THE EFFECT OF EGO-INVolVEMENT AND ANXIETY ON LEARNING

THESIS

Presented to the Graduate Council of the North Texas State College in Partial Fulfillment of the Requirements

For the Degree of

MASTER OF SCIENCE

By

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Denton, Texas

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CHAPTER I

INTRODUCTION

Perhaps one outstanding characteristic of man's behavior is the continual modification of responses through learning. Therefore, how, where, and why this learning occurs is a key concept in furthering an understanding of man's behavior.

Learning is being manifested when man exercises his motor and verbal skills or solves problems. However, in observing the behavior of the organism, it is at once apparent that his behavior reflects past learning in many ways and that this behavior is being constantly modified by new experiences. To be more specific, one author has stated: "Reactions are modified and altered to a greater or lesser degree when they are ego-involved" (16, p. 6). This learning manifests itself in many forms of behavior changes and at many levels of complexity.

Because of its complexity it is necessary to analytically study learning under the control conditions of the laboratory. However, before learning can be studied in this manner, a rigorous definition is necessary. Therefore, learning shall be referred to as "measurable changes in behavior as a result of practice and the conditions that accompany practice" (14, p. 276). This definition is in reference to the changes made in a learning situation, i.e., improved performance.
No matter how learning is measured, the learner's performance is a joint function of many variables. Because of the complexity of the variables involved, it is important to hold as many of these variables as constant as possible and vary only a relevant few. One author has expressed this very aptly when he said, "... design the experiment so that the effects of the independent variables can be evaluated unambiguously" (21, p. 86). Therefore, measurable performance is contingent upon who learns it, what is learned, and how it is learned (14, p. 317).

An important aid in rate of learning is meaning (14, p. 319). This is especially true when the subject is learning serial materials where his rate of learning will be largely contingent upon the ease with which he can organize and group items. Meaning is important because it enables the subject to draw upon previous experiences or learning and associate or connect individual items in the previous experience with similar items in the new experience (9; 14, p. 43; 318).

In attempting to measure rate of learning it is important to be aware that verbal materials may have different meanings for each subject. This is why the nonsense syllables were introduced by Ebbinghaus: "being relatively free from 'ready-made' associations" (5, p. 102). The use of nonsense syllables or symbols, as used by Wechsler (22) in his testing of intelligence, almost insures the experimenter that each subject begins the test with a clean "memory slate." This
makes it possible to measure and study learning which is not encumbered by uncontrolled associations, which are initiated by meaning. With nonsense materials there is no reason to expect other than random differences between men and women learners, and it is not important that the number of men and women learners be equated under various experimental conditions. Only when the material is likely to have differential appeal to men and women do sex differences need to be controlled (15, p. 262).

However, as the subject performs, he does succeed in making the syllables or symbols more or less meaningful by establishing associations or similarities, remote and far-fetched though they may be. No matter what the nature of the learning items in the test may be, the learner must "establish connections among the, group them, and organize them so that he may finally perform the whole task" (14, p. 320).

Another variable must also be considered: the attitude(s) of the learner. These attitudes may be a significant determinant of the rate of learning and may be evoked by verbal material, i.e., reasons for taking the test (1, pp. 40-41; 14, p. 319).

Attitudes that direct a person to outdo others are ego-attitudes and these attitudes are developed as a result of the norms of the social system in which he lives (16, p. 156). Also the intensity and expression of these attitudes are subject to individual variations.
These attitudes are reflected in the individual's level of aspiration. This level of aspiration is usually a threat to the individual's self-esteem in that he must not only openly commit himself as to his expectations for future achievement, but must also exhibit his abilities for someone else (4, p. 223). In the early socialization of the person, a self-concept is learned which influences his goals and level of aspiration. Therefore, if the person is to attain ego-satisfaction, he must reach certain goals he has set for himself (12, p. 371). This involvement may be inferred from the individual's obvious efforts to do well, tensions, anxiety, and other signs which indicate he regards his own worth as involved. Therefore, "memory functions may be expected to be modified or changed whenever this ego-involvement or personal involvement exists" (20, p. 74). What is implied here is that when a person approaches a given subject matter with an attitude of personal identity, ego-involvement exists.

