

1974

The induction of mood states and the experience of success and failure.

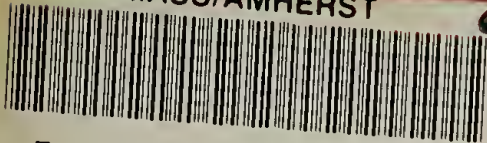
Ronald N. Casey
University of Massachusetts Amherst

Follow this and additional works at: <https://scholarworks.umass.edu/theses>

Casey, Ronald N., "The induction of mood states and the experience of success and failure." (1974).
Masters Theses 1911 - February 2014. 1382.
<https://doi.org/10.7275/6870914>

This thesis is brought to you for free and open access by ScholarWorks@UMass Amherst. It has been accepted for inclusion in Masters Theses 1911 - February 2014 by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.

UMASS/AMHERST



312066013802842

THE INDUCTION OF MOOD STATES AND
THE EXPERIENCE OF SUCCESS AND FAILURE

A Thesis Presented

By

RONALD W. CASEY

Submitted to the Graduate School of the
University of Massachusetts in partial
fulfillment of the requirements for the degree of

MASTER OF SCIENCE

December 1974

Department of Psychology

THE INDUCTION OF MOOD STATES AND
THE EXPERIENCE OF SUCCESS AND FAILURE

A Thesis

By

RONALD N. CASEY

Approved as to style and content by:



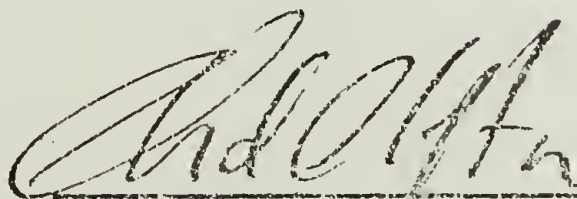
Bonnie Strickland, Chairperson of Committee



Stephen Reisman, Member



Alvin Winder, Member



Richard Loutuit, Department
Head
Department of Psychology

ACKNOWLEDGMENTS

I would like to thank: Dr. Bonnie Strickland, who chaired the committee and was of invaluable assistance through every step of the process; Dr. Stephen Reisman and Dr. Alvin Winder, who served on the committee and provided very helpful suggestions and criticism; Sally Ives, who typed the thesis; my other friends, who put up with me while I fought the deadlines; and Conchita, who constantly reminds me of what's really important.

ABSTRACT

The research was designed to examine the effects of mood on personal evaluations of success and failure. Forty-eight male undergraduate students were assigned randomly to one of four experimental conditions. Elation subjects read fifty self-referent mood statements which were cheerful, lively, and expansive in content. Depression subjects read fifty self-referent mood statements of an unhappy, pessimistic nature. Neutral subjects read fifty affectively neutral statements; these subjects formed one of the two control groups. The other control group, which read no statements, was included because previous research with the mood statements suggested that there might be an affective response to the neutral statements which made them unsuitable as a control group. Elation, depression, and neutral subjects were then given a standard mood adjective check list which included separate scales for scoring depression, anxiety and hostility; the no statements subjects began the experiment with this check list. An angle-matching task followed and upon completion of this subjects were asked to evaluate their performance and predict their performance on another, similar task.

It was predicted that after reading the statements, elation subjects would report less depression, hostility, and anxiety than subjects in control groups, and these subjects would report less depression, hostility, and anxiety than depression subjects. It was predicted that these differences

in affective state would lead to higher estimates of performance and predictions of future success by the elation subjects than those given by the control groups and higher estimates by the control group subjects than those given by the depression subjects. There were other variables in the design for which no specific predictions were made: reaction time, signature size, willingness, and perceived competence.

Elation subjects reported less depression and anxiety than other subjects, and elation subjects reported less hostility than no statements subjects. There were no other significant results on self-reported mood. There were no significant differences in estimates of performance or predictions of future success. The exploratory measures produced no significant findings. A discussion of the results and their implications is included.

TABLE OF CONTENTS

Introduction.....	1
Method.....	10
Results.....	15
Discussion.....	31
References.....	37
Appendix A.....	40
Appendix B.....	43
Appendix C.....	47
Appendix D.....	50
Appendix E.....	51

LIST OF TABLES

Table 1.	MAACL Depression Scale.....	16
Table 2.	MAACL Anxiety Scale.....	17
Table 3.	MAACL Hostility Scale.....	18
Table 4.	Questionnaire Item 1.....	20
Table 5.	Questionnaire Item 2.....	21
Table 6.	Questionnaire Item 4.....	23
Table 7.	Questionnaire Item 3.....	24
Table 8.	Reaction Time.....	26
Table 9.	Signature Size.....	27
Table 10.	Willingness.....	28

INTRODUCTION

Clinical depression has been viewed variously as symptom, syndrome, and clinical entity. From the time of Freud's (1917) original conceptualization of depression as retroflected hostility to the recent formulations of depression as determined by the loss of reinforcers (Lazarus, 1968; Lewinsohn, 1972), there also has been considerable theorizing in regard to etiology. The work of Beck (1967) emphasizes the importance of cognitive factors. Primacy is assigned to the depressive's negative view of his world, himself, and his future. The depressive has a cognitive set in which he interprets his interactions with the world as "representing defeat, deprivation, or disparagement" (Beck, 1967, p. 255), views himself as unworthy, deficient, inadequate, and sees his future as consisting primarily of the same kinds of suffering. A more concise way of putting this is that the depressive's cognitive distortions result in exaggerated perceptions of failure and expectations of failure.

Qualified support for the notion of the relationship between affect and success-failure comes from research into the antecedents of altruistic behavior. Berkowitz and Connor (1966) and Isen (1970) manipulated success and failure and found subjects in success conditions more likely to be helpful than subjects in failure conditions. In these experiments the results were attributed to positive affect engendered by the

success experience.

In their research into factors involved in an individual's selective attention to information about himself, Mischel, Ebbeson, and Zeiss (1973) found that subjects in success conditions attended more to positive personality information about themselves than subjects in failure conditions. Again the most feasible explanation was that positive affect had been generated. To test this, Susan Hoffman conducted a follow-up study (Mischel, Ebbeson, and Zeiss, 1973), in which positive, neutral, and negative affective states were induced through tapes and imagery. Subjects who had listened to positive tapes spent more time attending to positive personality information than did subjects who listened to neutral or negative tapes.

What is immediately noticeable in these investigations of success-failure is the lack of any effect of the failure manipulation. In all three experiments, subjects in failure conditions did not differ from controls. There is, then, no evidence for a cold glare of failure¹ to correspond to the "warm glow of success" (Isen, 1970) hypothesis utilized to interpret these findings. Isen suggests that the potential effects of failure were negated by "some desire to improve one's image" (Isen, 1970, p. 300), while Mischel, Ebbeson, and Zeiss implement attribution theory to suggest that the

¹Author's underlining.

impact of the failure experience was neutralized by the subjects' attribution of the cause of failure to factors outside their control.

