individuals at a time. These tests contain different types of items and are usually paper and pencil tests with answers requiring either fill-ins or choices of several possible answers. Scores on these tests are given with reference to the standing of the individual within the groups tested or within specific age and educational norms. Tests required for entrance to college represent this type of test. please try to remember how you usually reacted toward these tests and how you felt while taking them.

1. How valuable do you think group intelligence tests are in determining a person's ability?

2.	Do you think that group intelligence tests should be used more widely than at present to classify students?
	Should be used as Should be used less widely at present more widely
3.4	Would you be willing to stake your continuance in college on the outcome of a group intelligence test which has previously predicted success in a highly reliable fashion?
	Very willing Uncertain Not willing
4.	If you know that you are going to take a group intelli- gence test, how do you feel beforehand?
,	Feel very unconfident Midpoint Feel very confident
5.	After you have taken a group intelligence test, how confident do you feel that you have done your best?
	Feel very unconfident Midpoint Feel very confident
6.	When you are taking a group intelligence test, to what extent do your emotional feelings interfere with or lower your performance?
	Do not interfere Midpoint Interfere a at all great deal
7.	Before taking a group intelligence test, to what extent are you aware of an "uneasy" feeling?
	Am very much Midpoint Am not aware aware of it of it at all
8.	While taking a group intelligence test, to what extent do you experience an accelerated heartbeat?
	Heartbeat does not Midpoint Heartbeat noticeably accelerate at all accelerated
9.	Before taking a group intelligence test to what extent do you experience an accelerated heartbeat?
	Heartbeat does not Midpoint Heartbeat noticeably accelerate at all accelerated

10. While taking a group intelligence test to what extent do you worry? Midpoint Worry a lot Worry not at all 11. Before taking a group intelligence test to what extent do you worry? Worry a lot Midpoint Worry not at all While taking a group intelligence test to what extent do 12. you perspire? Perspire not at all Midpoint Perspire a lot Before taking a group intelligence test to what extent do you perspire? Perspire not at all Midpoint Perspire a lot In comparison with other students how often do you think of ways of avoiding a group intelligence test? Less often than As often as More often than other students other students other students 15. To what extent do you feel that your performance on the college entrance tests was affected by your emotional feelings at that time? Affected a Midpoint Not affected great deal at all

SECTION II

The following questions relate to your attitude toward individual intelligence tests and your experience with them. By individual intelligence tests we refer to tests which are administered to one individual at a time by an examiner. These tests contain different types of items and thus present a variety of tasks. These tasks can be both verbal and manipulative, i.e., verbal or written answers to questions or manipulations of objects such as is involved in puzzles, form boards, etc. Please try to remember how you have usually reacted toward these tests or how you would expect to react to them.

16. Have you ever taken any individual intelligence tests?
Yes No (Circle the appropriate answer)

IF your answer to the above question is yes, indicate in the questions below how you do or did react to individual intelligence tests.

 $\overline{\text{IF}}$ your answer to the above question is no, indicate in the following questions how you think you would react to or $\overline{\text{feel}}$ about individual intelligence tests.

17. When you are taking an individual intelligence test, to what extent do (or would) your emotional feelings interfere with your performance?

Would not interfere Midpoint Would interfere with it at all a great deal

18. If you know that you are going to take an individual intelligence test, how do you feel (or expect that you would feel) beforehand?

Would feel very Midpoint Would feel very unconfident confident

19. While you are taking an individual intelligence test, how confident do you feel (or expect that you would feel) that you are doing your best?

Would feel very Midpoint Would feel very confident unconfident

20. After you have taken an individual intelligence test, how confident do you feel (or expect that you would feel) that you have done your best?

Would feel very Midpoint Would feel very confident

21. Before taking an individual intelligence test, to what extent are you (or would you be) aware of an "uneasy" feeling?