In one study the authors reported that "ego-involvement can be said to exist whenever an individual approaches a given subject matter with a set or attitude of personal identity, especially illustrated by the 'me,' 'my,' 'mine,' phraseology" (20, p. 74).

In view of this, it appears ego-involvement is, to a large extent, situationally determined. According to one author, "in certain cases the threshold of sensitivity of ego-involvement may be quite low, in other cases quite high,
depending on the demands of the situation and the psychological condition of the individual" (16, p. 4).

Experiments (16, p. 121) have shown that whether a level of aspiration is based on some definite anchoring from past experiences or is socially imposed, it must be regarded as an ego-involving frame of reference. It appears that individuals strive to achieve a better standing in their group because of individual differences that may command them to manifest themselves in a variety of efforts. Experiments have shown that in a social situation the performance of others in the group exerts a strong influence on the level of aspiration for the individual group members (2; 8).

Apparently the confidence one has in his ability to perform is related to ego-involvement. It was observed in one experiment (10) that ego-involved subjects showed a "generality of confidence" in their ability to perform. The confidence the individuals had in themselves to perform in the non-ego-involved situation appeared to apparently depend upon the nature and difficulty of the tasks themselves. What is implied here is that the subjects obviously became ego-involved because performance of the task was believed to have relevance to values already interiorized as part of the ego, e.g., a respected standing with college classmates and officials.

Apparently learning proceeds most effectively when the individual is motivated, i.e., when he has an interest or a
stake in the activity in which he is engaged. Since motivation is at the base of the learning process, it is evident that the learner will learn more effectively when the learning situation represents desired achievements or personal aspirations (19, p. 554).

Individuals attempt in everyday life to get some ego-enhancement from the prestige they hope to associate with their name. It has been found that most individuals are powerfully motivated to make a showing for themselves. Many an experimenter has found that when competition is involved, uninteresting work may be attacked with zest (19, p. 456).

However, success and failure in the accomplishment of various assigned tasks are meaningless to the learner unless the ego is sufficiently developed to serve as a basic anchorage (7, p. 245). One study (13) has shown that on non-learning tasks the level of achievement motivation, in part, determines the level of aspiration. This implies that those persons with high levels of achievement motivation are more likely to set higher levels of aspirations than those persons with lower levels of achievement motivation.

An individual is ego-involved when

... he is placed in a situation which is a threat to his status or role, it is a threat to his prestige or self-esteem. These threats instigate feelings of anxiety. Anxiety being a painful condition, serves as a motivating factor by energizing the organism. His behavior, as a consequence of this anxiety, tends to be directed toward alleviation of the anxiety and thus reduction of the motivating state (21, p. 151).
It appears, then, that an individual who is experimentally ego-involved will alter his drive level; and, consequently, his performance in a learning situation will be affected.

The reviewed quotations imply that learning is facilitated by a moderate increase in anxiety. In one study (11) it was found that the high achievement motivation group soon increased their output and generally continued to do so, relative to the low achievement group. The authors interpreted this increasing output with practice as a demonstration of learning. The instrument used in this study was a "scramble word" task.

In another study (3) the experimenters were interested in performance of anxious and non-anxious subjects on a stylus maze. It was found that non-anxious subjects' maze performance was significantly lower than the anxious subjects' performance. However, results revealed the anxious subjects to be superior to the non-anxious subjects in conditioning. Taylor (18) confirmed the findings of the experiments concerning conditioning in a study she undertook to determine the effect of different drive levels on performance in classical eye-lid conditioning on two groups of subjects, one of high anxiety subjects and one of low anxiety subjects. Results showed the anxious (high drive) group to be markedly superior to the non-anxious (low drive) group in the amount of conditioning exhibited. These findings
were also confirmed by Spence and Taylor (17) in a subsequent study.

On the basis of these studies it appears anxious (high drive) and non-anxious (low drive) groups differed in respect to drive level rather than general learning ability. It seems, however, that relationships between anxiety and learning will depend to an important extent on the nature of the instrument employed to measure anxiety.