These experiments are not a direct exploration of the relationship between affect and success-failure; affect enters the picture at the level of interpretation. There are alternatives to the "warm glow of success" hypothesis. Midlarsky (1968) and Kazdin and Bryan (1971) contend that the association between success and helping is mediated by perceived competence and not positive affect.

In a study using male psychiatric patients (Loeb, Feshbach, Beck, and Wolf, 1964), the question of success-failure and affect was addressed more directly. Subjects were divided into depressed versus nondepressed groups on the basis of a depression inventory, and success or failure on a task was manipulated. Successful subjects rated themselves as significantly happier than failure subjects; interestingly, there was no effect for predetermined level of depression. Additionally, successful subjects were more willing to volunteer for a future task and had higher estimates of the number of words they could write in three minutes. On this last measure, the depressed subjects who had succeeded had estimates significantly higher than any of the other three groups. Although the main effect for success-failure on volunteering and word estimates was consistent with earlier research with schizophrenics (Diggory and Loeb, 1962), the assumption that

depressives would be more responsive to failure than to success was not validated. These results are indeed provocative; they should, however, be viewed in context. These were hospitalized patients and thirty-one of the forty-two were diagnosed as schizophrenic. Additionally, this study and a similar one (Loeb, Beck, Diggory, and Tuthill, 1967) both would have benefited from the use of a normal control group. In this latter study, a similar design was used; the subjects were individuals seeking outpatient psychotherapy. Highly depressed subjects had lower probability-of-success estimates and rated their performance as poorer than lightly depressed subjects, although actual performance did not differ significantly. Success both improved the actual performance of the highly depressed subjects and increased their motivation.

To control for the difficulties inherent in the methodology used in these two studies, one possibility is the use of laboratory procedures to examine affect. Such a method was developed by Velten (1968). Subjects read a series of self-referent mood statements which were designed to induce a mood of elation or depression. A control group read neutral statements. The results included significant differences in writing speed, decision time, word association, and self-reported mood. Elation subjects wrote more numbers, reacted more quickly in the decision time and word association tasks, and reported themselves as less depressed than depression subjects. In writing speed and self-reported mood, neutral subjects dif-

ferred significantly from depression subjects in the predicted direction, and in decision time neutral subjects differed significantly from elation subjects in the predicted direction. Aderman (1972) used the same mood statements and found elation subjects more willing to volunteer for a future experiment than depression subjects. No control group was used. In another experiment (Strickland, Hale, and Anderson, 1974), elation, depression, and neutral subjects all differed from each other in the predicted direction on self-reported depression and anxiety; elation subjects differed from neutral subjects and depression subjects in reporting less hostility. Elation subjects were more expansive than depression or neutral subjects on a measure of graphic constriction and expansiveness and were more likely to prefer social and active endeavors over solitary and inactive ones. A recent experiment by Hale (1974), again using Velten's statements, yielded significant differences between elation and depression subjects on a digit symbol task, writing speed, graphic constriction and expansiveness, and self-reported mood. Significant differences were obtained between elation and neutral subjects on all these measures except self-reported mood, and between depression and neutral subjects on self-reported mood.

The results of these experiments lend support to the idea that mood can be effectively studied in a controlled laboratory setting. The mood changes induced by this methodology are the transient affective states which anyone experiences (Wessman and Ricks, 1966), and the relation of the

findings to the study of clinical depression hinges on the answer to one of the primary controversies surrounding depression. Beck poses the question this way: "Is depression an exaggeration of a mood experienced by the normal, or is it qualitatively as well as quantitatively different from a normal mood?" (1967, p. 3). The assumption that the laboratory study of mood changes can contribute to an understanding of clinical depression is contingent upon acceptance of the approach which views affective states as differing only quantitatively.

In this framework, the successful induction of mood via reading statements is evidence for a cognitive theory of depression. Velten states that "the theoretical goal of this experiment was to test the central tenet of 'semantic' /i.e., cognitive/ therapy, that the constructions or interpretations people place upon events determine their affective responses" (1968, p. 478). The purpose of the current research is to further explore the usefulness of the mood statements in examining the effects of an individual's affective state, in particular to test the theoretical position espoused by Beck (1967) that the depressive perceives and expects more failure than others. Beck's cognitive theory of depression would predict that given a situation in which an individual must rely on his own judgment to evaluate his performance, the depressive would be more likely to construe his performance as a failure than would an individual who is not depressed or who is elated. The literature has provided more consistent evidence for the effects of success on affect than for the

effects of failure (Berkowitz and Connor, 1966; Isen, 1970; Mischel, Ebbeson, and Zeiss, 1973); generally, the research with the mood statements has not suggested consistent differences between elation and neutral conditions or between depression and neutral conditions (Velten, 1968; Strickland, Hale, and Anderson, 1974; Hale, 1974). Yet the crucial dimension of Beck's cognitive theory of depression is that the depressive is different from a nondepressed individual due to his cognitive distortions. Considering this aspect of the theory, the central hypothesis of this study was that given a situation in which subjects were asked to evaluate their performance without the benefit of any objective criteria, elation subjects, depression subjects, and control subjects would all differ significantly from each other in their evaluation, with elation subjects seeing themselves as more successful than control subjects, and control subjects seeing themselves as more successful than depression subjects. In addition, when asked to predict success on a future task of the same type, similar results would be obtained.

An attempt was made to anticipate several potential problems in the methodology. The perceived competence factor (Midlarsky, 1968; Kazdin and Bryan, 1971) might be a mediating variable in the subjects' report of their success. A questionnaire item was included to assess this. Izard (1972) has suggested that depression and anxiety are not unitary concepts, but rather combinations of fundamental emotions. The combination in depression may overlap, in part, with the

fundamental emotions involved in anxiety. Beck (1967) states that anxiety and depression are often seen together in a patient. Grinker, Miller, Sabshin, Nunn, and Nunnally (1961) defined a pattern of clinical depression specifically involving high anxiety. In this research, use of the Multiple Affect Adjective Check List (Zuckerman, Lubin, Vogel, and Valerius, 1964; Zuckerman, Lubin, and Robins, 1965) provided ratings of both anxiety and depression, as well as hostility. Hale (1972) has suggested that a potential factor in the lack of consistent differences between neutral subjects and depression subjects is the possibility that the neutral statements are dull and monotonous and thus have a somewhat depressing effect. This research employed an additional control group which read no statements. Hale (1974) has suggested that another factor in the lack of consistent differences between neutral and depression subjects may be that subjects in the depression condition are less willing than others to respond to the mood statements. Thus the procedures included a questionnaire item to assess willingness.