Am not aware Midpoint Am very much of it at all aware of it

22	While taking an individual intelligence test to what extent do you (would you) experience an accelerated heartbeat?
	Heartbeat does not Midpoint Heartbeat noticeably accelerate at all accelerated
23.	Before taking an individual intelligence test to what extent do you (would you) experience an accelerated heartbeat?
	Heartbeat does not Midpoint Heartbeat noticeably accelerate at all accelerated
24.	While taking an individual intelligence test to what extent do you (would you) worry?
	Worry a lot Midpoint Worry not at all
25.	Before taking an individual intelligence test to what extent do you (would you) worry?
	Worry a lot Midpoint Worry not at all
26.	While taking an individual intelligence test to what extent do you (would you) perspire?
	Would never Midpoint Would perspire a lot
27.	Before taking an individual intelligence test to what extent do you (would you) perspire?
	Would never Midpoint Would perspire perspire a lot
28.	In comparison to other students, how often do you (would you) think of ways of avoiding taking an individual intelligence test?
	More often than As often as Less often than other students other students

SECTION III

The following questions relate to your attitude and experience with course examinations. We refer to major examinations, such as mid-terms and finals, in all courses, not specifically in any one course. Try to represent your usual feelings and attitudes toward these examinations in general, not toward any specific examination you have taken. We realize that the comparative ease or difficulty of a particular course and your attitude toward the subject matter of the course may influence your attitude toward the examinations; however, we would like you to try to express your feelings toward course examinations generally. Remember that your answers to these questions will not be available, at any time, to any of your instructors or to any official of the institution.

29. Before taking a course examination, to what extent are you aware of an "uneasy" feeling?

Am not aware Midpoint Am very much of it at all aware of it

30. When you are taking a course examination, to what extent do you feel that your emotional reactions interfere with or lower your performance?

Do not interfere Midpoint Interfere a with it at all great deal

31. If you know that you are going to take a course examination, how do you feel beforehand?

Feel very Midpoint Feel very unconfident confident

THE MIDPOINT IS ONLY FOR YOUR GUIDANCE. DO NOT HESITATE TO PUT A MARK (X) ON ANY POINT ON THE LINE AS LONG AS THAT MARK REFLECTS THE STRENGTH OF YOUR FEELING OR ATTITUDE.

32. After you have taken a course examination, how confident do you feel that you have done your best?

Feel very Midpoint Feel very unconfident confident

33. While taking a course examination, to what extent do you experience an accelerated heartbeat?

Heartbeat does not Midpoint Heartbeat noticeably accelerate at all accelerated

34.	Before taking a course examination, you experience an accelerated heart	
	Heartbeat does not Midpoint accelerate at all	Heartbeat noticeably accelerated
35.	. While taking a course examination, you worry?	to what extent do
	Worry a lot Midpoint	Worry not at all
36.	. Before taking a course examination, you worry?	to what extent do
	Worry a lot Midpoint	Worry not at all
37.	. While taking a course examination, you perspire?	to what extent do
	Never perspire Midpoint	Perspire a lot
38.	. Before taking a course examination, you perspire?	to what extent do
	Never perspire Midpoint	Perspire a lot
39.	. When, in your opinion, you feel well course examination, how do you usua the examination?	
	Confident Midpoint	Anxious

THE MIDPOINT IS ONLY FOR YOUR GUIDANCE. DO NOT HESITATE TO PUT A MARK (X) ON ANY POENT ON THE LINE AS LONG AS THAT MARK REFLECTS THE STRENGTH OF YOUR FEELING OR ATTITUDE.

APPENDIX C

RATIONALE FOR SYSTEMATIC

DESENSITIZATION GROUP

You are all here today because of a shared complaint--excessive anxiety over taking tests and exams. I have asked you to participate in these meetings in order to help you overcome this complaint of test-anxiety.

Some psychological theories would say that your testanxiety is caused by hidden or unconscious motives of which
you have no awareness. I do not believe this to be the
case. The anxiety that you experience before or during an
exam is not something that is natural or inevitable, nor is
it something that you were born with. You are anxious in a
testing situation because you have learned to be anxious in
these situations. If anxiety is learned, it can also be
unlearned. This is precisely what we propose to do in this
series of meetings.

The method that we use to help you overcome your anxiety is called systematic desensitization. It involves two basic processes—relaxation and counterconditioning. I will explain the process to you now.

Anxiety about taking an exam is not a single anxiety but rather many anxieties which are connected to many different kinds of behavior. But let me illustrate this by drawing an example of a different nature--fear of high places. say that you are afraid of going up in tall buildings. Now, if this were the case, your fear would not begin when you got to the top of the building. It would begin before this point. You might first begin to become afraid when you walked toward the building; you might become more anxious as you entered the building; you might become a little bit more anxious as you entered the elevator, etc. The point is, there are many different behaviors involved in getting to the top of the build-Since this is the case, the first step in overcoming a fear of going to the top of the building might be overcoming the fear of walking into the building. Once you could do this without anxiety, you might then be able to walk toward the elevator without feeling anxious, etc.

