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PAIRED ASSOCIATION LEARNING UNDER VARIOUS MOTIVATIONAL CONDITIONS

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CHAPTER I

PROBLEM

Introduction

Because one of the primary problems of the classroom teacher is the proper motivation of her students, it is imperative to secure as complete and accurate an understanding of motivational techniques as possible regarding learning behavior.

> The question of motivation has, for the last decade or so, been coming more and more to the attention of the psychologist. Educators have been slow in evaluating the effectiveness of the different incentives which they use in dealing with children, with the consequence that this task has, to a certain extent, been taken over by a small number of psychologists.[1]

Hurlock goes on to state that the two most prevalent means of motivation used in school today are praise and reproof. "The general assumption is that praise is the more effective of the two, but at the same time, one is

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[1]E. B. Hurlock, "The Value of Praise and Reproof as Incentives for Children," Archives of Psychology, vol. 11, No. 71, 1924, p. 5.

forced to admit that reproof is the more frequently used."[1]

The first studies concerning motivation in learning behavior were made with animals. In 1898 Thorndike, one of the most prominent students of animal psychology, published a paper dealing with animal learning. He concluded from his many studies that animals do not learn from "inferential reasoning, insight, free images or imitation, but by trial and error."[2] To explain why an animal prefers one mode of action to another, he developed and formulated the "theory of retroactive effect of satisfaction or annoyance,"[3] that is, the "Law of Effect."

Since Thorndike's early studies there have been countless animal studies concerned with motivation in a learning situation. Brenner[4], in analyzing investigations in animal motivation, concluded that, other things being equal, the different drives compared approximate the following order of effectiveness: pain and reward, pain, maternal drive, thirst, hunger, sex, home, cold, exploratory.

It was from these studies of animal motivation that the experimental work on human motivation derived it's

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[1] Ibid.

[2] E. L. Thorndike. "Animal Intelligence," Psychological Review, Monograph Supplement No. 8, 1898.

[3] Ibid.

[4] Benjamin Brenner. "Effect of Immediate and Delayed Praise and Blame Upon Learning and Recall," Contributions to Education, no. 620, 1934, p. 3.

beginning. The physical motivation that was found to be most effective in animals, pain and reward, was translated into the psychological motivation of praise and reproof for many studies concerned with human learning behavior.

Educators have long been perplexed about the relative motivational value of encouragement and discouragement. Some feel that praise is the only condition under which a child can learn while an equal number will insist that reproof or discouragement is necessary before a child can maximally benefit from a learning situation. Unfortunately a review of the experimental literature on the subject presents equally undecisive conclusions. That is, some studies conclude that "blame as a form of motivation is in general more effective than praise or indifference."[1] Other studies[2] suggest that encouragement is superior to discouragement in learning a new task. Still other studies[3] indicate that praise and reproof, as motivation for school achievement, are of equal value. A fourth group of studies[4]

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[1]G. Forlano and H. C. Axelrod. "The Effect of Repeated Praise or Blame on the Performance of Extroverts and Introverts," Journal of Educational Psychology, vol. 28, 1937, p. 100.

[2]Bonnie B. Tyler. "Expectancy for Eventual Success as a Factor in Problem Solving Behavior," The Journal of Educational Psychology, vol. 49, 1958, p. 171.

[3]Hurlock, Op. Cit.

[4]H. O. Schmidt. "The Effect of Praise and Blame as Incentives to Learn," Psychological Monographs, vol. 53, 1941, p. 56.

conclude that neither encouragement or discouragement appear to significantly effect the learning behavior of an individual.

There have been few studies concerned with the problem of verbal encouragement and discouragement upon associative learning and none reported using elementary age school children for subjects that envolved a visually presented associative learning problem. The author feels that such a study is desirable since visually presented associative learning is one of the major teaching devices used in the elementary schools. That is, the child is taught to read by first learning to associate the picture of an object to the word symbol that represents that object. He is also taught that a certain number symbol actually represents a specific quantity.

The confusion regarding the value of verbal encouragement and discouragement suggests that more consideration should be given to these various conditions before meaningful generalizations can be made. By further investigating these factors it is intended that some of the speculation that presently exists pertaining to the role of verbal reinforcement may be resolved. It is also hoped that the relative advantages and disadvantages of these factors as motivational influences may be pointed out.

Definition of Terms

In order that all readers of the study may be familiar with some of the specific terms as they are used in this study, a brief explanation is offered.

The term "encouraged group" was used to describe those subjects who received only verbal encouragement, from the examiner, during the training period.

The "discouraged group" consisted of those individuals that received only verbal discouragement, from the examiner, during the training period.

The term "inconsistent group" was used to describe those subjects who received verbal encouragement on half of their responses and verbal discouragement on the other half of their responses during the training period.

The "control group," as used in this study, consisted of those individuals which received neither encouragement or discouragement during the training period.

The term "paired-associate learning task" was used in this study to refer to a set of forty eight cards designed to be shown to the subjects. Twenty four of these cards were designated as Test "A" and twenty four were designated as Test "B." The first twelve cards of each set contained two pictures and the second twelve had but one picture that served as a stimulus to which the subject was to respond by supplying the name of the missing picture. The subject's task was to determine which two pictures

constituted a pair.

Purpose of the Study

The previously mentioned confusion regarding the role of verbal motivation has prompted the present study. That is, the study is an attempt to demonstrate the motivational role of praise and reproof upon a specific type of learning behavior. By demonstrating a significant difference in the problem solving behavior of the three experimental groups it could be concluded that there is a motivational factor resulting from praise and reproof that should be considered as a pertinent factor in predicting learning behavior. Such differences may also suggest that the individual's perception of encouragement or discouragement and not just the actual encouraging or discouraging experiences may also contribute to the problem solving behavior.

The specific purposes of this study were:

1. To compare the problem solving behavior of encouraged individuals to the problem solving behavior of discouraged individuals on a paired associative learning task.

2. To compare the time required for problem solving between the encouraged individuals and the discouraged individuals on a paired associative learning task.

It was assumed that verbal encouragement and discouragement would effect the solution of the problem solving

task. It was further assumed that those individuals who received only verbal encouragement would perform more effectively on the problem solving task than those individuals who received only verbal discouragement or a combination of encouragement and discouragement. It was predicted that the performance of those individuals who received both encouragement and discouragement would fall somewhere between the verbally encouraged group and the verbally discouraged group.

The first specific hypothesis of this study was an attempt to investigate the validity of the assumptions discussed above. That hypothesis was:

If subjects are given only encouragement prior to a paired associative learning task, then those subjects will require fewer trials to obtain an acceptable criterion than those subjects given only discouragement, a combination of encouragement and discouragement or no emotive instructions at all.

It was further predicted that there would be an inverse relationship between the time required for solving the problem and the amount of verbal encouragement received. That is, those individuals who received only verbal discouragement would take longer to solve the experimental task than those individuals who received only verbal encouragement. Again, it was assumed that the behavior of the inconsistently reinforced group would fall someplace between the encouraged

and discouraged groups.

The second hypothesis of this study was derived in an attempt to investigate the effects of encouragement and discouragement on the time required for solving the paired associative learning task. That hypothesis was:

If subjects are given only encouragement prior to a paired associative learning task, then those subjects will require less time to solve the task than those subjects given only discouragement, a combination of encouragement and discouragement or no emotive instructions at all.

One of the important factors envolved in motivation is the effect that motivation has upon the personality of the individual. That is, if the motivation produces positive results in a learning situation, but helps foster an undesirable reaction from the individual concerned, the teacher would be forced to make a value judgment as to the relative worth of such motivation. In an attempt to determine the individual's reactions to encouraging and discouraging comments and instructions, each subject was questioned about his reactions to the verbal responses given by the examiner.

CHAPTER II

REVIEW OF SIGNIFICANT LITERATURE

The research on the effects of reward and punishment in learning situations is voluminous. Many of these studies, however, are concerned with the effects of these experimental conditions as they relate to animals. Because the present study is concerned with human behavior no attempt will be made to consider and interpret this literature. Hurlock[1] and Postman[2] have extensively covered this literature in their articles and the latter has included several different theoretical interpretations of the "law of effect" as related to reward and punishment.

Brenner[3] states that Thorndike's studies were the first "deliberate application of incentives to modify a primary S-R bond": that his studies "mark the beginning of the development of the theory of motivation."

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[1]Hurlock. Op. Cit.

[2]L. Postman. "The History and Present Status of the Law of Effect," Psychological Bulletin, vol. 44, 1947, p. 489.

[3]Brenner. Op. Cit.

Motivation, in the present study, was presented to the subjects through the use of two techniques. Initial instructions were given to the various groups that were designed to develop a "set" along the success-failure continuum. That is, one group received encouraging instructions, another group received discouraging instructions and the third experimental group was given instructions that suggested that the task was neither simple or difficult. A second means of motivating the groups, or rather of reinforcing the initial motivation, was through the use of verbal remarks relative to the subjects performance. The encouraged group received only encouraging remarks, the discouraged group was given only discouraging remarks and the group that received the ambigious initial instructions were given both encouraging and discouraging reinforcement. The literature reviewed will be discussed as it relates to these two motivational conditions.