The design conveniently allowed for the inclusion of two other exploratory measures. Zweigenhaft and Marlowe (1973) gave subjects feedback designed to either enhance or lower self-esteem. The signature sizes of subjects in the high self-esteem condition increased significantly; there was no change in the signature size of subjects in the low self-esteem condition. In the present experiment, signatures were

obtained before and after administration of the mood statements. A standard part of the clinical picture of depression is psychomotor retardation (Beck, 1967). As discussed earlier, Velten (1968) found reaction time differences between elation and depression subjects and between elation and neutral subjects. Response latency was recorded on the performance task of this experiment.

In summary, it was hypothesized that:

- 1) depression subjects would report more depression, hostility, and anxiety than subjects in control groups, and subjects in control groups would report more depression, hostility and anxiety than elation subjects;
- 2) depression subjects would have a lower estimate of their performance than subjects in control groups, and subjects in control groups would have a lower estimate of their performance than elation subjects;
- 3) when asked to predict their performance on another, similar task, depression subjects would predict less success than would subjects in control groups, and subjects in control groups would predict less success than would elation subjects.

There were no specific predictions for the perceived competence, signature size, reaction time, or willingness variables, nor was there a prediction as to the effect of the inclusion of the additional control group which read no statements.

METHOD

Subjects

Forty-eight male college students in undergraduate psychology courses were the subjects. Subjects were assigned randomly to one of four experimental conditions, with twelve subjects each in the elation statements, depression statements, neutral statements, and no statements groups. The choice of male subjects was made primarily due to the possibility that the performance task would be more salient for males than for females, i.e., males might be more personally invested in a task of this type and thus more concerned with evaluating their performance.

Experimenter

The experimenter was a twenty-seven-year-old male Caucasian graduate student. All subjects were run by the experimenter.

Procedures

The subject was told that there were two separate experiments being conducted. Explaining the procedures in this manner was an attempt to minimize expectations that the mood statements and the performance task were related. The first experiment was described as concerning people's moods and feelings and a brief explanation of the procedures was given. The subject was then asked to sign a statement in which he

agreed to participate in the experiment.² This was the first of the two signatures obtained for the signature size measure.

In all but the no statements condition, the subject was then seated across from a projector screen, and he was given the self-referent mood statements designed by Velten (1968). A set of slides which included the instructions and the mood statements, with one mood statement per slide, were used. The instructions were read aloud to the subject as the accompanying slides were shown. An automatic timing device on the projector allowed eight seconds for each of the mood statement slides.

The statements and instructions for each of the three conditions utilizing mood induction are included in Appendices A, B, and C. The series of fifty elation statements are cheerful, lively, and expansive in content, whereas the depression statements are of an unhappy, pessimistic nature. The neutral statements provide a control for the possible effects of reading statements and experimental participation. To evaluate the possibility that the neutral statements have a depressing effect, an additional control group was used, one which read no statements at all. This group began the experiment with the Multiple Affect Adjective Check List.

As an assessment of the effectiveness of the mood induc-

²This statement is required by University regulations.

tion, the Today Form of the Multiple Affect Adjective Check List (Zuckerman, Lubin, Vogel, and Valerius, 1964; Zuckerman, Lubin, and Robins, 1965) was used. The Multiple Affect Adjective Check List (MAACL) contains scales for anxiety, depression, and hostility. It consists of a list of adjectives which a subject checks to indicate which are applicable to his current feeling state. Upon completion of the MAACL, elation and depression subjects were asked to answer the following question: "How willing were you to respond to the mood suggested by the set of slides shown to you?" A seven-point scale was provided.

The subject was then told that he had completed the first experiment and that the second experiment was a perceptual discrimination task involving angle-matching. As this was a separate experiment, a second consent signature was necessary, providing the second measure of signature size. A 22" by 28" chart containing fifteen angles of various sizes in degrees, each identified by a letter, was placed in front of the subject at a distance of about six feet. Ten cards, each with one angle and an identifying number on it, were given to the subject one at a time, and he was asked to find the angle on the chart that was of the same size in degrees as the one on the card. The subject was allowed to turn the card around as he desired. He was told that he had 45 seconds for each one. The experimenter used a stopwatch to gauge the amount of time the subject took to respond to

each angle. Subjects were asked to give an answer if they had not done so at the end of 45 seconds.

None of the cards given the subject precisely matched an angle on the chart. Angles used in the experiment are shown in Appendices D and E. The angles on the chart ranged from 45° to 115° in 5° increments, while the angles given the subject ranged from 57.5° to 102.5° in 5° increments. Thus, for any angle given the subject, there were two on the chart that came within 2.5° .

Following the angle-matching task, the subject was asked to fill out a questionnaire. The questions were as follows:

- 1) "How many of the ten angles do you think you matched correctly?"
- 2) "This task has been given to about 100 college students. Of the people who have done this task, would you say you did as well as or better than a) 90 people, b) 80 . . ." (and so on by 10's down to 0)
- 3) "How good are you generally at tasks of this type?"
(A seven-point scale was provided)
- 4) "If given another angle-matching task of similar difficulty, how many do you think you could get right?" (out of 10)

The first two questions provided two different evaluations of success or failure, one in terms of absolute numbers and one in terms of performance relative to others. The third question was the measure of perceived competence. The fourth

question tested the expectancy of future success.

Upon completion of this questionnaire, the subject was given the post-experimental questionnaire. These questions, each on a separate page, progressed as follows:

- 1) "What do you think these experiments were about?"
- 2) "Did you think there was anything that was not as you were told it was? If so, please describe below."
- 3) "If I were to tell you there were things that were not as you were told, what do you think they might be?"
- 4) "There were things that were not as you were told. What do you think they were?"

After the subject completed this questionnaire, the true nature of the research was explained to him and any questions answered.

RESULTS

MAACL

On each scale of the MAACL, certain items ("0" items) are to be checked and others omitted ("+" items). The score is the total number of "0" items omitted added to the total number of "+" items checked. Means and standard deviations for the Depression and Anxiety scales of the MAACL are included in Tables 1 and 2, as well as a summary of the analysis of variance and t-tests for multiple comparisons. The analysis of variance showed a significant difference among the groups on both scales, and the t-tests for multiple comparisons revealed that on each scale, the elation subjects had significantly lower scores than subjects in the other three conditions, i.e., elation subjects reported less depression and anxiety. There were no other differences.

Means and standard deviations for the hostility scale are shown in Table 3. An F(max) statistic was obtained,³ and the assumption of homogeneity of variance was violated on the hostility scale ($F = 10.73$, $p < .01$). Based on the recommendation of Siegel (1956), Mann-Whitney U-tests were performed. A significant difference was found between the no statements and elation conditions ($p < .05$). There were no other differences.