Most of the studies on ego-involvement suggest that the ego is a genetic formation made up of personal and social values. These values serve the individual as frames of reference by means of which he makes those judgments which affect him, i.e., what he conceives to be his status, his class, and his role. These identifications of oneself with a certain constellation of values that influence and direct the person's behavior have been properly termed "ego-involved" (16, p. 153).

Therefore, when the individual feels he is in some way involved, the learning situation is differently organized for him and this organization will apparently affect what will be learned, how learning will take place, and how he will apply himself.

It is the purpose of this study to determine if ego-involvement influences the performance of an individual in a learning situation.
The hypotheses presented are that:

(1) In a learning situation the performance of individuals who are ego-involved will be raised to a significant level above that of individuals who are non-ego-involved.

(2) The ego-involved individuals will manifest anxiety to a significant level above that of the non-ego-involved individuals.

(3) Those individuals with high anxiety will perform superior to the low anxiety individuals within the given groups.
CHAPTER BIBLIOGRAPHY


CHAPTER II

PROCEDURE

To test the hypotheses, the Taylor Manifest Anxiety Scale (4) and an extended form of the Digit Symbol Test, as used by Wechsler in his intelligence scale, was administered to an Ego-Involved (E-I) Group and a Non-Ego-Involved (N-I) Group of subjects.

Selection of Subjects

The freshman students of the Business Psychology classes at North Texas State College in the spring semester of 1960 were the primary subjects of the investigation. Both groups were tested during the regular classroom periods. Inasmuch as the students enrolled for the course on a voluntary basis, and because the course is one of the most popular on the campus, random selection of subjects is claimed.

The group members differed in some respects, especially age. Ages in the E-I Group ranged from seventeen to twenty-two years, average age being 18.7 years. In the N-I Group ages ranged from seventeen to twenty-five years, average age being 18.8 years. In each group there were thirty-four males and thirty-four females, giving a total of sixty-eight subjects for each group. The extreme ages were found mostly
among veterans and married females entering college for the first time.

Description of Instruments

The Taylor Manifest Anxiety Scale (4) and an extended form of the Digit Symbol Test, as taken from the Wechsler-Bellevue Intelligence Scale, Form I (5), was administered to the groups to test the hypotheses stated in Chapter I.

Taylor Manifest Anxiety Scale

The Taylor Scale was derived from approximately two hundred items of the Minnesota Multiphasic Personality Inventory. Items were submitted to five clinicians, who selected sixty-five statements showing highest correlation with anxiety. From these sixty-five items, fifty were selected for use as a measuring instrument of manifest anxiety. One thousand nine hundred and seventy-one students at Iowa took the scale and normative data based upon the results is available.

Since the items used in the scale were obtained from the MMPI, the validity of the scale tends to rest with the validity of the MMPI. Several validation studies tend to support the validity of the Taylor Scale (1; 2; 3); test-retest coefficient for the Taylor Scale was found to be .82 over a five-month period and .81 for the 9-17 month period (4).

Digit Symbol Test

The Digit Symbol Test, in extended form, was taken from the Wechsler-Bellevue Intelligence Scale, Form I. The test
was chosen for this study because of several outstanding features of the test. First, it has a sample demonstration that permits the examiner to ascertain that the subjects understand what is required of them; second, it requires persistent effort to obtain a good score; and finally, the subjects are required to reproduce unfamiliar symbols and not associated numerals. Thus, the advantages that individuals with a facility for numbers would otherwise have are eliminated.

Collection of Data

Each group was given the test booklet containing the Taylor Scale and the Digit Symbol Test. The test booklet for the E-I Group had a title page which read:

The
North Texas State College
Standardized
Measurement of Intelligence Test

Inside the test booklet was a page set aside for information as to why the student was taking the test. This information read:

TO THE STUDENT

As a part of the Testing Program here at North Texas State College, you are required to take the North Texas State College Standardized Measurement of Intelligence Test. This test is designed to measure associative intelligence, i.e., your ability to form associations, an important component of your total intelligence. The score you achieve on this test will be made a part of your permanent record at this college.