McGeoch[1] stated that motivating instructions fall into three general classes. The first are those that are formally presented as an integral part of the experimental procedure. A second type are those that he defines as the incidental, casual or occasional ones that are aroused by

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[1]John A. McGeoch. The Psychology of Human Learning. Longmans, Green and Co., Inc. New York, 2nd edition, 1952.

the testing situation and without the intent of the examiner. The third and most difficult to control type of instructions are those that the individual gives to himself as a result of the situation. For the purposes of this study only the literature concerned with the formal, experimentally orientated instructions will be reviewed.

One of the first experimental studies dealing with praise and reproof, in instructional form, was reported by Gilchrist[1] in 1916. He gave fifty college students the Courtis English Test. The students were then arbitrarily divided into two groups. To one group Gilchrist gave the following statement. "A hasty examination of the papers in the test just given shows that the members of this group did not do as well in the test as the average twelve year old child would do. I ask you to take the test again." This group Gilchrist refers to as his reproved group. The other students were praised in the following manner. "A hasty examination of the papers in the test just given shows that the members of this group did exceptionally well. I ask you to take the test again." When the results of the two tests were compared it was found that the reproved group had made no improvement in spite of the practice. The encouraged group, however, showed considerable improvement.

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[1]Edward P. Gilchrist. "The Extent to Which Praise and Reproof Affect a Pupil's Work," School and Society, vol. 9, 1916, p. 872.

The difference between the two groups was attributed by Gilchrist to the comments given between the first and the second tests.

In 1923 Gates and Rissland gave their college subjects a series of tests. After the first test had been given, the experimenter made the following comments to each third person. "That is really splendid. Do you always make such good scores? In a curve of distribution, your score would be way up here (indicating a position at the top of the curve). Your score was so good that I wonder if you mind repeating the test?" The next subject was discouraged by the examiner saying: "Oh dear, that is really a very poor score! I am afraid that you fall at the bottom of the curve of distribution, etc." To the third subject, no comment was made concerning his performance. These individuals were simply asked to repeat the test. From the results of the experiment the authors concluded that:

> . . . it is better to make an encouraging than a discouraging remark; that it is relatively poor individuals who are more likely to be unfavorably affected by discouragement than are relatively proficient persons.[1]

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[1]G. S. Gates and L. Q. Rissland. "The Effect of Encouragement and Discouragement upon Performance," Journal of Educational Psychology, vol. 14, 1923, p. 21.

Sarason, Mandler and Craighill's[1] study of the effect of instructions on learning found that it was not the stress producing instructions that resulted in differences in their experimental groups but rather the groups themselves. That is, the low anxious subjects did better on all learning tasks than did the high anxious groups. These authors explained this difference as the result of the high anxious subjects employing responses which were not "task orientated," such as "self centered feelings of inadequacy and attempts to avoid the situation." The anxious subjects, on the other hand, had more task relevant responses which reduced the anxiety by leading to completion of the task.

In an investigation of the effects of high and low motivating instructions and reports of failure and non-failure Sarason[2] and Sarason found that there were marked differences between experimental groups. The group that received the failure instructions showed an immediate but temporary decrease in the level of the performance while the group receiving motivating instructions showed no immediate change in their test performance but were

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[1]Seymour B. Sarason, George Mandler and Peyton Graighill. "The Effect of Differential Instructions on Anxiety and Learning," Studies in Motivation, David C. McClelland, Editor, Appleton, Century, Crofts, Inc., New York, 1955.

[2]Irving B. Sarason and Barbara R. Sarason. "Effects of Motivating Instruction and Reports of Failure on Verbal Learning," The American Journal of Psychology, vol. 60, 1957, p. 92.

facilitated in later performances. In another study by Sarason[1] the subjects were given two different types of instructions. To one group he explained the test as being a form of intelligence test and to the second group he explained that the experimenter could not get his degree if the subjects did not perform well. He found that there was no significant difference between the "subject orientated" and the "experimental orientated" groups but that both of these groups did better than the control group which did not receive any instructions or explanation.

Owen[2] investigated the effects of three types of motivating instructions on choice reaction time in school age children. Initially thirty reaction time trials were administered to each subject under standard conditions. This was followed by differential instructions and thirty post-instructional trials identical to the thirty initial trials. He found that the urged group showed a significant gain in speed as compared to their pre-instructional performance and was significantly different from each of the other two instructional conditions. The relaxation instructional condition did not result in a significant change in speed

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[1]Irvin G. Sarason. "The Effects of Associative Value and Differential Motivating Instructions on Serial Learning," The American Journal of Psychology, vol. 70, 1957, p. 326.

[2]Wayne A. Owen. "Effects of Motivating Instructions on Reaction Time in Grade School Children," Child Development, 1958, vol. 30, p. 261.

of performance, as compared with pre-instructional performance.

As part of the study of Kausler, Trapp and Brewer[1] they gave half of their subjects a set of instructions "intended to produce a high degree of ego involvement and induce anxiety." The subjects were told that they were to learn a task involving certain aspects of general intelligence. The examiner pointed out that half of the students from their particular university had done very poorly in the past on this test. The remaining students were given instructions that were designed to induce a low degree of anxiety. The authors concluded from this study that the high drive group was superior to the low drive group in intentional learning but did not differ significantly in incidental learning.

Heath[2] gave 72 college subjects various group instructions designed to effect the manner in which the subjects viewed themselves in relation to the experimental task. The subjects were asked to estimate their percentile rank on a vocabulary test and to then take the test. After taking the test each subject's initial estimate of his

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[1]Donald H. Kausler, E. Philip Trapp and Charles L. Brewer. "Intentional and Incidental Learning Under High and Low Emotional Drive Levels," Journal of Experimental Psychology, 1959, vol. 59, p. 452.

[2]Douglas Heath. "Instructional Sets as Determinants of Expectancy Generalization," Journal of General Psychology, vol. 64, 1961, p. 285.

performance was either positively or negatively reinforced by the examiner. Each subject then was asked to estimate his percentile score on a set of randomly presented tasks that differed from the vocabulary test. The results revealed that success and failure experiences have differential effects on expectancy with failure producing greater expectancy changes and that different initial instructional sets produce significantly differential changes in the initial expectancies on both the immediate and future tasks.

Sarason[1], in an attempt to explain why various individuals behave differently to experimental instructions, summarizes his studies with the following statement.

> It would appear possible that the likelihood of emission of interfering responses increases for all Ss under a condition of implied personal threat. If this is the case, the high anxious individuals may differ from others, not so much in terms of emission of interfering responses per se, but in a greater proneness to interpret situations as threatening ones. In addition, all individuals may respond to perceived threat or stress similarly, but there may be important individual differences with respect to the intensity of the interfering responses emitted.

As previously mentioned, the mode of reinforcement employed in this study was verbally presented encouragement and discouragement. There have been few studies that have been concerned specifically with the effects of verbal

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[1]Irwin G. Sarason. "Relationships of Measures of Anxiety and Experimental Instructions to Word Association Test Performance," Journal of Abnormal and Social Psychology, vol. 59, 1959, p. 37.

encouragement and discouragement related to a visually presented associative learning task. A number of studies will be reviewed, however, which do have some bearing upon the present problem.

Wright[1], in 1906, investigated the effects of incentive on work and fatigue. The subjects worked under two different "mental conditions." One phase of the study had the S "working as hard and as long as he could, but with no idea of securing any specified results." During the other phase the subjects were instructed to do a specific task as long as their "strength endured." Under the first condition, incentives such as knowledge of progress were denied to the subjects. In the second condition, however, the subjects were given external incentives and allowed to watch their progress. Wright found that all of his subjects showed a gain in the work done when there was some knowledge of the progress being made - when there was some encouragement to the subject that he was making progress in the desired direction.

Two studies designed by Laird[2,3] in 1923 gave

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[1]W. R. Wright. "Some Effects of Incentives on Work and Fatigue," Psychological Review, vol. 13, 1906, p. 23.

[2]Donald A. Laird. "How the High School Student Responds to Different Incentives to Work," Pedagogical Seminary, vol. 30, 1923, p. 358.

[3]Donald A. Laird. "How the College Student Responds to Different Incentives to Work," Pedagogical Seminary, vol. 30, 1923, p. 366.

information pertaining to encouragement and discouragement from a different viewpoint. In one study he asked a group of high school students to determine retrospectively the effect that different incentives used by their teachers had upon their class work. In the second study he asked another group of subjects to state what they felt had been the effect of the various incentives used by their college professors. The results from both studies were similar. One of the incentives which is relevant to the present study was "reprimands before others." Twenty-six per cent of the students reported that they worked better under such conditions, forty per cent worked about the same and thirty-four per cent reported that they performed poorer under such conditions. Laird concluded from this phase of the study that there is some doubt if "public reprimands are justified in an attempt to secure more and better work." He also found that when the teacher used public praise as an incentive seventy-eight per cent of the men and seventy-three per cent of the women reported they did better work. There were no men or women who reported having done poorer work as a result of the teacher's public use of praise. Laird concluded from his studies that public praise was more effective in achieving serious work from students than was any of the negative incentives. Some of the more commonly used incentives, he concluded, produced the most unfavorable results.

Using two different sample populations, Briggs[1] found that "commendation, praise and encouragement" were significantly superior to "censure, ridicule, threats and punishment" in a learning situation. With one group, junior high school students, 87% of the subjects performed more adequately under conditions of praise than under conditions of punishment.