³An F(max) statistic was obtained for all dependent variables except the willingness measure. This two-sample case utilized a test for homogeneity of two independent variances.

TABLE 1
MAACL DEPRESSION SCALE

<u>Means and Standard Deviations</u>				
	<u>Condition</u>			
	Elation	Neutral	No Statements	Depression
<u>Mean</u>	6.17	15.00	15.33	18.33
<u>s.d.</u>	4.86	6.14	6.05	8.07

<u>Analysis of Variance</u>			
<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Treatment	3	349.56	8.58*
Error	44	40.73	
Total	47		

*p < .001

t-Test for Multiple Comparisons

<u>Means</u>		<u>Differences</u>
Neutral-Elation	=	8.83*
No statements-Elation	=	9.16*
Depression-Elation	=	12.66**
No statements-Neutral	=	.33
Depression-Neutral	=	3.83
Depression-No statements	=	3.5

*Critical difference = 7.04 for $p < .005$, one-tailed test

**Critical difference = 9.25 for $p < .0005$, one-tailed test

TABLE 2
MAACL ANXIETY SCALE

<u>Means and Standard Deviations</u>				
	<u>Condition</u>			
	Elation	Neutral	No Statements	Depression
<u>Mean</u>	4.17	7.92	7.92	8.58
<u>s.d.</u>	2.55	2.61	4.14	4.01

<u>Analysis of Variance</u>			
<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Treatment	3	48.52	4.17*
Error	44	11.65	
Total	47		

* $p < .025$

t-Test for Multiple Comparisons

<u>Means</u>		<u>Differences</u>
Neutral-Elation	=	3.65*
No statements-Elation	=	3.65*
Depression-Elation	=	4.41**
No statements-Neutral	=	0
Depression-Neutral	=	.66
Depression-No statements	=	.66

*Critical difference = 3.38 for $p < .01$, one-tailed test

**Critical difference = 3.77 for $p < .005$, one-tailed test

TABLE 3

MAACL HOSTILITY SCALE

Means and Standard DeviationsCondition

	Elation	Neutral	No Statements	Depression
<u>Mean</u>	5.92	6.75	9.33	10.25
<u>s.d.</u>	1.78	3.52	5.84	5.77

The predictions of Hypothesis 1 were thus only partially confirmed. Elation subjects did report less anxiety and depression than subjects in control groups and depression subjects, and the elation subjects reported less hostility than subjects in the no statements condition. Depression subjects, however, did not differ from subjects in control groups.

Questionnaire

As a test of Hypothesis 2, questionnaire items 1 and 2 required that the subjects evaluate their performance on the angle-matching task. Item 1 asked the subject how many angles he thought he had matched correctly. Item 2 asked the subject to compare his performance to a group of 100 people who had done the task. Did he think he had done as well as or better than 90 people, 80, and so on by 10's down to 0. It was predicted that elation subjects would rate themselves as more successful than subjects in control groups, and subjects in control groups would rate themselves as more successful than depression subjects. Means and standard deviations and a summary of the analysis of variance are contained in Tables 4 and 5. There were no significant results, and Hypothesis 2 was not supported. It is interesting, however, that on both questionnaire items, depression subjects evaluated their performance as more successful than did any of the other subjects.

As a test of Hypothesis 3, questionnaire item 4 asked the subject how many angles he thought he could match cor-

TABLE 4

QUESTIONNAIRE ITEM 1

Means and Standard Deviations

	<u>Condition</u>			
	Elation	Neutral	No statements	Depression
<u>Mean</u>	5.75	4.83	5.83	6.42
<u>s.d.</u>	1.54	1.80	1.85	1.68

Analysis of Variance

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Treatment	3	5.14	1.73 n.s.
Error	44	2.97	
Total	47		

TABLE 5

QUESTIONNAIRE ITEM 2

Means and Standard Deviations

	<u>Condition</u>			
	Elation	Neutral	No statements	Depression
<u>Mean</u>	60.83	60.83	56.67	62.5
<u>s.d.</u>	15.05	15.64	16.14	14.22

Analysis of Variance

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Treatment	3	74.31	<1
Error	44	233.52	
Total	47		

rectly if given another, similar task. It was predicted that elation subjects would anticipate greater success than subjects in control groups, and that subjects in control groups would anticipate greater success than would depression subjects. Means and standard deviations and a summary of the analysis of variance are presented in Table 6. There were no significant differences and the predictions of Hypothesis 3 were not confirmed; again there was the interesting finding that depression subjects predicted greater success than subjects in any other groups.

Item 3 on the questionnaire was included to measure perceived competence as a possible mediating factor in subjects' estimates of their performance. The subject was asked how good he was generally at tasks of this type; a seven-point scale was provided with one as extremely incompetent and seven as extremely competent. As indicated in Table 7, the analysis of variance was not significant. Depression subjects, however, did rate themselves as more competent than any of the other groups. An analysis of covariance was carried out to test the effects of perceived competence on the other questionnaire measures. There were no significant results.

Reaction Time

Subjects were given a maximum of 45 seconds to respond to each of the angles on the angle-matching task. A mean response latency was obtained for each subject. Means and standard deviations and a summary of the analysis of variance

TABLE 6

QUESTIONNAIRE ITEM 4

Means and Standard Deviations

	<u>Condition</u>			
	Elation	Neutral	No statements	Depression
<u>Mean</u>	6.75	6.33	6.33	6.92
<u>s.d.</u>	1.60	2.10	1.72	1.38

Analysis of Variance

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Treatment	3	1.06	<1
Error	44	2.97	
Total	47		

TABLE 7

QUESTIONNAIRE ITEM 3

Means and Standard Deviations

	<u>Condition</u>			
	Elation	Neutral	No statements	Depression
<u>Mean</u>	4.67	4.08	4.42	5.00
<u>s.d.</u>	1.23	1.50	1.24	.85

. Analysis of Variance

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>	
Treatment	3	1.81	1.19	n.s.
Error	44	1.51		
Total	47			

are included in Table 8. There were no significant differences.

Signature Size

Subjects were required to sign a consent statement before each of what were presented as two experiments. This procedure yielded signatures from before and after the mood induction. The measurement of signature size was the one used by Zweigenhaft and Marlowe (1973). The total area in centimeters squared used in the signature was determined as follows: the distance from the highest point in the signature to the lowest was multiplied by the distance from the beginning of the first letter to the end of the last letter. The actual scores in the data presented in Table 9 are the differences between the size of the second signature and the size of the first signature. A constant of 6 was added to each score to correct for negative differences. The $F(\max)$ statistic was significant for this measure ($F(\max) = 24.96, p < .01$). As recommended by Seigel (1956), Mann-Whitney u -tests were performed. The results were not significant.