We will attempt to break you'r test-anxiety down like this into smaller parts. Then, we will work on overcoming each anxiety, starting with the smaller ones and moving up to the bigger ones. In a few minutes we will construct a device known as an anxiety hierarchy. This will be the list of basic anxieties which we will eliminate one at a time.

Now, a word about relaxation. We use relaxation to eliminate anxiety, and we do so for a simple reason—it is impossible to be anxious and relaxed at the same time. The part of your nervous system which is responsible for anxiety is also responsible for relaxation, and it cannot do both at the same time. I will teach you how to relax much more deeply and thoroughly than you have ever relaxed before. While you are relaxed, you will learn to substitute this relaxation for the test—anxiety which you normally experience.

APPENDIX D

RATIONALE FOR COVERT POSITIVE

REINFORCEMENT GROUP

You are all here today because of a shared condition-excessive anxiety over taking tests and exams. I have asked you to participate in these meetings in order to help you overcome this condition of test-anxiety.

Some psychological theories would say that your testanxiety is caused by hidden or unconscious motives of which
you have no awareness. I do not believe this to be the case.
The anxiety that you experience before or during an exam is
not something that is natural or inevitable, nor is it something that you were born with. You are anxious in a testing
situation because you have learned to be anxious in these
situations. If anxiety is learned, it can also be unlearned.
This is precisely what we propose to do in this series of
meetings.

The method that we use to help you overcome your anxiety is called covert positive reinforcement. It involves the basic process of counterconditioning. I will explain the process to you now.

Anxiety about taking an exam is not a single anxiety but many anxieties which are connected to many different kinds of behavior. Let me illustrate this by citing an example of a different nature -- fear of high places. Let's say that you are afraid of going up in tall buildings. Now, if this were the case, your fear would not begin when you got to the top of the building. It would begin before this point. You might first begin to become afraid when you walked toward the building; you might become more anxious as you entered the building; you might become a little more anxious as you entered the elevator, etc. The point is, there are many different behaviors involved in getting to the top of the building. Since this is the case, the first step in overcoming a fear of going to the top of the building might be overcoming the fear of walking into the building, then walking toward the elevator, etc., all without feeling anxious.

We will attempt to break your test-anxiety down into smaller parts and then work on overcoming each anxiety, starting with the smaller ones and moving up to the bigger ones. In a few minutes we will construct a device known as an anxiety hierarchy. This will be the list of basic anxieties we will eliminate one at a time during the meetings.

Now, a word about covert positive reinforcement. We use covert positive reinforcement to learn new responses or behaviors. The process is called covert because it is done mentally or "in your head" and does not actually occur as overt behavior. You think it. Psychologists have known for a long time that a good way to learn is to reinforce or pay someone off for doing things. This seems to increase learning of new behaviors and prevent unwanted behaviors from being learned and exhibited. We will imagine ourselves in the situations being very relaxed and then being reinforced. This, of course, is incompatible with feeling and being anxious in the situations. Thus, a new response or behavior is learned to the situation. You will learn to substitute this new response for the test-anxiety which you normally experience.

APPENDIX E

INVITATION TO GROUP MEMBERSHIP

You may remember having filled out a questionnaire at the end of your class last Monday. That questionnaire had to do with how you felt about different types of testing situations and, more specifically, what sorts of anxiety you might feel in relation to taking tests, examinations, etc. These questionnaires have now been evaluated, and we feel that we have gained a better understanding of the way students feel about taking tests.

The response patterns of some of the questionnaires indicated that some of our students have very high levels of test anxiety, that is, some persons are bothered a great deal by tests and course exams. Psychological research has shown that the academic performance of many students is hampered or lowered by excessive anxiety, especially anxiety over tests.

I am a graduate student and am working on a program of research which is designed to evaluate some new methods of helping students to overcome excessively high levels of test-anxiety. The program which I am organizing this semester will take the form of small group meetings. These meetings will last approximately thirty minutes, and there will be nine such meetings spread out over the course of the semester.

Your responses on the test-anxiety questionnaire indicate that you may be one of those persons who are highly anxious about taking tests. Have you ever noticed yourself getting overly anxious before taking tests? Or, have you ever gone into a test and "blanked out" or forgotten material which you thought you knew pretty well?