Deputy[2], in 1929, studied the effect of knowledge of one's success in an activity upon improvement in that activity. The subjects of this study were college freshmen. Class Section I met twice a week and was given a ten minute written exercise covering the proceeding lesson at each class period. Section III met twice a week; but only on the second meeting was the section given a written exercise covering the work of the proceeding lessons. Section II was a control group and was given no written exercises. It was decided by the instructor and the students that the daily written work should count as two-thirds of their mid-term grades. The scores on the written exercises were put on the board immediately after the exercises. After the second half of the semester, the control group (Section II) became the experimental section,

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[1]T. H. Briggs. "Praise and Censure as Incentives." School and Society, vol. 26, 1927, p. 596.

[2]E. C. Deputy. "Knowledge of Success as a Motivating Factor in College Work," Journal of Educational Research, vol. 20, 1929, p. 327.

having written work at each meeting of the class, and Sections I and III became the control sections. The results indicated that the group that was informed twice a week of its successes and failures did better than the one that was informed only once a week.

Davis and Ballard[1] reviewed the literature on incentives through 1932. They divided the incentives into three large groups - intellectual, emotional and social. Under the emotional incentives they included those devices which employ encouragement or discouragement, praise and reproof. From this review of emotional incentives they concluded that praise is better than reproof as an incentive to work and that too much praise can defeat the purpose for which it was originally intended.

Chase[2] found that the performance of children on two motor tasks was best under "failure-reproof-punishment" conditions, next best under conditions of "success-reward-praise." He found that the poorest performance from his subjects was under "controlled" conditions in which the subject was given no positive failure or success condition to serve as a referent.

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[1]R. A. Davis and C. R. Ballard. "Effectiveness of Various Types of Classroom Incentives," Educational Methods, vol. 12, 1932, p. 134.

[2]L. E. Chase. "Motivation of Young Children: An Experimental Study of the Influence of Certain Types of External Incentives Upon the Performance of a Task," University of Iowa Studies: Stud. Child Welfare, No. 3, 1932, p. 5.

In a study designed to determine the relative effects of praise and blame on school age children Forland and Axelrod[1] concluded that blame, as a form of motivation, was generally more effective than either praise or indifference. They also found that praise apparently did not facilitate or inhibit the learning process.

Blankenship and Humes[2] concluded that there were no significant effects upon learning as a result of praise or blame when memory span was being investigated. Schmidt[3] also found that in a classroom setting the effects of praise and reproof were negligible.

Investigating the effect of discouragement upon individual intelligence tests Gordon and Durea[4] found that the Binet I.Q. could be lowered by fifty points through the use of verbal discouragement between the first and second tests. Their control group for this study showed a significant improvement between the first and second tests suggesting that learning did take place and that after a correction for this learning was made the difference between

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[1]Forland and Axelrod. Op. Cit.

[2]M. V. Blankenship and J. F. Humes. "The Effect of Praise and Reproof Upon Memory Span Performance," American Journal of Psychology, vol. 51, 1938, p. 527.

[3]Schmidt. Op. Cit.

[4]L. V. Gordon and M. A. Durea. "The Effect of Discouragement on the Revised Stanford-Binet Scale," Journal of Genetic Psychology, vol. 73, 1948, p. 201.

the pre-discouraged and discouraged tests remained significant.

Garmezy[1], in an attempt to determine if schizophrenic and normal individuals react to reward and punishment in a similar or different manner, subjected both groups to the task of differentiating between tones. Both groups were reinforced with either the word "right" or "wrong." He concluded from his results that normals improved in a reward-punishment situation and that schizophrenics did not show a significant improvement. He felt that the schizophrenic's behavior, under threat of punishment, was dominated by an avoidance response to all stimuli that overshadowed and negated all previous success experiences.

Tyler[2] investigated the effect of praise and reproof upon a group of college students that were required to solve a complex problem. That is, the students were required to determine what mathmatical steps were envolved in predicting which of a series of lights would be flashed. She found that there was a significant difference between the problem solving abilities of her encouraged group and her discouraged group. The encouraged group solved the problem more easily than the discouraged group and the

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[1]Norman Garmezy. "Stimulus Differentiation by Schizophrenic and Normal Subjects under Conditions of Reward and Punishment," Journal of Personality, vol. 20, 1952, p. 253.

[2]Tyler. Op. Cit.

group which alternately received encouragement and discouragement, the inconsistent group, performed more poorly than the encouraged group but better than the discouraged group. The control group, which did not receive any encouragement or discouragement, revealed problem solving behavior that was poorer than any of the experimental groups. Tyler concluded that the use of encouragement, discouragement or a combination of the two was superior to no comment in solving complex problems.

A study by French[1] in 1955, designed to determine the relationship of instructions and success and failure, concluded that performance is more closely related to the failure or success of immediately experienced tasks than to the motivational instructions given for the task. That is, French felt that the actual experience of success or failure did more to motivate the subjects than did the experimental instructions.

In an experiment investigating which factors might effect the performance of subjects in a testing situation Wicker[2] found that such comments as "good" or "fine" and such encouraging actions as smiling and nodding of the head by the examiner had a marked effect upon the test results

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[1]Elizabeth G. French. "Some Characteristics of Achievement Motivation," Journal of Experimental Psychology, vol. 50, 1955, p. 233.

[2]Thomas A. Wicker, Jr. "Examiner Influence in a Testing Situation," Journal of Consulting Psychology, vol. 20, 1956, p. 23.

obtained. Wicker felt that it was this type of motivation that was most often uncontrolled, and was most difficult to control, in a testing situation.

Sarason[1] reported that all groups in his study that had been failed in their learning tasks showed a marked decrease in their performance level immediately after the failure experience. This decrease, however, was not present twenty-four hours after the failure experience. He also concluded that the effect of motivational instruction was traceable, in part, to the subject's anxiety level. That is, the high anxious, high motivated group did poorer than the high anxious, low motivated groups. The middle and low anxiety groups which received the highest motivational instructions (encouragement) were superior to the middle and low anxious groups receiving low motivational instructions (discouragement).

In a study designed to determine what combinations of verbal reinforcements were most effective on subjects in a card sorting test, Buss and Buss[2] divided their one hundred subjects into three groups. The first group was reinforced with "right" for a correct response and "wrong" for an incorrect response. The second group was given no

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[1]Irwin Sarason. "Effect of Anxiety, Motivational Instruction, and Failure on Serial Learning," Journal of Experimental Psychology, vol. 51, 1956, p. 253.

[2]Arnold H. Buss and Edith H. Buss. "The Effect of Verbal Reinforcement Combinations on Conceptual Learning," Journal of Experimental Psychology, vol. 52, 1956, p. 283.

verbal reinforcement for a correct response and "wrong" for an incorrect response. The third group was given no reinforcement for an incorrect response. They concluded from their study that "nothing" is a non-reinforcer and that "right" is a weaker positive reinforcer than "wrong" is a negative reinforcer. They felt that these findings indicated that the commonly accepted verbal reinforcement continium which assumes that "right" is as strong a positive reinforcer as "wrong" is a negative reinforcer was incorrect. That is, "wrong" is the critical component and the combinations with "wrong," "nothing-wrong" and "right-wrong," yielded faster learning than the combination without "wrong," such as "right-nothing."

In a repeat of the original Buss study just mentioned, Buss, Braden, Orgen and Buss[1] measured not only the rate of learning but also the rate of forgetting. The findings of this study were indentical to the original study regarding rate of learning. That is, that "wrong" is the essential component in the "right-wrong-nothing" condition. They also found that the "right-wrong" and the "nothing-wrong" reinforcements has similar acquisition curves and both groups extinguished slowly, but that the "right-wrong" reinforcement condition resulted in a faster extinction

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[1]Arnold H. Buss, William Braden, Arthur Orgel and Edith H. Buss. "Acquisition and Extinction with Different Verbal Reinforcement Combinations," Journal of Experimental Psychology, vol. 52, 1956, p. 288.

than did the "nothing-wrong" condition.

In an attempt to determine the effect that length of successes, before failure, has on the subjects performance, Bayton and Gonley[1] gave three groups of subjects five, ten and fifteen success trials before exposing them to the failure experience. They found that after ten and fifteen trials with success the shift to failure was accompanied by a differentiating increase in the level of performance. They concluded that when failure is either a "first" or an "early" experience the effect upon performance is inhibitory and that when failure is experienced after some success with the task the effect upon performance is stimulating.

McDavid and Schroder[2] found that with a group of adolescent males there was considerable difference in their behavior following both approval and disapproval from an authority figure. The intent of this study was to find if non-deliquents differed from deliquents in their reactions to social approval and disapproval. They concluded from the study that social reinforcement (approval) and social punishment (disapproval) had different effective values for different individuals. This difference was most apparent in

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[1]James A. Bayton and Harold W. Conley. "Duration of Success Background and the Effect of Failure upon Performance." Journal of General Psychology, vol. 56, 1957, p. 179.

[2]McDavid, Jr., and H. M. Schroder. "The Interpretation of Approval and Disapproval by Deliquent and Non-Deliquent Adolescents." Journal of Personality, vol. 25, 1957, p. 539.

the subject's own evaluation of his performance after the occurrence of the approved or disapproved event.

Porter[1] found that responses that were called "right" in his experiment were repeated significantly more often than responses called "wrong." Krasner[2] found, after reviewing 31 studies regarding conditioning of verbal behavior that the majority of the studies reported positive results with the use of "generalized conditioned reinforcers" such as "good" and "m m m-hum." Goss[3] attempted to determine the effect of verbal and non-verbal reinforcement on the human content responses of the Rorschach. The word "good" was used as the berbal reinforcement and nodding of the examiners head was used as the non-verbal reinforcement. He found that the human content responses were increased in both the verbally reinforced and the non-verbally reinforced, but not in the control group. He further found that there was no statistically significant difference between the verbally reinforced and the non-verbally reinforced groups regarding the increased number of responses.