Willingness

Each subject in the elation and depression conditions was questioned as to how willing he was to respond to the mood suggested in the mood statements. A seven-point scale was provided, with one as least willing and seven as most willing. Table 10 gives the means and standard deviations.

TABLE 8

REACTION TIME

<u>Means and Standard Deviations</u>				
	<u>Condition</u>			
	Elation	Neutral	No statements	Depression
<u>Mean</u>	19.84	21.91	25.82	20.21
<u>s.d.</u>	5.24	9.46	6.92	6.43

<u>Analysis of Variance</u>				
<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>	
Treatment	3	89.72	1.74	n.s.
Error	44	51.59		
Total	47			

TABLE 9

SIGNATURE SIZE

Means and Standard Deviations

	<u>Condition</u>			
	Elation	Neutral	No statements	Depression
<u>Mean</u>	7.15	6.46	6.56	7.29
<u>s.d.</u>	1.93	.83	2.10	4.12

TABLE 10

WILLINGNESS

<u>Means and standard deviations</u>		
	<u>Condition</u>	
	Elation	Depression
<u>Mean</u>	5.5	4.5
<u>s.d.</u>	.9045	1.68

Although depression subjects reported being somewhat less willing, the results of the t-test were not significant.

Post-experimental questionnaire

The post-experimental questionnaire was used to gauge in general what subjects thought was occurring in the experiment and to test specifically the effectiveness of the deception. The results indicated that with three exceptions, subjects did not have any awareness that the experiment was designed to affect their evaluations of their performance by means of mood induction. Eight subjects had vaguely-stated notions that the experiment was testing the effects of mood on performance, capabilities, or perceptions. Six other subjects suspected that the "two" experiments were related but had no idea as to what the connection might be. Fourteen subjects thought that perhaps the angles did not precisely match, but thirteen of these responses were to the latter three questions, which asked the subjects to think in terms of possible deception.

Additional Results

Pearson product-moment correlation coefficients were obtained to test post hoc whether there was a significant correlation between any individual MAACL scale and the responses to questionnaire items 1, 2, or 4. There were no significant results. Again using Pearson's r , it was found that strong positive correlations did exist between the responses to

questionnaire items 1 and 2 ($\underline{r} = +.54$, $p < .001$), 1 and 4 ($\underline{r} = +.81$, $p < .001$), and 2 and 4 ($\underline{r} = +.39$, $p < .001$).

DISCUSSION

The hypotheses of the experiment were for the most part not supported. There were no differences among subjects in their evaluations of their performance or their predictions of future success. These hypotheses were based on the assumption that at least three clearly differentiated mood states would be established by the use of the mood statements. An examination of the MAACL results indicates that this assumption may not have been met. Elation subjects reported themselves as less depressed and anxious than other subjects and as less hostile than no statements subjects, but the depression, neutral and no statements subjects did not differ. The inclusion of the no statements control group and the lack of any differences between these subjects and the neutral subjects makes it clearer that it was the depression subjects for whom the mood induction was not effective based on self-report.

To date, the mood statement research (Velten, 1968; Strickland, Hale, and Anderson, 1974; Hale, 1974) has not suggested that the mood statements are able to consistently delineate three different affective states. At times the depression subjects are similar to the neutral subjects, and at times the elation subjects are similar to the neutral subjects. The present experiment was among the first to attempt to use the mood statements to explore a tenet of a cognitive theory of affect; in this sense, it was a dual test. Proof

of the effectiveness of reading statements in producing a particular mood state is in itself evidence for a cognitive theory of affect; the previous research has been primarily concerned with validating the methodology by testing the mood statements against self-report and specific behavioral measures thought to be susceptible to affective states. This experiment assumed the validity of the methodology and sought to implement it to examine further implications of the theory.

The results indicate that this experiment was not able to create three affective states or to confirm predictions based on Beck's theory; a possibility is the intrusion of intervening factors. Loeb, Feshbach, Beck, and Wolf (1964) found depressed patients in their experiment very responsive to a success manipulation, violating their hypothesis that depressives would be more responsive to failure. The authors speculate that the depressed patient's "resistance to favorable self-evaluations may be specific to particular motivational areas and situations" (p. 614). This suggests that the depressive's outlook is not a generalized one; he reacts selectively, and a significant role in the cognitive mediation of his experience is played by an evaluation of the salience of the situation. It is possible that the task in the present experiment did not tap into a dimension salient to enough subjects for the induced affect to influence estimates of performance.

If an affective state can be induced cognitively, it can be reduced cognitively. The standard clinical emphasis on getting the depressive actively involved in something that is rewarding and engaging can be partially explained as the introduction and strengthening of cognitions to compete with the depressive's potent self-denigrating cognitions. Elation subjects in the present experiment did form a separate group based on the MAACL; this did not result in higher estimates of performance. It is possible that the angle-matching task was sufficiently involving to negate the transient effects of the mood induction, and the results reflect nothing related to affect.

This explanation does not, however, take into account the intriguing finding that the depressed subjects had the highest estimates of their performance and also the highest predictions of future success. Although these results were not significant, they are sufficiently noticeable to warrant the speculation that the depression subjects did have an unpleasant experience and reacted to this by rewarding themselves more on the self-evaluation. Underwood, Moore, and Rosenhan (1973) found that both children instructed to think happy thoughts and those instructed to think sad thoughts self-rewarded more than children in a control group. This speculation assumes that there was some effect of the mood induction on the depression subjects which was not revealed on the MAACL. The MAACL results may reflect a negativistic

reaction to the experimental situation, i.e., the depression subjects may have withheld their true feelings, or there may have been denial on the part of the depression subjects that any depressive affect was engendered. The test of the relative willingness of the elation and depression subjects would not shed any light on the question of an unconscious mechanism, such as denial, at work. Even at a conscious level, however, depression subjects reported being less willing to respond to the mood statements. These results did not reach an acceptable level of significance ($t = 1.74$, $p < .10$), but the question may have pulled for a response indicating cooperation with the experimenter and thus may not have elicited the depression subjects' true attitude.

The post-experimental questionnaire indicated no difficulty with demand characteristics in this experiment; however, another interpretation of the MAACL results comes from Wispe, Kiecolt, and Long (1974), who implicate demand characteristics at another level. They suggest that the demand characteristics of Velten's statements are such that self-report measures of affect following the use of the mood statements are not valid.

In behavior theory terms, it can be argued that if a person reads a series of statements containing many negative affect words, these stimuli will mediate internal affective symbols so that the person's threshold will be lowered for checking cognate descriptive adjectives on the mood scales, which does not unequivocally indicate that the person feels bad (p. 22).

A logical extension of this idea is that it would be more surprising if subjects did not respond in the expected manner on the MAACL, for instance, the depression subjects in the present experiment. This lends credence to the suggestions that the mood statements had some effect on the depression subjects.