We would naturally like to give the first chance at participation in these small group meetings to persons like yourself who had scores on the questionnaire which were indicative of high test-anxiety. Several students have already responded very favorably toward the idea of participating in one of these groups, especially since the total amount of time (nine thirty-minutes sessions) is not too great. Do you think that you might be interested in participating in this program designed to relieve or lower test-anxiety? We

have tentatively planned to have these meetings sometime on Mondays, Wednesdays, and Fridays, but I can be more flexible about the time if some other time would be more convenient for the participants.

Naturally, there is no charge made for participating in these sessions, although the same services purchased professionally might cost over one hundred dollars or so. This is one of the fringe benefits of being a student here. The only thing we ask is that you make a commitment to the entire group of nine meetings and agree to do your utmost to attend each session.

APPENDIX F

REINFORCEMENT SURVEY SCHEDULE

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		Section I			
					i (
1.	Eating				
	a. Ice Cream		$\label{eq:continuous} \mathbf{x} = \mathbf{x} - \mathbf{y} -$:
	b. Candy				
	c. Fruit				
	d. Pastry				·
	e. Nuts				·
	f. Cookies				
2.	Beverages				·
	a. Water	- 1	**************************************		÷ Š
	b. Milk			1. 1.	V
	c. Soft drink				
	d. Tea				
	e. Coffee				,
3.	Alcoholic Beverages				
	a. Beer	*			·
	b. Wine				
	c. Hard liquor				
4.	Beautiful Women				
5.	Handsome Men				
6.	Solving Problems				:
	a. Crossword puzzles				
	b. Mathematical problem	s		, Maria Carana da Artigo de Carana de Car	
	c. Figuring out how				
	something works		· · · · · · · · · · · · · · · · · · ·	the state of the s	*
7,	Listening to Music			ining of the second	
	a. Classical			····	
	b. Western Country	<u> </u>		······································	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	c. Jazz				
	d, Show Tunes	in in the same			
	e. Rhythm & Blues	<u> </u>			
	f. Rock & Roll			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	g, Folk	and the second	- Carrier Comment	<u> </u>	
_	h. Popular				
8.	Nude Men			<u> </u>	
9.	Nude Women				1

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					\$	
0.	Animals	:				
•	a. Dogs				. 4	
	b. Cats					
	c. Horses		*			
	d. Birds				-	
1.	Watching Sports Sec	tion II	 ,	.,		
	a. Football	CTOIL TI				
	b. Baseball					
	c. Basketball	*	***************************************		!	
	d. Track		· · · · · · · · · · · · · · · · · · ·	 ,		*****************
	e. Golf	 				
	f. Swimming					**************************************
	g. Running					
	h. Tennis		:			
	i Pool					
	j. Other					***************************************
2.	Reading					
•	a. Adventure			1		•
	b. Mystery	 .				
	c. Famous People					
				***************************************	-	
	d. Poetry e. Travel		***************************************			** ,
						
				 		
	g. Politics & History	*				
	h. How to-do-it		 ,	·	· ,	
	i. Humor	***************************************			-	* 4
	j. Comic Books					
	k. Love Stories					
	1. Spiritual					
	m. Sexy					
	n. Sports					
	o. Medicine					
	p. Science			<u> </u>	1 <u> </u>	
	q. Newspapers		·			`
3.	Looking at Interesting	`	*		1	
	Buildings		<u> </u>	:	<u></u>	
	Looking at Beautiful					
	Scenery				·	
•	T.V., Movies or Radio					
	Like to Sing				, ·	
	a. Alone					**
	b. With Others					
•	Like to Dance			•		
	a. Ballroom					
	b. Discotheque					
	c. Ballet or					
	Interpretive					

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		All	Little	Amount		Much
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	d. Square dancing					
_	e. Folk Dancing			<u> </u>		
18.	Performing on a Musical			!		
	Instrument		<u></u> .			
19.	Playing Sports					
	a. Football				-	
	b. Baseball					
	c. Basketball		****			
	d. Track & Field	·				· .
	e. Golf					
	f. Running	<u>~</u>		<u> </u>		
	g. Swimming					
	h. Tennis	<u> </u>		<u>, , , , , , , , , , , , , , , , , , , </u>	* 1	* .
	i. Boxing					
	j. Pool				1.5	
	k. Judo or Karate	-				
	l. Fishing			• •		
•	m. Skin-diving	-				
	n. Auto or cycle racing					
	o. Hunting	•		1		
	p. Skiing					
20.						
	a. Clothes					44
	b. Furniture					
	c. Auto parts & supply					
	d. Appliances					
	e. Food				10	
	f. New car			,		
	g. New place to live					
	h. Sports equipment		 '			
21.		***************************************				
22.	Playing Cards					
23.	Hiking or Walking				-	
24.	Completing a Difficult					
Z-T •	Job			,		
25.	VI	· · · · · · · · · · · · · · · · · · ·	· 			
26.						
			-			****
27.	Taking a Bath		***	*		
28.	Taking a Shower	· • · · · · · · · · · · · · · · · · · ·			·	· —————
29.	Being Right			•		
	a. Guessing what somebody					
	is going to do				-	
	b. In an argument		*			
	c. About your work	 .				
	d. On a bet					·
	· ·		•		(