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[1]Lyman W. Porter. "The Effect of 'right' in a Modified Thorndikian Situation," The American Journal of Psychology, vol. 70, 1957, p. 219.

[2]Leonard Krasner. "Studies of the Conditioning of Verbal Behavior," Psychological Bulletin, vol. 55, 1958, p. 148.

[3]Leonard R. Gross. "Effects of Verbal and Non-Verbal Reinforcement in the Rorschach," Journal of Consulting Psychology, vol. 23, 1959, p. 66.

In a study designed to determine the effect of the word "good" with a group of students in the development of discussion skills Loree and Koch[1] recorded each group session with the students. The tape recordings were played back to the experimental group immediately after the discussion and each time a good discussion skill technique was exhibited the examiner made the verbal statement "good." No comment was made by the examiner during the playback of the control groups tape. Their results indicated that the group reinforced with the word "good" improved on subsequent performance. The non-reinforced group, though making some progress, did not improve as markedly as the experimental group.

Stassi[2] also found that the verbal behavior of his subjects could be altered with the use of verbal reward and punishment. He instructed his twelve female and twelve male subjects to read a list of nonsense words under four reinforcement schedules. That is, he presented 100% reward and no punishment, 66% reward and 33% punishment, 33% reward and 66% punishment, and 100% punishment and no reward. The word "right" served as the reward and "wrong" served as the punishment. He found that normal speakers

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[1]M. Roy Loree and Margaret B. Koch. "Use of Verbal Reinforcement in Developing Group Discussion Skills," Journal of Educational Psychology, vol. 51, 1960, p. 164.

[2]Eugene J. Stassi. "Disfluency of Normal Speakers and Reinforcement," ASHA, vol. 3, 1961, p. 341.

became disfluent when their verbalizations were punished and that males became more disfluent than females as a result of the punishment. The speech was most fluent when the subjects were operating under the 100% reward and 0% punishment schedule and their speech became less fluent as the per cent of reward was decreased.

In the previously mentioned review of the emotional incentives in learning Davis and Ballard[1] concluded that the extent to which praise and reproof may be used is also governed by individual differences in pupils and teachers. That is, some people respond better to censure than to praise, and there are some teachers, who because of certain personality traits, can neither commend or reprove pupils in an effective manner. They also point out that some comment, regardless of it's character, is better than a neutral attitude. Their review also suggested that with the younger and less mature child, praise is likely to be more effective than reproof, while the older and more mature pupils may receive more advantage from reproof. Boys, they concluded, appeared to be more influenced by reproof and girls by praise.

Rosenfield and Lander[2] used a questionnaire to

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[1]Davis and Ballard. Op. Cit.

[2]Howard Rosenfield and Alvin Lander. "The Influence of Teachers on Aspirations of Students," Journal of Educational Psychology, vol. 52, 1961, p. 1.

explore the effects of teacher's influence upon students aspirations for achievement in school. They found that the teachers influences were most readily accepted when those teachers "aroused" the students with reward. The students distinguished two forms of criticism and the results of these two forms varied. When there was criticism of an inadequate performance there appeared to be no effect upon aspiration level of further performances but when the teacher criticized a performance that the subjects perceived as being the best of which he was capable, both the subsequent performance and the aspiration levels were depressed. Two forms of reward were also noted. The students were less prone to accept the teachers influences when the reward was indiscriminately used but tended to raise their aspiration levels when the teachers used reward for an adequate performance.

Stevenson and Weir[1] were concerned with developmental changes in the effects of reinforcement and non-reinforcement among children. They found that there was a significant difference in the behavior of the various chronological groups. Three year olds followed the traditional S-R pattern. By the age of seven, reinforcement of a response did not increase the tendency to consistently repeat the

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[1]Harold W. Stevenson and Morton W. Weir. "Developmental Changes in the Effect of Reinforcement and Non-reinforcement of a Single Response," Child Development, vol. 32, 1961, p. 1.

rewarded performance, in fact, the effect appeared to be just the opposite. Stevenson and Weir stated that:

> It may be assumed that the behavior of older children is guided by verbal hypothesis and that it is in the confirmation of these hypotheses that reinforcement has its greatest effect. Children's verbalizations of their basis of response seem to indicate that one of the dominant hypotheses in a multiple-response situation is that there is a pattern of responses which leads to reinforcement.

Many authors have attributed the variable effects of encouragement and discouragement to the anxiety level of the individuals involved in the learning situation. That is, many studies have suggested that with the use of verbal discouragement the anxiety level of the subject is increased. Though the present study is not concerned specifically with the effects of anxiety on the learning process one of the experimental conditions, discouragement, could be conceived as an anxiety provoking situation. No attempt will be made to comprehensively cover the vast experimental literature on anxiety and learning behavior but several studies will be cited that give some insight into the problems envolved.

Mower[1] reports a study that was designed to test the hypothesis that anxiety-reduction acts as a "reinforcing state of affairs." He concluded from his study that there is a positive correlation between anxiety reduction and

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[1]O. H. Mower. "Anxiety-Reduction and Learning," Journal of Experimental Psychology, vol. 27, 1950, p. 297.

learning, "thereby supporting the supposition that it is a reinforcing agent." McCandless and Castaneda[1] investigated the relationship between anxiety, school achievement and I.Q. They found that for certain groups - fourth grade boys and all fifth grade subjects - there was no consistent relationship apparent between the various factors. For sixth grade subjects and fourth grade girls the relationship ran from moderate to high. They also noted that where such a relationship did exist that the more complicated skills such as reading, arithmetic, and composite performance were more adversely affected by anxiety than were the simpler, mnemonic skills such as spelling. Girls were found to be more adversely affected by anxiety than boys in all areas except arithmetic. The authors hypothesized that this sex difference might have resulted from the higher anxiety of the female subjects or the higher academic motivation of girls in this age range. Farber and Spence[2] concluded from their study that the effect of variation in drive level (anxiety) upon performance is a function of specific characteristics of the given task. This concept that the effects of anxiety upon a problem solving situation vary

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[1]Boyd R. McCandless and Alfred Castaneda. "Anxiety in Children, School Achievement and Intelligence," Child Development, vol. 27, 1956, p. 382.

[2]I. E. Farber and Kenneth W. Spence. "Complex Learning and Conditioning as a Function of Anxiety," Journal of Experimental Psychology, vol. 27, 1940, p. 297.

depending upon the particular situation is considered in great detail in experimental literature.

Castaneda, Palermo and McCandless[1] report a study in which they found a significant relationship between anxiety and task difficulty. That is, they found that the performance of the high anxious child was inferior to that of the low anxious child on the difficult components of the experimental learning task but that the performance of the high anxious groups was superior on the less difficult aspects of the problem. They concluded from these findings that:

> The presence of anxiety in children can serve to determine performance in much the same way as with adults. This appears to be in accord with clinical and casual observations that the consequences of a heightened level of anxiety may vary with the particular stimulating circumstances and the particular responses the individual has learned to make in such situations on the basis of previous experiences.

Beier[2] found that his control group performed more effectively on difficult tasks envolving abstraction and concept shifting than did his threatened or anxious groups. Findings reported in the literature by Taylor and Spence[3],

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[1]Alfred Castaneda, David S. Palermo and Boyd R. McCandless. "Complex Learning and Performance as a Function of Anxiety in Children and Task Difficulty," Child Development, vol. 27, 1956, p. 331.

[2]E. G. Beier. "The Effect of Induced Anxiety on Flexibility of Intellectual Functioning," Psychological Monograph, vol. 65, 1951, No. 9.

[3]J. A. Taylor and K. W. Spence. "The Relationship of Anxiety Level to Performance in Serial Learning," Journal of Experimental Psychology, vol. 44, 1952, p. 61.

Farber and Spence[1], and Montague[2] all concluded that individuals who are rated as highly anxious on the Taylor Anxiety Scale do relatively less well on difficult intraserial learning items as compared to the easier items. Waite, Sarason, Lighthall and Davidson[3] concluded from their study of test anxiety in children that there were both interfering and facilitating characteristics ascribable to anxiety - depending upon the kind of learning situation in which the child was engaged. They felt that anxiety situations were more debilitating to their "high" anxious subjects than to their "low" anxious groups.

Grooms and Endler[4] found that their high anxious group performed more poorly on aptitude tests but obtained significantly higher cumulative semester grade averages than did the low anxious groups. In an attempt to determine why such behavior as Grooms and Endler reported occurs,

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[1]I. E. Farber and K. W. Spence. "Conditioning and Extinction as a Function of Anxiety," Journal of Experimental Psychology, vol. 45, 1953, p. 116.

[2]E. K. Montague. "The Role of Anxiety in Serial Rote Learning," Journal of Experimental Psychology, vol. 45, 1953, p. 91.

[3]Richard R. Waite, Seymour B. Sarason, Frederick F. Lighthall and Kenneth S. Davidson. "A Study of Anxiety and Learning in Children," Journal of Abnormal and Social Psychology, vol. 57, 1958, p. 267.

[4]Robert R. Grooms and Norman S. Endler. "The Effect of Anxiety on Academic Achievement," Journal of Educational Psychology, vol. 51, 1960, p. 299.