There were the two measures that avoided the problems of self-report as a test of the mood induction, but the signature size and reaction time variables would be sensitive to whatever distortions may have influenced the failure of the mood induction to have its predicted effect, and the use of these variables in prior research (Velten, 1968; Strickland, Hale, and Anderson, 1974; Hale, 1974) has not yielded differences between depression and neutral subjects. This is unfortunate, since finding indicators of mood other than self-report that are reliable would alleviate a major problem.

Since it is clear that in this study the mood statements did not systematically create groups of depression, neutral, and elation subjects, further research that necessitates distinct groups may be weakened if the experimenter relies on the mood statements alone to achieve this. Precautionary steps must be taken to eliminate those subjects for whom the mood manipulation is not effective. This would have been a significant improvement in the present experiment. Assuming that the reservations about the MAACL can be resolved, one way of verifying the mood statements would be to give the MAACL

before and after the mood statements, and eliminate those subjects whose difference scores do not attain some arbitrary standard. The difficulty here is that the use of the MAACL immediately before and after the mood statements increases the likelihood of problems with demand characteristics, as the intentions of the experimenter become more patently obvious. Another possibility is the elimination of all subjects whose scores do not differ by some given amount from the established norms for the MAACL.

Finally, the literature suggests that there may be sex differences relative to the mood statements. Although Strickland, Hale and Anderson (1974) used both male and female subjects and found no sex differences on self-reported mood, both Velten (1968) and Hale (1974) used female subjects and obtained differences in self-reported mood between depression and neutral subjects but not between elation and neutral subjects. The present experiment used males and differences were obtained between elation and neutral subjects but not between depression and neutral subjects. What this implies is that one of the more interesting and profitable avenues of exploration might well be a focus on those very subjects who do not respond to the mood statements, with the intent of discovering what distinguishes those who are susceptible from those who are not.

REFERENCES

- Aderman, D. Elation, depression, and helping behavior. Journal of Personality and Social Psychology, 1972, 24, 91-101.
- Beck, A. T. Depression: Clinical, experimental, and theoretical aspects. New York: Harper and Row, 1967.
- Berkowitz, L. and Connor, W. H. Success, failure, and social responsibility. Journal of Personality and Social Psychology, 1966, 4, 664-669.
- Diggory, J. C. and Loeb, A. Motivation of chronic schizophrenics by information about their abilities in a group situation. Journal of Abnormal and Social Psychology, 1962, 65, 48-52.
- Freud, S. Mourning and melancholia. In Sigmund Freud: Collected papers. New York: Basic Books, 1959, Volume 4, 152-170.
- Grinker, R. R., Miller, J., Sabshin, M., Nunn, R., and Nunnally, J. C. The phenomena of depressions. New York: Harper and Row, 1961.
- Hale, W. D. The induction of mood states and their effects of the experience of time, cognitive and psychomotor performance, and social behavior. Unpublished master's thesis, Emory University, 1974.
- Isen, A. M. Success, failure, attention, and reaction to others: The warm glow of success. Journal of Personal-

- ity and Social Psychology, 1970, 15, 294-301.
- Izard, C. E. Patterns of emotions: A new analysis of anxiety and depression. New York: Academic Press 1972.
- Kazdin, A. E. and Bryan, J. H. Competence and volunteering. Journal of Experimental Social Psychology, 1971, 7, 87-97.
- Lazarus, A. A. Learning theory and the treatment of depression. Behavior Research and Therapy, 1968, 6, 83-89.
- Lewinsohn, P. M. Clinical and theoretical aspects of depression. Paper presented at the Georgia Symposium in Experimental Clinical Psychology, 1972.
- Loeb, A., Beck, A. T., Diggory, J. C., and Tuthill, R. Expectancy, level of aspiration, performance and self-evaluation in depression. Proceedings of the Annual Convention, American Psychological Association, 1967, 2, 193-194.
- Loeb, A., Feshbach, S., Beck, A. T., and Wolf, A. Some effects of reward upon the social perception and motivation of psychiatric patients varying in depression. Journal of Abnormal and Social Psychology, 1964, 68, 609-616.
- Midlarsky, E. Aiding responses: An analysis and review. Merrill-Palmer Quarterly, 1968, 14, 229-260.
- Mischel, W., Ebbesen, E. B., and Zeiss, A. R. Selective attention to the self: Situational and dispositional determinants. Journal of Personality and Social Psychology, 1973, 27, 129-142.

- Siegel, S. Nonparametric statistics. New York: McGraw-Hill, 1956.
- Strickland, B. R., Hale, W. D., and Anderson, L. K. Manipulation of affect states and subsequent behaviors. Paper presented at the Annual Convention of the American Psychological Association, 1974.
- Underwood, B., Moore, B. S., and Rosenhan, D. L. Affect and self-gratification. Developmental Psychology, 1973, 8, 209-214.
- Velten, E. A laboratory task for induction of mood states. Behavior Research and Therapy, 1968, 6, 473-482.
- Wessman, A. E. and Ricks, D. F. Mood and personality. New York: Holt, Rinehart and Winston, 1966.
- Wispé, L., Kiecolt, J., and Long, R. E. Moods and helping revisited. Unpublished research, University of Oklahoma, 1974.
- Zuckerman, M., Lubin, B., and Robins, S. Validation of the Multiple Affect Adjective Check List in clinical situations. Journal of Consulting Psychology, 1965, 29, 594.
- Zuckerman, M., Lubin, B., Vogel, L., and Valerius, E. Measurement of experimentally induced affects. Journal of Consulting Psychology, 1964, 28, 418-425.

APPENDIX A

ELEVATION MOOD STATEMENTS

Instructions

Please read each of the following statements to yourself. As you look at each statement, focus your observation only on that one. This is not a memory task, so you should not spend too much time over any card.

These statements are intended to create a certain mood. Your success at coming to experience this mood will largely depend on your willingness to accept and respond to the idea in each statement and to allow each suggestion to act upon you without resistance.

Attempt to respond to the feeling suggested by each statement. Then try to think of yourself as definitely being and moving into that mood state.

If it is natural for you to do so, try to visualize a scene in which you have had such a feeling.

If you feel the urge to laugh, it will probably be because humor is a good way to counteract unwanted feelings or it might be because you feel yourself going into that mood. Try to avoid this reaction.

Statements

1. Today is neither better nor worse than any other day.
2. I do feel pretty good today, though.
3. I feel light-hearted.
4. This might turn out to have been one of my good days.
5. If your attitude is good, then things are good, and my attitude is good.
6. I've certainly got energy and self-confidence to spare.
7. I feel cheerful and lively.
8. On the whole, I have very little difficulty in thinking clearly.