The examiner read this information to the subjects and requested they read with him. No further information was given to
the group as to why they were taking the test. They were told to write their name, age, sex, and student classification on the cover of the test booklet.

The N-I Group test booklet did not have the title page or the page set aside as to the reason for taking the test. They were instructed not to write their names or any other personal information on the test booklet. They were told they were taking the test for experimental purposes only and it would be impossible for anyone to learn the score he had achieved on the test. No other information as to why they were taking the test was given to the group.

The first part of the test required the subjects to take the TMAS. Upon completion of the TMAS, the groups were given the Digit Symbol Test. Standard instruction for the Digit Symbol Test were given to both groups. The testing time for the Digit Symbol Test was limited to three and one-half minutes. In an effort to determine the testing time, the examiner and two of his associates gave the test to two groups of subjects not used in the experiment. Close observation revealed that after about two and one-half minutes the subjects began to grip their hands as if they had "writer's cramp." Also, it was observed that the subjects began to glance around the room and to look at the test sheet of the student sitting next to them. These and other signs which indicated the subjects were losing interest in the test were used as determinants in fixing a standard testing time. It was assumed that the E-I
subjects would be more interested in achieving a good score on the test and hence display greater persistence than the N-I subjects.

**Scoring**

Only those test items correctly filled in were scored on the Digit Symbol Test. There was no penalty for incorrect matching of the number-symbol associations. Reproduction of the symbols was assumed to be a demonstration of learning, i.e., reproduction of the symbols will be increased as the subjects learn the number-symbol associations and hence do not have to refer back to the paired number-symbol test boxes.

A high performance level on the test is interpreted to be the result of a high degree of learning the number-symbol associations and this high degree of learning is assumed to be facilitated by ego-involvement and an increase in anxiety as a result of the ego-involvement.
CHAPTER BIBLIOGRAPHY


CHAPTER III

RESULTS

In the first chapter three hypotheses were presented, and in order to test them, the \( t \) test of related groups was used to test the difference between the means of the E-I and the N-I Groups (1, p. 138).

To discuss the results of the study, each hypothesis will be treated separately. The first hypothesis was:

1. In a learning situation, the performance of the individuals who are ego-involved will be raised to a significant level above that of individuals who are non-ego-involved.

The results as given in Table I show that the E-I Group was superior in performance at the 2 per cent level of confidence to the N-I Group.

TABLE I

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE EGO-INVOLVED AND NON-EGO-INVOLVED GROUP'S PERFORMANCE ON THE DIGIT SYMBOL TEST

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-I</td>
<td>68</td>
<td>129.86</td>
<td>12.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-I</td>
<td>68</td>
<td>122.44</td>
<td>20.50</td>
<td>2.508</td>
<td>2%</td>
</tr>
</tbody>
</table>

18
Table I shows that the E-I Group was superior at the 2 per cent level of confidence to the N-I Group. This superior performance of the E-I Group is indicative of better learning of the paired number-symbol associations and appears to have enhanced the subject's performance. Therefore, the hypothesis offered—that in a learning situation the performance of individuals who are ego-involved will be raised to a significant level above that of individuals who are non-ego-involved—is for this study accepted at the 2 per cent level of confidence. Therefore, it may be concluded that in this study ego-involvement motivated the subjects to perform faster and this motivation brought about a better learning of the paired number-symbol associations, thus producing a superior level of performance.

The second hypothesis stated was:

2. The ego-involved individuals will manifest anxiety to a significant level about that of the non-ego-involved individuals.

TABLE II

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MANIFEST ANXIETY SCORES OF THE EGO-INVOLVED AND NON-EGO-INVOLVED GROUPS

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-I</td>
<td>68</td>
<td>13.75</td>
<td>6.352</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-I</td>
<td>68</td>
<td>18.03</td>
<td>21.403</td>
<td>1.566</td>
<td>Below 5%</td>
</tr>
</tbody>
</table>
Table II shows that this hypothesis was not supported by the findings of this study, for the \( t \) scores were not significant at the 5 per cent level.