Bardach[1] studied the effect of developing situational anxiety at various phases of the learning process. Her data revealed that situational anxiety was more detrimental to the learning process when it was introduced late in the learning process rather than early.

Ausubel, Schiff and Goldman[2] stated that their low anxiety group performed at a higher level, on the initial trial, of a maze learning problem. They further stated, however, that during a period of ten trials this difference disappeared. They concluded that this type of problem solving behavior reveals a lack of "improvising" ability in the high anxiety groups, which they explained by suggesting that these individuals had a set to reduce anxiety by trying to solve a novel problem situation with familiar and sterotyped responses. They felt that their interpretation is strengthened by the fact that the high anxiety group profited more than their low anxiety group from both repeated practice and advanced orientation to their experimental learning task. They concluded their study with the following:

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[1]Joan L. Bardach. "Effects of Situational Anxiety at Different Stages of Practice," Journal of Experimental Psychology, vol. 55, 1960, p. 420.

[2]David P. Ausubel, Herbert M. Schiff, Morton Goldman. "Qualitative Characteristics in the Learning Process Associated with Anxiety." Journal of Abnormal and Social Psychology, vol. 48, 1953, p. 537.

> Both practice and advanced preparation render the learning task less novel and unfamiliar, thereby mitigating the threat it poses, the intensity of the anxiety and the inhibitory response set it induces.

Another factor that was considered in this study was the effect that encouragement and discouragement has upon performance time. That is, in the present study it was of interest to observe under which experimental condition less time was required to master the experimental task.

Lotsof[1] studied the effects of varying the alternatives upon the performance time. He found that the more punishing the alternatives were the more time was required for their selection. He concluded that there is a direct relationship between the unpleasantness of the reinforcement value of the alternative behaviors in the choice situation and decision time.

Combs and Taylor[2] predicted that the introduction of a mild degree of personal threat to subjects in a problem solving situation would result in an increase of time required to complete the task. They also found that there was an increase in the number of errors made during the performance as the anxiety was increased.

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[1]Erwin J. Lotsof. "Reinforcement Value as Related to Decision Time." The Journal of Psychology, vol. 41, 1956, p. 427.

[2]Arthur W. Combs and Charles Taylor. "The Effect of the Perception of Mild Degrees of Threat on Performance." Journal of Abnormal and Social Psychology, vol. 47, 1952, p. 420.

Marquart[1] presented to her subjects a no-solution problem in which they were arbitrarily punished, regardless of their responses. Her results revealed considerable sterotype, or lack of flexibility in the responses, as well as noticeably slower learning than would be expected. Marquart attributed these results to frustration produced by the punishment administered.

Summary

As can be seen from the review of the literature on motivational instructions and verbal encouragement and discouragement there is more than a little disagreement as to their relative value in the learning situation. It has been shown that praise and encouragement can be a detriment to learning or can both facilitate and inhibit learning. In still other studies it was found that the most effective incentive is a combination of encouragement and discouragement and at other times the effects of either encouragement or discouragement, regardless of how presented, were negligible.

The literature dealing with the effects of anxiety upon learning behavior also presented a rather confused picture. These studies did suggest, however, that for "simple" learning tasks anxiety facilitates the learning

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[1]Dorothy Marquart. "The Pattern of Punishment and Its Relation to Abnormal Fixation in Adult Human Subjects." Journal of Genetic Psychology, vol. 39, 1948, p. 107.

process while in a "complex" problem solving situation anxiety appears to serve as a detriment to the learning process.

The most consistent picture revealed in this review is the relationship between punishment or stress and performance time. A rather consistent relationship between these two factors indicated that as the threat to the individual was increased the time required to perform the task also was increased. This conclusion appeared to hold true for the large proportion of studies using both human and infra-human subjects.

It is not surprising that there is considerable confusion in the results of these various studies. Many different age groups, different levels of intelligence and education were used as subjects and a wide variety of experimental conditions were set up for testing the effects of these various factors. It would be difficult to justify generalizations of these varied results to other than similar groups under similar experimental conditions. It is the purpose of this study to investigate these various factors as they relate to learning behavior in a visually presented paired associative learning task.

CHAPTER III

TEST PROCEDURE

The eighty subjects for this study were divided into four groups: encouraged, discouraged, inconsistent and control. Each group consisted of ten males and ten females. These children were selected by the teachers and principals of the four schools involved from a larger group of students who met the necessary criteria for inclusion in this study. That is, all subjects must have been between the ages of eight years and six months and ten years and six months and have been in the grade that was commensurate with their chronological age. They must have also been judged by their teachers to have had normal hearing and vision. All subjects were white and were selected from four different schools that were considered to be representative of the entire student population of the city from which they were selected. The subjects were assigned to a specific experimental group prior to their being seen by the examiner. The lists of names submitted by the teacher were rearranged as to the subject's sex and every fourth subject was selected as a member of a specific group.

The associative learning tasks used with each child consisted of learning pairs of pictures as presented on 5" x 8" cards. Three sets of these tests were used and were designated as Test "A," Test "B," and Test "T." Test "A" and Test "B" each consisted of twenty-four cards. The first twelve cards of each set contained two pictures and the second twelve cards contained but one picture that acted as a stimulus to which the subjects were to respond by supplying the name of the missing picture. Test "T" was a similar set but contained only ten cards, five with two pictures and five with only one. Test "T" was used only during the training period.

All eighty subjects were initially given Test "A" with directions which were intended to be as neutral as possible. The subjects were given the following instructions: "Here are a number of cards. First I will show you some cards that have two pictures on them (show sample card). Then I will show you a set of cards with only one picture on it like this (show sample card with only one picture on it). You are to tell me what was the second picture on each card." The first twelve cards were administered to the subjects at the rate of one every three seconds, then, the second twelve cards were presented at the rate of one card every five seconds. The longer time was allowed during the second set of twelve cards in order to give the subjects sufficient time to respond. This procedure was continued

until each subject met the criteria of adequate solution - one perfect repetition.

One week after administering Test "A" all subjects were recalled and given Test "T" and Test "B."

The three experimental groups were treated as follows:

(a) Encouraged group: These subjects were given the following instructions: "You did so well on the first test I gave you that I want to check you again. You were so much faster and took so many fewer times to learn all the cards than the other children I want to see if you can do it again." The subjects were given encouragement after each response on Test "T" regardless of the correctness of the response. After the subjects had been exposed to Test "T" for five trials they were given the following instructions: "Here is still another set of cards. Let's see how you do on these." Test "B" was then administered with no comments from the examiner.

(b) Discouraged group: These subjects were given the following instructions: "You did so poorly on the first test I gave you that I want to recheck you and see if you couldn't do a little better on this one. You took so much more time and so many more guesses than the other children I want to give you another chance." These subjects were given discouragement after each response on Test "T," regardless of the correctness of the response. After five

trials on Test "T" the subjects were given Test "B" with the same instructions as the encouraged group.

(c) Inconsistent group: The subjects of this group were given the following instructions for Test "T": "Some of the other children did better on the first test than you did and some of them did worse. I want to see what will happen to your score then we try you on this test." The subjects were given inconsistent responses after each of their trials. That is, the examiner's responses were alternately encouraging and discouraging. After the subjects had been given the five trials on Test "T" they were given Test "B" with the same instructions as the encouraged and discouraged groups.

The control group was simply recalled, regiven the initial instructions and given Test "T" with no comments from the examiner. After completion of Test "T" the subjects were given Test "B" with the same instructions as were given to the three experimental groups.

After each subject had completed Test "B" he was asked the following questions and his answers were recorded:

1. Which set of cards did you like best? Why?
2. Remember some of the things I said to you like (give examples). How did you feel about those comments?
3. Which set of cards did you think was the hardest? Why?

Paired Associative Learning Task

Test "A" and Test "B" used in this study consisted of cards that had been developed in an extensive pilot study. Pictures, rather than words, were used for the paired associate task in order to avoid the variation in the amount of time needed to recognize words, the variation in reading ability among school children, certain words that might arouse sufficient effect to impede the learning process and the negative feelings that some children might have about a reading experience. In addition, certain other criteria were set up for the selection of pictures. These were: (1) the pictures must be simple, outline drawings of common objects; (2) the words represented by the pictures must be one syllable nouns; (3) the pictures must be immediately recognizable; (4) the pictures must be readily and consistently identifiable; that is, if a picture of a child was sometimes called "baby" and sometimes "child," the picture was eliminated; and (5) pictures must not be obviously potential affect arousing, for example, a picture of a gun or a snake. In order to insure immediate recognition and consistent identification, the pictures were shown to groups of kindergarten children and fourth grade children.

An important part of the pilot study was to determine the length of the number of pairs which would differentiate between various grade levels with respect to learning rate

and retention. Lists of eight, twelve, sixteen, twenty and twenty-four pairs were tested and it was found that the twelve pair list discriminated as adequately as did the longer lists.

During the testing to determine test length, serial effects were noticed in the learning curves of some groups. One hundred and twelve students were tested using various arrangements of the pairs until the learning curves were flattened by the present arrangements. It was desired to keep the arrangement of pairs constant; since certain random orders might be more difficult to learn than others; and this variable could not be controlled. A random presentation could not be constant from subject to subject since the subjects varied with respect to the number of trials needed to reach the criterion of adequate solution. The arrangements of cards, as used in this study, is presented in Appendix IV. The encouraging and discouraging remarks and instructions used by the examiner are presented in Appendix I, Appendix II, and Appendix III.