9. For the rest of the day, I bet things will go really well.
10. My judgment about most things is sound.
11. I'm full of energy and ambition--I feel like I could go a long time without sleep.
12. My judgment is keen and precise today. Just let someone try to put something over on me.
13. If I set my mind to it, I can make things turn out fine.
14. I feel enthusiastic and confident now.
15. There should be opportunity for a lot of good times coming along.
16. My favorite song keeps going through my head.
17. Some of my friends are so lively and optimistic.
18. I feel talkative--I feel like talking to almost anybody.
19. I'm full of energy, and am really getting to like the things I'm doing on campus.
20. I'm able to do things accurately and efficiently.
21. I know good and well that I can achieve the goals I set.
22. Now that it occurs to me, most of the things that have depressed me wouldn't have if I'd just had the right attitude.
23. I have a sense of power and vigor.
24. I feel so vivacious and efficient today--sitting on top of the world.
25. It would really take something to stop me now!
26. In the long run, it's obvious that things have gotten better and better during my life.
27. I know that in the future I won't over-emphasize so-called "problems."
28. I'm optimistic that I can get along very well with most of the people I meet.

29. I'm too absorbed in things to have time for worry.
30. I'm feeling amazingly good today!
31. I am particularly inventive and resourceful in this mood.
32. Things look good. Things look great!
33. I feel an exhilarating animation in all I do.
34. I feel highly perceptive and refreshed.
35. My memory is in rare form today.
36. In a bouyant mood like this one, I can work fast and do it right the first time.
37. I can concentrate hard on anything I do.
38. My thinking is clear and rapid.
39. My life is so much fun; it seems to offer so many sources of fulfillment.
40. Things will be better and better today.
41. I can make decisions rapidly and correctly; and I can defend them against criticism easily.
42. I feel industrious as hell. I want something to do!
43. Life is firmly in my control.
44. I wish somebody would play some good loud music!
45. This is great--I really do feel good--I am elated about things.
46. I'm really feeling sharp now.
47. This is just one of those days when I'm ready to go!
48. I feel like bursting with laughter--I wish somebody would tell a joke and give me an excuse.
49. I'm full of energy.
50. God, I feel great!

APPENDIX B

DEPRESSION MOOD STATEMENTS

Instructions

Please read each of the following statements to yourself. As you look at each statement, focus your observation only on that one. This is not a memory task, so you should not spend too much time over any card.

These statements are intended to create a certain mood. Your success at coming to experience this mood will largely depend on your willingness to accept and respond to the idea in each statement and to allow each suggestion to act upon you without resistance.

Attempt to respond to the feeling suggested by each statement. Then try to think of yourself as definitely being and moving into that mood state.

If it is natural for you to do so, try to visualize a scene in which you have had such a feeling.

If you feel the urge to laugh, it will probably be because humor is a good way to counteract unwanted feeling or it might be because you feel yourself going into that mood. Try to avoid this reaction.

Statements

1. Today is neither better nor worse than any other day.
2. However, I feel a little low today.
3. I feel rather sluggish now.
4. Sometimes I wonder whether school is all that worthwhile.
5. Every now and then I feel so tired and gloomy that I'd rather just sit than do anything.
6. I can remember times when everybody but me seemed full of energy.
7. Too often I have found myself staring listlessly into the distance, my mind a blank, when I definitely should have been studying.

8. It has occurred to me more than once that study is basically useless, because you forget almost everything you learn anyway.
9. I do feel somewhat discouraged and drowsy--maybe I'll need a nap when I get home.
10. I'm afraid the fighting in Ireland⁴ may get a lot worse.
11. There have been days when I felt weak and confused, and everything went miserably wrong.
12. I've had daydreams in which my mistakes kept occurring to me--sometimes I wish I could start over again.
13. I'm beginning to feel sleepy--my thoughts are drifting.
14. I feel terribly tired and indifferent to things today.
15. Just to stand up would take a big effort.
16. I'm getting tired out. I can feel my body getting exhausted and heavy.
17. At times I've been so tired and discouraged that I went to sleep rather than face important problems.
18. My life is so tiresome--the same old thing day after day depresses me.
19. I couldn't remember things well right now if I had to.
20. I just can't make up my mind; it's so hard to make simple decisions.
21. I want to go to sleep--I feel like just closing my eyes and going to sleep right here.
22. I'm not very alert; I feel listless and vaguely sad.
23. I've doubted that I'm a worthwhile person.
24. I feel worn out. My health may not be as good as it's supposed to be.
25. It often seems that no matter how hard I try, things

⁴This was the only difference from Velten's (1968) statements. The original statement referred to the fighting in Vietnam.

still go wrong.

26. I've noticed that no one seems to really understand or care when I complain or feel unhappy.

27. I'm uncertain about my future.

28. I'm discouraged and unhappy about myself.

29. I've lain awake at night worrying so long that I hated myself.

30. Things are worse now than when I was younger.

31. The way I feel now, the future looks boring and hopeless.

32. Some very important decisions are almost impossible for me to make.

33. Things are easier and better for other people than for me. I feel like there's no use in trying again.

34. Often people make me very upset. I don't like to be around them.

35. It takes too much effort to convince people of anything. There's no point in trying.

36. I fail in communicating with people about my problems.

37. It's so discouraging the way people don't really listen to me.

38. I've felt so alone before that I could have cried.

39. Sometimes I've wished I could die.

40. My thoughts are so slow and downcast--I don't want to think or talk.

41. I just don't care about anything. Life just isn't any fun.

42. Life seems too much for me anyhow. My efforts are wasted.

43. I'm so tired.

44. I don't concentrate or move. I just want to forget about everything.

45. I have too many bad things in my life.
46. Everything seems utterly futile and empty.
47. I feel dizzy and faint. I need to put my head down and not move.
48. I don't want to do anything.
49. All of the unhappiness of my past life is taking possession of me.
50. I want to go to sleep and never wake up.

APPENDIX C

NEUTRAL MOOD STATEMENTS

Instructions

Please read each of the following statements to yourself. As you look at each statement, focus your observation only on that one. This is not a memory task, so you should not spend too much time over any card.

Statements

1. Oklahoma City is the largest city in the world in area, with 631.66 square miles.
2. Japan was elected to the United Nations almost fourteen years after Pearl Harbor.
3. At the end appears a section entitled "Bibliography Notes."
4. We have two kinds of nouns denoting physical things: individual and mass nouns.
5. This book or any part thereof must not be reproduced in any form.
6. Agricultural products comprised seventy percent of the income.
7. Saturn is sometimes in conjunction, beyond the Sun from the Earth and is not visible.
8. Some streets were still said to be listed under the old names.
9. Many states supply milk for grammar school children.
10. The typography, paper, and binding were of highest quality.
11. The desk was old, and scratched into its surface was a profusion of dates, initials, and pleading messages.
12. When the banyan bent down under its own weight, its branches began to take root.