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		A11	and the second second	Amount		Much
	·			*		
30.	Being Praised		-			
	a. About your appearance_			<u> </u>	. <u> </u>	
	b. About your work_					
	c. About your hobbies	<u> </u>				
	d. About your physical					
	strength		·	· · · · · · · · · · · · · · · · · · ·		
	e. About your athelic		•		* !	* .
	ability					
	f. About your mind					
	g. About your personality					
	h. About your moral				:	
	strength				****	
	i. About your understand-				* 7	•
	ing of others					
31.	Having People Seek you	•			į.	
	Out for Company			· <u> </u>	4	
32.	Flirting			***************************************	` 	
33.	Having Somebody Flirt				š	
<i>-</i> .	with You			·		
34.	Talking with People Who					
	Like You				<u></u>	***
35.	Making Somebody Happy				<u> </u>	
36.	Babies			1 (6)	. 1	-
37.	Children				* * * * * * * * * * * * * * * * * * * *	
38.	Old Men	·		****		
39.	Old Women	· · · · · · · · · · · · · · · · · · ·				
40.	Having People Ask Your				· ·	
47	Advice				 ,	,
41.	Watching Other People	: 				
42. 43.	Somebody Smiling at You	*	· · · · · · · · · · · · · · · · · · ·			
44.	Making Love	· · · · · · · · · · · · · · · · · · ·	 ,			-
45.	Happy People Being Close to an				***	
45.						
46.	Attractive Man				- A -	
40.	Being Close to an Attractive Woman) ; ;	
47.	Talking About the				7-6	
7/•	Opposite Sex					
48.	Talking to Friends					***************************************
49.	Being Perfect	 ,	-			****
50.	Winning a Bet	· 			 ,	
51.	Being in Church or Temple	*				
52.	Saying Prayers		<u> </u>			
53.	Having Somebody Pray for					
JJ.	You Somebody Pray 101	100			:	1
54.	Peace and Quiet					D
JT.	Todoc and garet	 				

Section III -- Situations I Would Like To Be In

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• • • • • • • • • • • • • • • • • • • •			*							situations?

1.	You have just completed a difficult job. Your superior comes by and praises you highly for "a job well done." He also makes it clear that such good work is going to be rewarded very soon.
not	at all () a little () a fair amount () much () very much ()
2.	You are at a lively party, Somebody walks across the room to you, smiles in a friendly way, and says, "I'm glad to meet you. I've heard so many good things about you. Do you have a moment to talk?" at all () a little () a fair amount () much () very much ()
3.	You have just led your team to victory. An old friend comes over and says, "You played a terrific game. Let me treat you to dinner and drinks."
not	at all () a little () a fair amount () much () very much ()
4.	You are walking along a mountain pathway with your dog by your side. You notice attractive lakes, streams, flowers and trees. You think to yourself, "It's great to be alive on a day like this and to have the opportunity to wander alone out in the countryside."
not	at all () a little () a fair amount () much () very much ()
5.	You are sitting by the fireplace with your loved one. Music is playing softly on the phonograph. Your loved one gives you a tender glance and you respond with a kiss. You think to yourself how wonderful it is to care for someone and have somebody care for you.
not	at all () a little () a fair amount () much () very much ()
6.	As you are leaving your place of worship, a woman turns to you and says, "I want you to know how much we appreciate all that you did for us in our time of trouble and misery. Everything is wonderful
not	now. I'll always remember you in my prayers." at all () a little () a fair amount () much () very much ()
	A. Now place a check next to the number of the situation that appeals to you most.
	Section IV
т 3 1	things was do as this hart short says
цļst	things you do or think about more than:
	10 15 20 times a day?
4 4 4 4 4	or yelyk ray film on the state that are a marked and the control of the state of the film of the state of the difference of the state o

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