CHAPTER IV

RESULTS AND DISCUSSION

The purpose of this study was to compare the paired associative learning behavior of a group of fourth grade students under various motivational conditions. More specifically the subjects were to learn a visually presented paired-associative problem under conditions of encouragement, discouragement and inconsistent verbal comments presented by the examiner. The aim of this phase of the study was to determine if the performance of one group of subjects, exposed to one experimental condition, would differ from that of another experimental group. Would encouragement, for example, have a debilitating or a facilitating effect upon the subject's paired associative learning behavior.

Another purpose of this study was to determine how the various motivational conditions effected the time required by the subjects to learn the task to the accepted criteria of one perfect repetition. That is, would discouragement result in a longer time being spent in learning the problem or would it result in an acceleration of learning time?

A third purpose of the study was to ascertain what

effects the verbal motivation had upon the subject's attitude toward the problem being solved. If the child in the discouraged group learned the test more rapidly than the child in the encouraged group yet developed strong negative feelings about the task the question must be asked: "Is the use of such a motivational device justifiable?"

Discussion of the test results will be made initially as they occurred in Test "A." The results obtained in Test "B" and their relationship to Test "A" will be discussed immediately afterwards.

Number of Trials to Criteria of One Perfect Repetition

Test "A"

Table I reveals that in meeting the criteria of one perfect repetition on Test "A," presented before any verbal motivation was employed, the four groups performed in a similar manner. The encouraged group required a mean of 7.00 trials, the discouraged group required 6.50 trials, the inconsistent group 6.75 trials and the control group required 6.15 trials.

Test "B"

When the performance on Test "A" was compared to the performance on Test "B" for the various experimental groups several differences were observed. As revealed in Table 1, the discouraged group required more trials on Test "B" to

reach the criteria of one perfect repetition than was required by this group on Test "A." This would suggest that the improvement resulting from the practice effect was not sufficient to improve the performance of the discouraged group to a level commensurate with the other groups.

TABLE 1.--Mean number of trials to reach the criteria of one perfect repetition on Test "A" and Test "B" for the encouraged, discouraged, inconsistent and control groups

Groups	Test	Mean Number of Trials
Encouraged	A	7.00
	B	4.25
Discouraged	A	6.50
	B	8.35
Inconsistent	A	6.75
	B	5.50
Control	A	6.15
	B	4.95

Table 2 reveals that 70% of the subjects in the discouraged group required more trials on Test "B" than on Test "A," while only 5% of the encouraged group required additional trials on Test "B." As previously suggested the performance of the inconsistent group fell between the encouraged and the discouraged groups.

TABLE 2.--Number of subjects in the encouraged, discouraged, inconsistent and control group requiring more trials to solve Test "B" than Test "A"

Groups	Number	Percentage
Encouraged	1	5%
Discouraged	14	70%
Inconsistent	9	45%
Control	2	10%

Statistical Comparison of the Number of Trials to Obtain the Criteria of One Perfect Repetition

An analysis of variance design was employed to reveal the presence of a significant difference between the four groups of this study on Test "A" and again on the difference scores between Test "A" and Test "B." A "t" test was used to determine between which specific groups these differences were significant.

Homogeneity of variances is usually specified as an assumption of analysis of variance. Recent mathmatical and statistical research indicates, however, that in cases of equal N's in the subgroups the probability value of "F" is not greatly affected by non-homogenious data.[1]

[1]Allen L. Edwards. Experimental Design in Psychological Research. Rinehart and Co., New York, Revised Edition, 1960, p. 132.

Test "A" - Total Group

When the four groups of the study were compared as to their learning behavior on Test "A" an F value, with 3 and 76 degrees of freedom, was found to be significant at greater than the .05 level. This indicated that a statistically significant difference did not exist between the three experimental groups during the administration of Test "A." Table 3 presents the summary of analysis of variance for this test. Bartlett's test for homogeneity of variances yielded a Chi Square value of 10.42 which was significant at the .025 level.

TABLE 3.--Summary of analysis of variance of trials to criteria of one perfect repetition on Test "A" for the encouraged, discouraged, inconsistent and control groups

Source	df	ms	F
Between groups	3	2.63	
Within groups	76	6.12	.429*
Total	79		

*Significant at greater than the .05 level.

Test "B" - Total Group

When Test "B," which followed the presentation of the verbal motivation, was compared to Test "A" several differences were observed. An analysis of variance of this

comparison revealed, as presented in Table 4, an F value, with 3 and 76 degrees of freedom, that was significant at less than the .01 level. This indicated that a statistically significant difference did exist between the various groups during the administration of Test "B." Bartlett's test for homogeneity of variances was non-significant with a Chi Square value of 6.48.

TABLE 4.--Summary of analysis of variance of differences in trials to criteria of one perfect repetition between Test "A" and Test "B" for the encouraged, discouraged, inconsistent and control groups

Source	df	ms	F
Between groups	3	74.55	
Within groups	76	5.55	13.43*
Total	79		

*Significant at less than the .01 level.

Test "B"

Encouraged-Control. This "t" value reveals that when the encouraged group was compared to the control group a significant difference was found. That is, the encouraged group required significantly fewer trials to master the paired associative learning task than did the control group.

Discouraged-Control. When the discouraged group

was compared to the control group the resulting "t" value was again found to be significant. That is, the discouraged group required significantly more trials to accomplish one perfect repetition than did the control group.

Inconsistent-Control. The "t" ratio for this comparison was not found to be statistically significant. This lack of significance between these two groups suggested that a mixture of encouragement and discouragement tends to have a neutralizing effect. This neutralizing effect resulted in learning behavior that was similar to that produced by a lack of verbal motivation as characterized by the control group.

Encouraged-Discouraged. A highly significant "t" value was found when the encouraged and discouraged groups were compared. From this significant "t" value it was concluded that encouraging motivation has a markedly different effect than does discouraging motivation as regards paired associative learning. As previously mentioned the encouraged group required fewer trials on Test "B" while the discouraged group required more trials to reach the criteria of one perfect repetition.

Encouraged-Inconsistent. When the encouraged and the inconsistent groups were compared no statistical difference was found. This would indicate that encouragement is no more effective than a combination of encouragement and discouragement. Since the inconsistent group was not found to be

significantly different from the control group, however, the inconsistent group may be considered as an "encouraging" group but to a non significant degree.

Discouraged-Inconsistent. The "t" value for the comparison of the discouraged and inconsistent groups was also found to be statistically significant. This would indicate that the discouraging factor of verbal motivation is more marked in it's effect upon learning behavior in an all discouraged group than in a group that receives only partial discouragement.

Summary of Number of Trials to Criteria of One Perfect Repetition

The eighty subjects that composed the three experimental groups and the control group were initially compared as to the number of trials required to obtain one perfect repetition of Test "A." The differences between these groups was not found to be significant at an acceptable level. That is, the encouraged, discouraged, inconsistent and control groups all performed on the paired associative learning task in a similar manner. This lack of significant difference was predicted because of the manner in which the subjects were selected for the study.

After Test "A" and before the presentation of Test "B" the subjects were given a similar learning task, designated as Test "T," during the administration of which they received either encouraging or discouraging remarks

from the examiner. The verbal comments, from the examiner, for the inconsistent group were a combination of encouragement and discouragement. No verbal comments were made to the control group during the administration of Test "B".

When the performance of the four groups on Test "A" was compared to their performance on Test "B" a significant difference was found. Since there was not a significant difference between the four groups on Test "A" it was assumed that the differences found in Test "B" behavior resulted from the experimental variable introduced during Test "T."

The most marked difference between the learning behavior of the groups occurred in the discouraged group. This was the only group that required more trials on Test "B" than on Test "A." The behavior of the control group indicated that the practice effect resulted in fewer trials on Test "B" than on Test "A" and this was true for both the encouraged and the inconsistent groups. Seventy per cent of the subjects that received discouragement during Test "T" required more trials on Test "B" than on Test "A" while only five per cent of the encouraged group required more trials to solve Test "B."

The results of the statistical analysis revealed that the encouraged group differed significantly between Test "A" and Test "B" in the number of trials required to solve the problem. That is, the encouraged group required

significantly fewer trials on Test "B" than on Test "A" even after the practice effect had been stripped from the results.

The inconsistent group also required fewer trials on Test "B" than on Test "A." As predicted, the learning behavior of the inconsistent group fell between the encouraged and discouraged groups. That is, the inconsistent group required more trials on Test "B" than did the encouraged group but fewer trials than the discouraged group.

Time to Reach Criteria of One Perfect Repetition

Test A

When the time required by the three experimental groups and the control group to reach the criteria of solution were compared on Test "A" few differences were noted. The encouraged group required a mean time of 10'28" to learn the task, the discouraged group required a mean time of 10'13" and the inconsistent group a mean time of 10'37". The time required by the control group was 10'22". Table 5 presents the mean times for the various groups on Test "A."