The results in Table II show no significant difference; however, the results are not considered to be reliable. It is probable that the E-I Group did not honestly answer the questions on the Taylor Scale. This is a variable which is most difficult to control, inasmuch as the subjects were tested in an academic setting. Since the subjects were under the impression that their results would be made a part of their permanent record, there would be a natural tendency toward self-enhancement. An individual with "average" intelligence can fake his answers to enhance himself. Another source of error that is believed to have affected the results is that the Taylor Scale is not measuring situational anxiety. If this is the case, then future studies of this nature will be at a decided advantage if an instrument is used which measures anxiety that is situationally determined, rather than one that appears to measure anxiety which has been manifested throughout the life of the individual.

The third hypothesis offered was:

3. Those individuals with high anxiety will perform superior to the low anxiety individuals within the given groups.

The results as given in Table III show that the hypothesis was not supported by the findings of this study, inasmuch as the \( t \) scores were not significant at the 5 per cent level.
TABLE III

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE DIGIT SYMBOL SCORES OF THE HIGH AND LOW ANXIETY SUBJECTS IN THE EGO-INVOLVED GROUP

<table>
<thead>
<tr>
<th>E-I Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Anxiety</td>
<td>8</td>
<td>127.875</td>
<td>10.394</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Anxiety</td>
<td>23</td>
<td>136.478</td>
<td>16.810</td>
<td>1.319</td>
<td>Below 5%</td>
</tr>
</tbody>
</table>

Table III shows that there was no significant difference between the high and low anxiety subjects within the E-I Group. It will be noted, however, that there were only eight high anxiety subjects as compared with twenty-three low anxiety subjects. Because of the piling up of scores at the low anxiety end, these results are not representative of the group as a whole.

The same analytical treatment was given to the N-I Group scores and the results are presented in Table IV. The results show the same hypothesis to be rejected for the N-I Group, as the t scores were not significant at the 5 per cent level.

Table IV shows that there was no significant difference between the high and low anxiety subjects within the N-I Group. Again it will be noted that there was a piling up of scores at the high anxiety end of the scale. Because of this piling up, these results do not appear to be representative of the group as a whole.
TABLE IV

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE DIGIT SYMBOL SCORES OF THE HIGH AND LOW ANXIETY SUBJECTS IN THE NON-EGO-INVOLVED GROUP

<table>
<thead>
<tr>
<th>N-I Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Anxiety S's</td>
<td>21</td>
<td>124.714</td>
<td>20.831</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Anxiety S's</td>
<td>8</td>
<td>112.375</td>
<td>22.831</td>
<td>1.371</td>
<td>Below 5%</td>
</tr>
</tbody>
</table>

Further statistical treatment of the test results revealed some interesting findings. The first treatment of the results as presented in Table V shows that within the N-I Group a significant difference existed in the degree of anxiety manifested by the female and male subjects.

TABLE V

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MANIFEST ANXIETY SCORES OF FEMALES AND MALES WITHIN THE N-I GROUP

<table>
<thead>
<tr>
<th>N-I Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>34</td>
<td>19.882</td>
<td>6.361</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>34</td>
<td>16.177</td>
<td>6.857</td>
<td>2.275</td>
<td>5%</td>
</tr>
</tbody>
</table>

From the results in Table V, it would appear that in a non-ego-involved situation, females manifest a higher degree
of anxiety than do males. The effect of such a difference on performance is revealed in Table VI which presents the level of performance of females and males in a non-ego-involved situation.

**TABLE VI**

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN NON-EGO-INFRINGEMENT FEMALES' AND MALES' LEVEL OF PERFORMANCE ON THE DIGIT SYMBOL TEST

<table>
<thead>
<tr>
<th>N-I Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>34</td>
<td>128.824</td>
<td>19.299</td>
<td>3.901</td>
<td>.1%</td>
</tr>
<tr>
<td>Males</td>
<td>34</td>
<td>116.059</td>
<td>18.579</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results of Tables V and VI show that in a non-ego-involved learning situation the females manifested anxiety to a significant level above that of males. The sampling is too small to be representative of all students at North Texas State College, but it appears that females, as shown by this study, do manifest a higher degree of anxiety than do males in a non-ego-involved situation. This higher degree of anxiety appears to have affected the performance of the females within the N-I Group as they performed superior to the males at the .1 per cent level of significance (Table VI).