13. The Hope diamond was shipped from South Africa to London through the regular mail service.
14. The review is concerned with the first three volumes.
15. The ship was ancient, and would soon be retired from the fleet.
16. Slang is a constantly changing part of the language.
17. There is a small article in the local newspaper which indicates acceptance of the kidnappers' terms.
18. Intramatics finds mates for the lonely.
19. 99.1% of Alaska is owned by the federal government.
20. Two men dressed as repairmen will appear shortly after the van pulls up.
21. The wood was discolored as if it had been held in a fire.
22. A light was noticed in the dark outside, and it moved eerily towards the house.
23. Painting in a few other non-European countries is treated in a separate volume.
24. A recent study revealed that one half of all college students were unable to find summer jobs.
25. Provoked arousal and orientation are accompanied by steeper negative shifts.
26. The names on the Christmas mailing list are alphabetically ordered.
27. Significantly, these changes occur during the full moon.
28. West Samoa gained its independence in 1965.
29. The magazine's report was slanted as usual.
30. The map would prove useless as a beginning guide.
31. Black and white pictures are arranged in ten sections.
32. No man worked harder than he.
33. Potter wrote humorous satires on social cynicism.

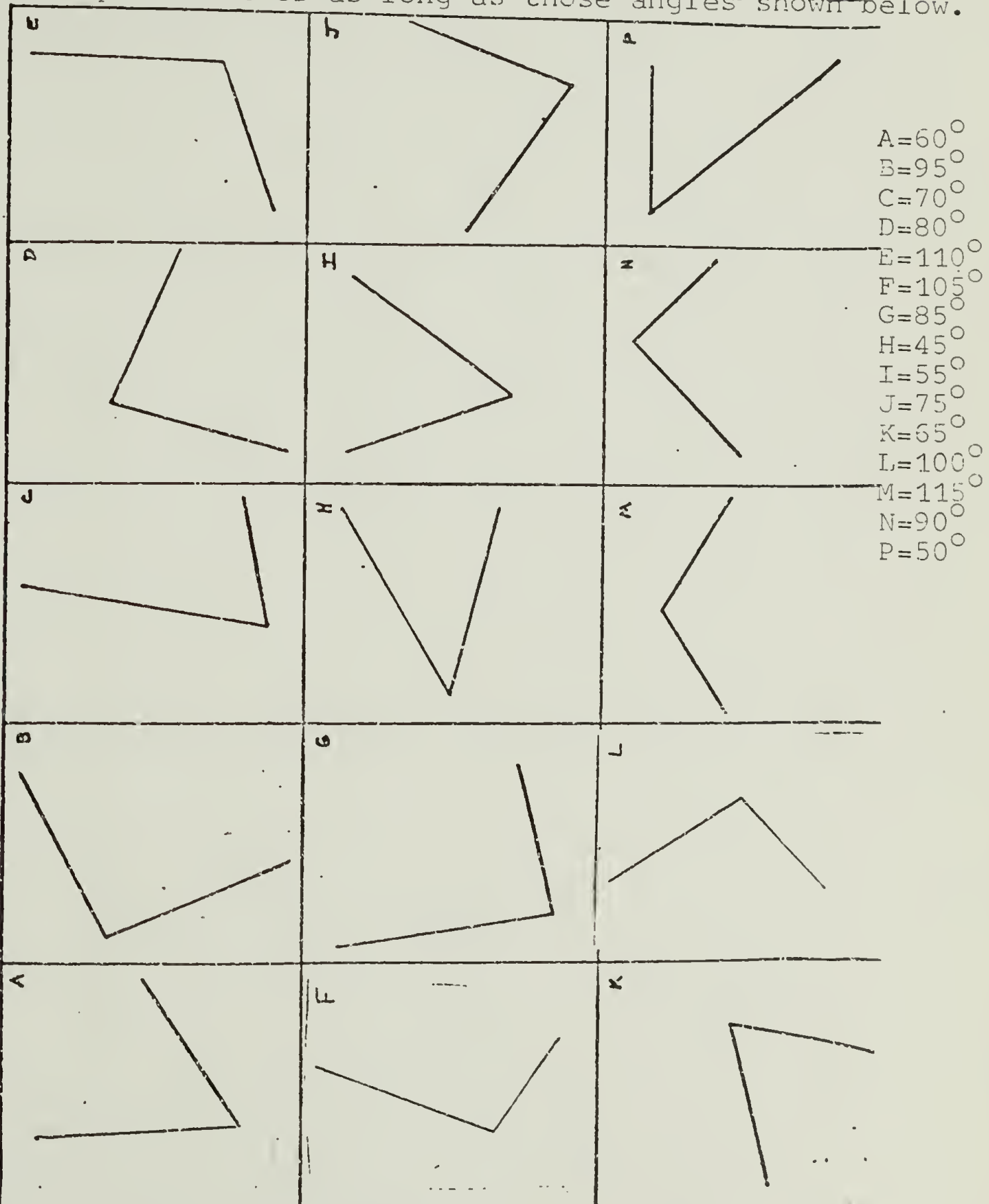
34. Boeing's main plant in Seattle employs 35,000 people.
35. The doorkeeper was dressed in red.
36. During the next ten years, the group participated in politics.
37. The organization depended on the people for support.
38. In 1965, Elizabeth made the first state visit by a British monarch to Germany in 56 years.
39. There are some forms in which no oath is required.
40. It was their sixth consecutive best seller.
41. It all fitted in with the officer's story.
42. The merger did not change the company's policy.
43. The mansion was rented by the delegation.
44. Ninety occupations were listed as eligible for the grads in business.
45. Utah is the Beehive state.
46. Changes were made in transport of lumber after the border incident.
47. The Chinese language has many dialects, including Cantonese, Mandarin, and Wu.
48. Things were booming once again in the little gold rush town of Angel.
49. At low tide, the hulk of the old ship could be seen.
50. A free sample will be given to each person who enters the store.

APPENDIX D

ANGLE-MATCHING TASK

Chart

The sides of the angles used in the experiment were approximately five times as long as those angles shown below.



APPENDIX E

ANGLE-MATCHING TASK

Cards

Each angle shown below was printed on a separate 3" x 5" card. The cards were given to the subject one at a time. The sides of the angles used in the experiment were approximately three times as long as those of the angles below.



$$\begin{aligned} 1 &= 57.5^\circ \\ 2 &= 97.5^\circ \\ 3 &= 87.5^\circ \\ 4 &= 67.5^\circ \\ 5 &= 82.5^\circ \end{aligned}$$

$$\begin{aligned} 6 &= 72.5^\circ \\ 7 &= 92.5^\circ \\ 8 &= 102.5^\circ \\ 9 &= 77.5^\circ \\ 10 &= 62.5^\circ \end{aligned}$$