Test B

Table 5 reveals that when the time required for Test "A" was compared to the time required to solve Test "B" a large time differential occurred in all groups. That

TABLE 5.--Mean time required to reach the criteria of one perfect repetition on Test "A" and Test "B" for the encouraged, discouraged, inconsistent and control group

Groups	Test	Mean Time	Mean Time Difference
Encouraged	A	10'28"	3'48"
	B	6'40"	
Discouraged	A	10'13"	1"
	B	10'12"	
Inconsistent	A	10'37"	1'9"
	B	9'28"	
Control	A	10'22"	2'43"
	B	7'39"	

is, the mean difference time between the two tests for the encouraged group was 3'48" less for Test "B" than for Test "A," 1" for the discouraged group, 1'9" for the inconsistent group and 2'43" for the control group. Of the twenty subjects in the encouraged group only 20% of them required more time to solve Test "B" than Test "A," while 40% of the subjects in the discouraged group required additional time on Test "B." In the inconsistent group 15% of the subjects required additional time for the completion of Test "B" and 10% of the control group required some additional time. Table 6 presents the number and percentage of subjects in the various groups that required more time to solve Test "B" than Test "A."

TABLE 6.--Number and percentage of subjects in the encouraged, discouraged, inconsistent and control groups requiring more time to solve Test "B" than Test "A"

Groups	Number	Percentage
Encouraged	4	20%
Discouraged	8	40%
Inconsistent	3	15%
Control	2	10%

Statistical Comparison of the Time Required to Reach The Criteria of One Perfect Repetition

Test A

Table 7 reveals that the time required by the various groups to satisfy the solution criteria was not found to be statistically significant at an acceptable level. The F value, with 3 and 76 degrees of freedom, was significant at greater than the .05 level of confidence. The Bartlett test for homogeneity of variances was significant at greater than the .01 level with a Chi Square value of 13.47.

Test B

When the time required to learn Test "A" was compared to the time necessary for Test "B" a statistically significant difference was not found. As seen in Table 8 the probability of the F value, with 3 and 76 degrees of freedom, was significant at greater than the .05 confidence

level. Bartlett's test for homogeneity of variances with this group was not significant at less than the .05 level of confidence with a Chi Square value of 0.49. . .

TABLE 7.--Summary of analysis of variance of time to criteria of one perfect repetition on Test "A" for the encouraged, discouraged inconsistent and control groups

Source	df	ms	F
Between groups	3	76578	
Within groups	76	73676	1.04*
Total	79		

*Significant at greater than the .05 level.

TABLE 8.--Summary of analysis of variance of differences in time to reach the criteria of one perfect repetition between Test "A" and Test "B" for the encouraged, discouraged, inconsistent and control groups

Source	df	ms	F
Between groups	3	73672	
Within groups	76	51535	1.43*
Total	79		

*Significant at greater than the .05 level.

Summary of Time to Reach Criteria of One Perfect Repetition

When the times required by the groups of the study to master Test "A" were compared with each other there was

no significant difference between the groups. There was a spread of only twenty four seconds between the group solving the problem in the fastest time and the slowest problem solving group.

After the administration of Test "T" the time was recorded for Test "B." A comparison of the time required to solve Test "A" and the time required to solve Test "B" revealed that there was again no significant differences between the speed of the various groups. Though the differences between the groups did not reach significance at an acceptable level there was a definite trend in the predicted direction. That is, it was predicted that the encouraged group would require less time to solve Test "B" than either the discouraged or inconsistent groups. It was further suggested that the inconsistent group would require more time than the encouraged group but less time than the discouraged group to reach the criteria of solution. This is the manner in which the raw scores for the various groups arranged themselves. The encouraged group revealed a mean time difference between Test "A" and Test "B" of 3'48". The discouraged group revealed a mean time difference of only 1" between the two tests and the inconsistent group had a mean difference between Test "A" and Test "B" of 1'9". For all groups the time required on Test "A" was more than was required for Test "B."

Subjective Evaluation of Effects of Verbal Motivation

Although the subjects were asked not to talk while the experiment was in progress, the subjects in the discouraged group made many comments, expressing considerable hostility toward the examiner and toward the problem to be solved. Typical comments were: "I can't seem to get this darn thing; I don't see any connection between these silly cards; This is even harder than division problems."

Subjects in the inconsistent group made about half as many comments as the discouraged group, likewise expressing hostility toward the examiner and toward the learning problem itself. Very few comments were made by the subjects in the encouraged and control groups.

In the interview at the end of the experiment the subjects were asked how they felt about the problem. The encouraged group as a whole reacted in terms of feeling confused and a little frustrated by the problem. None of them expressed hostility toward the examiner, and only one of them felt annoyed with the problem he was trying to solve.

The discouraged group reported more feelings of frustration and irratation toward the whole situation. Nearly half of this group expressed considerable disgust with themselves for being unable to solve the problem, three expressed annoyance toward the examiner, and five expressed hostility toward the problem.

In the inconsistent group the subjects again expressed feelings of frustration with the problem, although there seemed to be more feeling of interest in the problem and in correctly solving the problem.

The subjects in the control group described general feelings of confusion, and some indifference to the problem. About a fourth of them expressed disgust with themselves for their inability to solve the problem, while none of them expressed annoyance with the examiner or with the problem.

The fact that so many of the subjects expressed hostility toward themselves and their inability to solve the problem following the discouraging comments suggested that one of the major effects of verbal reproof was to make the individual feel quite inadequate for the specific task he was performing, regardless of his success in performing that task. In addition, these reactions would seem to provide further evidence that the verbal comments made to the subjects were effective.

The importance of a competitive element for providing motivation, even in individual performance, is brought out when the subjects were questioned as to what he specifically remembers about the comments that were made to him. The comment most frequently remembered in the encouraged group was: "You're doing as well as most people"; the discouraged group remembered this comment most frequently: "You seem

to be having more trouble than most people have." During the administration of Test "B" there were frequent comments such as: "If the others can get it right, so can I" or "John said he did it real fast and if he can do it, so can I."

At the end of Test "B" the following questions were administered: "Which test did you like best?" and "Which test did you think was the hardest?" It might be assumed that the encouraged group would prefer the task given after the encouragement, the discouraged group prefer the test given before the discouragement and the inconsistent group to be about evenly distributed between the two tests.

As revealed in Table 9 50% of the encouraged group preferred Test "A" and 50% preferred Test "B" In response to which test they felt was the most difficult 55% stated that Test "A" was the hardest.

In the discouraged group 65% of the subjects reported that Test "A" was the test they liked best. When asked which test they considered the-hardest 79% of the group reported that Test "B" was the more difficult to learn.

The test preferred by the inconsistent group was Test "A" with 55% of the subjects making this choice. There was little difference in the inconsistent group's choice of the more difficult test. Test "A" was deemed the hardest by 50% of the subjects and Test "B" by the

remaining 50%.

The control group revealed that the practice effect had a marked influence upon their subjective evaluation of the task. That is, 85% of this group thought the second test, Test "B," was the preferred test and 65% of the group found Test "A" to be the more difficult.

TABLE 9.--Number and percentage of tests selected as "liked best" and "most difficult" by the encouraged, discouraged, inconsistent and control groups

Group	Test Liked Best		Most Difficult Test	
	A	B	A	B
Encouraged				
number	10	10	11	9
per cent	50	50	55	45
Discouraged				
number	13	7	6	14
per cent	65	35	30	70
Inconsistent				
number	11	9	10	10
per cent	55	45	50	50
Control				
number	3	17	13	7
per cent	15	85	65	35

CHAPTER V

SUMMARY AND CONCLUSIONS

This study was designed to determine the effects of verbally presented motivation on a paired associative learning problem. The motivation was administered to the various groups through the use of differential verbal reinforcements and instructions. The verbal motivation reinforcements included encouragement, discouragement, and a combination of the two. No comments were made to the control group.

A review of the literature relevant to the present study revealed that little work has been done concerning the effects of verbally presented encouragement and discouragement on paired associative learning. Consequently three other areas of research which would be considered relevant were discussed. First, the effects of encouragement and discouragement upon various other types of learning situations were reviewed and discussed. Results of these studies showed considerable inconsistency in the effects of these two types of motivation. Also relevant were investigations of problem solving behavior under anxiety

conditions, assuming that anxiety can be thought of as a result of discouragement or reproof. Results of these studies showed that in a majority of cases anxiety had little or no effect in a simple problem solving situation but that it had considerable effect when the problem to be solved was complex in nature. Lastly, studies concerned with the effects of encouragement and discouragement upon learning time were reviewed. These studies revealed a rather consistent relationship between the amount of discouragement and the length of time involved. That is, as motivation became more discouraging the time required for solving a problem increased.

The eighty subjects included in this study were selected according to the criteria previously discussed in Chapter III. These subjects were placed into four catagories - encouraged, discouraged, inconsistent and control. The tests administered to the subjects were obtained under classroom conditions in four public schools which represented, according to the judgment of the school system officials, a typical sampling of the children in that particular system.

The problem to be solved consisted of 24 cards, the first 12 of which contained two pictures on each card and the second 12 containing but one of the pictures used in the first 12 of the set. The subject's task was to determine which pictures were missing on the second 12

cards - that is, which two pictures constituted a pair. The three experimental groups were verbally reinforced with instructions and encouraging and discouraging remarks on a set of cards similar in design to those discussed above. The encouraged and discouraged remarks and instructions were used just prior to the administration of the second learning task.

At the end of the experiment a brief interview was conducted with each subject in an attempt to ascertain his reactions to the verbal reinforcement and his resultant attitude toward the tests.

As will be recalled from Chapter I the first specific hypothesis of this study was: If subjects are given only encouragement prior to a paired associative learning task, then those subjects will require fewer trials to obtain an acceptable criteria than those subjects given only discouragement, a combination of encouragement and discouragement or no emotive instructions at all.