The same statistical treatment of results was given to the E-I Group concerning the degree of manifest anxiety for
female and male subjects and its relation to the level of performance between female and male subjects in an ego-involved situation. The results are presented in Tables VII and VIII.

TABLE VII

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MANIFEST ANXIETY SCORES OF FEMALES AND MALES WITHIN THE EGO-INVOLVED GROUP

<table>
<thead>
<tr>
<th>E-I Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>34</td>
<td>13.32</td>
<td>6.369</td>
<td></td>
<td>.485  Below 5%</td>
</tr>
<tr>
<td>Males</td>
<td>34</td>
<td>12.56</td>
<td>6.311</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the results in Table VII, it would appear that in an ego-involved learning situation there is no significant difference between the degree of manifest anxiety for female and male subjects. Because there was found to be a significant difference between male and female subjects' Taylor Scale scores within the N-I Group, with female scores being higher, it would appear that when placed in an ego-involved situation the male subjects' degree of manifest anxiety would be raised to the level of that manifested by females. Table VIII shows the results of an increase in manifest anxiety in an ego-involved learning situation.

Table VIII shows that when female and male subjects reveal no significant difference in manifest anxiety, no
TABLE VIII

LEVELS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN EGO-INVOLVED MALES' AND FEMALES' LEVEL OF PERFORMANCE ON THE DIGIT SYMBOL TEST

<table>
<thead>
<tr>
<th>E-I Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>34</td>
<td>129.18</td>
<td>10.870</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>34</td>
<td>130.56</td>
<td>14.636</td>
<td>.807</td>
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significant difference is found to exist between their levels of performance in an ego-involved learning situation. From the results (see Table VII and VIII) it appears that an increase in anxiety by the males in an ego-involved situation increases their performance scores to a level that approximates that of the female subjects.
CHAPTER BIBLIOGRAPHY

CHAPTER IV

DISCUSSION

The results in Table I, as presented in Chapter III, showed that the Ego-Involved Group was superior in performance to the Non-Ego-Involved Group at the 2 per cent level of confidence. This superior performance is assumed to have been facilitated by ego-involvement. Ego-involvement appears to have motivated the subjects to perform faster, and this motivation appears to have brought about a better learning of the paired number-symbol associations.

It was observed by the experimenter that the Non-Ego-Involved Group appeared to be more relaxed and seemingly enjoying the test more than the Ego-Involved Group. The Ego-Involved Group appeared to be more tense and persistent in their efforts than the Non-Ego-Involved Group. The Non-Ego-Involved Group's verbal expressions indicated that they perceived the situation to be somewhat comical.

The results of the study showed no significant difference between the Taylor Scale scores of the two groups; however, the results are not considered to be reliable. It is probable that the Ego-Involved Group did not honestly answer the questions on the Taylor Scale. Inasmuch as the subjects in the Non-Ego-Involved Group appeared to perceive
the situation as a comical one, it is probable that many of
the subjects attempted to be facetious in their answers.
Also, because the subjects were tested in an academic setting,
there would be a natural tendency on the part of the sub-
jects in the Ego-Involved Group toward self-enhancement.
This is because the subjects in the Ego-Involved Group were
under the impression that their Taylor Scale answers would
be made a part of their permanent record.

One other source of error that is believed to have
affected the results is that the Taylor Scale is not mea-
suring anxiety which is situationally induced. This assumption
is consistent with Jenkins and Lykken, who, after a careful
review of many experiments using the Taylor Scale, say:

The MAS seems to measure neither anxiety in the
ordinary sense of momentary arousal due to fearful
apprehension nor in the sense of long-term anxiety
proneness, persisting tension, low threshold of
alarm . . . . It would appear that the "theory" upon
which the test is based cannot be said to be con-
ferred (2, p. 96).

No significant difference was found between the perform-
ance of the low and high anxiety subjects, as measured by the
Taylor Scale on the Digit Symbol Test in either the Ego-
Involved Group or the Non-Ego-Involved Group. It will be
noted, however, that in the Ego-Involved Group there were
only eight high anxiety subjects and twenty-three low anxiety
subjects. In the Non-Ego-Involved Group there were only eight
low anxiety subjects as compared to twenty-one high anxiety
subjects. Because of the piling up of scores in both groups,
the results are not considered to be representative of either group as a whole.

The results, as shown in Tables III and IV, are consistent with the findings of a study by Heilizer (1). It was found in his study that high and low Taylor Scale subjects showed no significant difference in learning paired associates, i.e., meaningful words and nonsense syllables. Also, those paired associates that consisted of an emotionally charged word took on the average longer to learn for all subjects. Moffitt and Stagner (3) found that threat-induced (ego-threat) anxiety enhanced perceptual constancy, increasing frequency of closure, perceptual rigidity, and speed of establishing a stable configuration.

Further review of the literature failed to reveal any acceptable conclusions regarding the effects of stress (ego-threat) on performance of high and low Taylor Scale subjects, inasmuch as the evidence is very contradictory. This would appear to point to the fact that a need for standardization of the experimental procedures is needed in this area. Far too many experiments allow for insufficient comparison to permit an evaluation of their contradictory results.

It was found that female subjects in the Non-Ego-Involved Group manifested anxiety to a significant degree above that of non-ego-involved males. However, in the Ego-Involved Group there was found to be no significant difference in the degree of anxiety manifested by the female and male subjects.
Further statistical analysis showed the females in the Non-Ego-Involved Group to be superior in performance, as measured by the Digit Symbol Test, to the male subjects at the .1 per cent level of confidence. (See Table VI.) However, the results showed no significant difference in the level of performance for the female and male subjects in the Ego-Involved Group. (See Table VIII.)

From these results, it would appear that in non-ego-involved situations, female subjects will manifest anxiety to a significant degree above that of male subjects and this degree of anxiety will motivate them to perform in a superior manner to that of the male subjects.

Because there was found to be no significant difference in the degree of anxiety or the level of performance between the female and male subjects in the Ego-Involved Group, it would appear that the degree of anxiety for male subjects is raised to a level that approximates that of female subjects when placed in an ego-involved situation. It would appear from these results, that males are more threatened in an ego-threat situation, e.g., fear of failure in a competitive situation, than are females. This fear of failure by the males probably created an increase in anxiety which produced an increase in motivation. It is probable that the increase in motivation raised the male subjects' level of performance to approximate that of the female subjects.
CHAPTER BIBLIOGRAPHY


CHAPTER V

CONCLUSIONS

The hypothesis that in a learning situation the performance of individuals who are ego-involved will be raised to a significant level above that of individuals who are non-ego-involved was tested. The results showed the Ego-Involved Group to be superior in performance to the Non-Ego-Involved Group at the 2 per cent level of confidence. This superior performance by the Ego-Involved Group was indicative of better learning of the paired number-symbol associations. Because the Ego-Involved Group was superior in performance to the Non-Ego-Involved Group, the hypothesis is accepted.

The hypothesis that the ego-involved individuals will manifest anxiety to a significant level above that of the non-ego-involved subjects was also tested. The results showed no significant difference in the levels of anxiety for the two groups. Because no significant difference was found, the hypothesis is not accepted.

The hypothesis that those individuals with high anxiety will perform superior to the low anxiety individuals within the given groups was tested. The results showed no significant difference between the levels of performance for the
high and low anxiety subjects. Because no significant difference was found, the hypothesis is not accepted.

Further statistical analysis of the data revealed some interesting findings. It was found that in the Non-Ego-Involved Group female subjects manifested anxiety to a higher degree than did the male subjects. These findings were significant at the 5 per cent level of confidence. Because the findings were significant at the 5 per cent level of confidence, the results are accepted.

To determine if there was any significant difference in the levels of performance for the female and male subjects in the Non-Ego-Involved Group, their Digit Symbol Test scores were statistically treated. It was found that the female subjects were superior in performance to the male subjects at the .1 per cent level of confidence. These findings would tend to question the reliability of the results obtained when the third hypothesis was tested. This is because the female subjects manifested a higher degree of anxiety than did the males. Even though there is a question as to sex differences, there is no reason to suspect the female subjects of having a greater facility for performing the test. The test is constructed to require reproduction of unfamiliar symbols and not associated numerals, thus eliminating the advantages that individuals with a facility for numbers would otherwise have. Because the findings were significant at the .1 per cent level of confidence, the results are accepted.
The same statistical treatment of results was given to the Ego-Involved Group concerning the degree of manifest anxiety for female and male subjects. No significant difference was found between the degree of manifest anxiety for female and male subjects. Because the female subjects in the Non-Ego-Involved Group showed a significant difference in their degree of manifest anxiety to the male subjects, it would appear that, when placed in an ego-involved situation, the male subjects' degree of manifest anxiety is raised to a level which approximates that of the female subjects. It was also found that there was no significant difference between the female and male subjects' performance in the ego-involved situation. Therefore, it would appear that an increase in anxiety, unless it is too great an increase, would increase performance.

The over-all conclusion which may be drawn from this study is that the superior performance of the Ego-Involved Group to the Non-Ego-Involved Group indicates that ego-involvement is an important aid in learning. Therefore, it would appear important that teachers recognize its value and attempt to use ego-involved situations as a tool in their teaching techniques.

Because the Taylor Scale appears not to measure anxiety which is situationally determined, it is recommended that future studies of this nature use an instrument other than the Taylor Scale.
APPENDIX

TAYLOR MANIFEST ANXIETY SCALE

T  F  1. I do not tire quickly.
T  F  2. I am troubled by attacks of nausea.
T  F  3. I believe I am no more nervous than most others.
T  F  4. I have very few headaches.
T  F  5. I work under a great deal of tension.
T  F  6. I cannot keep my mind on one thing.
T  F  7. I worry over money and business.
T  F  8. I frequently notice my hand shakes when I try to do something.
T  F  9. I blush no more often than others.
T  F  10. I have diarrhea once a month or more.
T  F  11. I worry quite a bit over possible misfortunes.
T  F  12. I practically never blush.
T  F  13. I am often afraid that I am going to blush.
T  F  14. I have nightmares every few nights.
T  F  15. My hands and feet are usually warm enough.
T  F  16. I sweat very easily even on cool days.
T  F  17. Sometimes when embarrassed, I break out in a sweat which annoys me greatly.
T  F  18. I hardly ever notice my heart pounding and I am seldom short of breath.
T  F  19. I feel hungry almost all of the time.
T  F  20. I am very seldom troubled by constipation.
T  F  21. I have a great deal of stomach trouble.
T  F  22. I have had periods in which I lost sleep over worry.
T  F  23. My sleep is fitful and disturbed.
T  F  24. I dream frequently about things that are best kept to myself.
T  F  25. I am easily embarrassed.
T  F  26. I am more sensitive than most other people.
T  F  27. I frequently find myself worrying about something.
T  F  28. I wish I could be as happy as others seem to be.
T  F  29. I am usually calm and not easily upset.
T  F  30. I cry easily.
T  F  31. I feel anxiety about something or someone almost all the time.
T  F  32. I am happy most of the time.
T  F  33. It makes me nervous to have to wait.
T  F  34. I have periods of such great restlessness that I cannot sit long in a chair.
T  F  35. Sometimes I become so excited that I find it hard to get to sleep.
T  F  36. I have sometimes felt that difficulties were piling up so high that I could not overcome them.
T  F  37. I must admit that I have at times been worried beyond reason over something that really did not matter.
T  F  38. I have very few fears compared to my friends.
T  F  39. I have been afraid of things or people that I know could not hurt me.
T  F  40. I certainly feel useless at times.
T  F  41. I find it hard to keep my mind on a task or job.
T  F  42. I am unusually self-conscious.
T  F  43. I am inclined to take things hard.
T  F  44. I am a high-strung person.
T  F  45. Life is a strain for me much of the time.
T  F  46. At times I think I am no good at all.
T  F  47. I am certainly lacking in self-confidence.
T  F  48. I sometimes feel that I am about to go to pieces.
T  F  49. I shrink from facing a crisis or difficulty.
T  F  50. I am entirely self-confident.
## Digit Symbol Test

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