Analysis of the results indicated that there was a significant improvement in the learning behavior of the encouraged group on a paired associate learning task. When the twenty subjects of the encouraged group were given a paired associate learning task, prior to the administration of the verbal motivation (encouraging instructions and comments) their learning behavior did not vary significantly from the other sixty subjects that made up the discouraged,

inconsistent or control groups. When the various groups were given a second paired associate learning task, after the administration of the verbal motivation, the difference in the learning behavior of the three experimental groups became apparent. The encouraged group required fewer trials on the second learning task than did either the discouraged or the inconsistent groups. The discouraged group required significantly more trials on the second learning task than did either the encouraged or the inconsistent groups. The learning behavior of the inconsistent group was between the encouraged and discouraged groups. That is, the inconsistent group performed more like the encouraged group than the discouraged group but to a lesser degree - requiring more trials for Test "B" than the encouraged group but fewer trials than the discouraged group.

It would appear justifiable from the above discussion to accept the hypothesis that encouragement is a more facilitating form of verbal motivation for paired associate learning than either discouragement or a combination of encouragement and discouragement. It would appear equally justifiable to conclude that discouragement, in the form of verbally presented comments and instructions, is the least effective method of motivation for mastering a visually presented paired associative learning task.

The second specific hypothesis was: If subjects are

given only encouragement prior to a paired associative learning task, then those subjects will require less time to solve the task than those subjects given only discouragement, a combination of encouragement and discouragement or no emotive instructions at all.

Analysis of the effects of encouragement and discouragement upon the time required for the solution of a paired associative learning task was not as definitive as the effects of such motivation upon problem solving behavior. When the three experimental groups were given the paired associative task prior to the presentation of the encouragement or discouragement there was only a few seconds difference between the fastest and the slowest groups. After the administration of the motivating comments and instructions there were marked differences. Though these differences were not found to be significant they were in the predicted direction. That is, the encouraged group required less time to solve the second paired associative task than did the discouraged or the inconsistent group. The inconsistent group was again more like the encouraged group than the discouraged group. One reason for the increased time of the discouraged group in solving Test "B" was the high percentage of comments made by that group. Considerable time was spent by some of the subjects in the discouraged group explaining to the examiner why they were unable to solve the problem or what

was wrong with the design of the problem. The more obvious reason for the increased time required by the discouraged group was the increased number of trials required to reach the criteria of one perfect repetition of the test.

It would appear that there is not sufficient evidence to accept the hypothesis that the subjects receiving encouragement will require less time to solve the paired associative learning task than those individuals receiving either discouragement or a combination of encouragement and discouragement.

Comments made during the experiment and in an interview after the completion of the paired associative learning task showed that subjects in the discouraged group expressed considerable hostility toward the examiner and toward the problem to be solved, as well as towards themselves for failing to have solved the problem as quickly as they felt they should. This reaction was also characteristic of the inconsistent group, although it did not appear as frequently as in the discouraged group. These reactions appeared to establish a positive or negative attitude toward not only the experimental materials but towards the whole experimental situation, including the persons involved in it.

In questioning the subjects in the three experimental groups there was a tendency for them to recall those motivational statements that compared their performance

to other subjects. The subjects spontaneous comments during the administration of the test also were heavily loaded with such comments. From such comments it could be concluded that competition is an important element in providing individual motivation.

In conclusion, it was felt that the data presented here demonstrated that encouragement, in the form of verbal instructions and comments, was a more facilitating motivation in learning a visually presented paired associative learning task than either discouragement or a combination of encouragement and discouragement. The data indicated that an inverse relationship between the time required for solving a paired associative learning problem and the amount of encouragement received was not sufficient for statistical acceptance though the differences that did exist between the experimental groups did follow such an inverse relationship. In general it may be concluded that the use of discouraging motivation, verbally presented, leads to ineffective problem solving behavior in a paired associative learning situation.

BIBLIOGRAPHY

Ausubel, David P., Schiff, Herbert M., and Goldman, Morton. "Qualitative Characteristics in the Learning Process Associated with Anxiety," Journal of Abnormal and Social Psychology, vol. 48, 1953, p. 537.

Bardach, Joan L. "Effects of Situational Anxiety at Different Stages of Practice," Journal of Experimental Psychology, vol. 55, 1960, p. 420.

Bayton, James A. and Conley, Harold W. "Duration of Success Background and the Effect of Failure upon Performance," Journal of General Psychology, vol. 56, 1957, p. 179.

Beier, E. G. "The Effect of Induced Anxiety on Flexibility of Intellectual Functioning," Psychological Monograph, vol. 65, No. 9, 1951.

Blankenship, M. V. and Humes, J. F. "The Effect of Praise and Reproof upon Memory Span Performance," American Journal of Psychology, vol. 51, 1938, p. 527.

Brenner, Benjamin. "Effect of Immediate and Delayed Praise and Blame upon Learning and Recall," Contributions to Education, No. 620, 1934.

Briggs, T. H. "Praise and Censure as Incentives," School and Society, vol. 26, 1927, p. 596.

Buss, Arnold H., Braden, William, Orgen, Arthur and Buss, Edith H. "Acquisition and Extinction with Different Verbal Reinforcement Combinations," Journal of Experimental Psychology, vol. 52, 1956, p. 288.

Buss, Arnold and Buss, Edith H. "The Effect of Verbal Reinforcement Combinations on Conceptual Learning," Journal of Experimental Psychology, vol. 52, 1956, p. 283.

Castaneda, Alfred, Palermo, David S. and McCandless, Boyd R. "Complex Learning and Performance as a Function of Anxiety in Children and Task Difficulty," Child Development, vol. 27, 1956, p. 331.

Chase, L. E. "Motivation of Young Children: An Experimental Study of the Influence of Certain Types of External Incentives upon the Performance of a Task," University of Iowa Studies: Studies of Child Welfare, No. 3, 1932, p. 5.

Combs, Arthur W. and Taylor, Charles. "The Effect of the Perception of Mild Degrees of Threat on Performance," Journal of Abnormal and Social Psychology, vol. 47, 1952, p. 420.

Davis, R. A. and Ballard, C. R. "Effectiveness of Various Types of Classroom Incentives," Educational Methods, vol. 12, 1932, p. 134.

Deputy, E. C. "Knowledge of Success as a Motivating Factor in College Work," Journal of Educational Research, vol. 20, 1929, p. 327.

Edwards, Allen L. Experimental Design in Psychological Research. Rinehart and Co., New York, Revised Edition, 1960, p. 132.

Farber, I. E. and Spence, Kenneth W. "Complex Learning and Conditioning as a Function of Anxiety," Journal of Experimental Psychology, vol. 27, 1940, p. 297.

_____. "Conditioning and Extinction as a Function of Anxiety," Journal of Experimental Psychology, vol. 45, 1953, p. 116.

Forlano, G. and Axelron, H. C. "The Effect of Repeated Praise or Blame on the Performance of Extroverts and Introverts," Journal of Educational Psychology, vol. 28, 1937, p. 100.

Frency, Elizabeth G. "Some Characteristics of Achievement Motivation," Journal of Experimental Psychology, vol. 50, 1955, p. 233.

Garmezy, Norman. "Stimulus Differentiation by Schizophrenic and Normal Subjects Under Conditions of Reward and Punishment," Journal of Personality, vol. 20, 1952, p. 253.

Gates, G. S. and Rissland, L. Q. "The Effect of Encouragement and Discouragement upon Performance," Journal of Educational Psychology, vol. 14, 1923, p. 21.

Gilchrist, Edward P. "The Extent to Which Praise and Reproof Affect a Pupil's Work," School and Society, vol. 9, 1916, p. 872.

Gordon, L. V. "The Effect of Discouragement on the Revised Stanford-Binet Scale," Journal of Genetic Psychology, vol. 73, 1948, p. 201.

Grooms, Robert R. and Endler, Norman S. "The Effect of Anxiety on Academic Achievement," Journal of Educational Psychology, vol. 51, 1960, p. 299.

Gross, Leonard R. "Effects of Verbal and Non-Verbal Reinforcement in the Rorschach," Journal of Consulting Psychology, vol. 23, 1959, p. 66.

Heath, Douglas. "Instructional Sets as Determinants of of Expectancy Generalization," Journal of General Psychology, vol. 64, 1961, p. 285.

Hurlock, E. B. "The Value of Praise and Reproof as Incentives for Children," Archives of Psychology, vol. 11, No. 71, 1924, p. 5.

Kausler, Donald H., Trapp, E. Philip and Brewer, Charles L. "Intentional and Incidental Learning Under High and Low Emotional Drive Levels," Journal of Experimental Psychology, vol. 58, 1959, p. 452.

Krasner, Leonard. "Studies of the Conditioning of Verbal Behavior," Psychological Bulletin, vol. 55, 1958, p. 148.

Laird, Donald A. "How the College Student Responds to Different Incentives to Work," Pedagogical Seminary, vol. 30, 1923, p. 366.

_____. "How the High School Student Responds to Different Incentives to Work," Pedagogical Seminary, vol. 30, 1923, p. 358.

Loree, M. Roy and Koch, Margaret B. "Use of Verbal Reinforcement in Developing Group Discussion Skills," Journal of Educational Psychology, vol. 51, 1960, p. 164.

Lotsof, Erwin J. "Reinforcement Value as Related to Decision Time," The Journal of Psychology, vol. 41, 1956, p. 427.

Marquart, Dorothy. "The Pattern of Punishment and Its Relation to Abnormal Fixation in Adult Human Subjects," Journal of Genetic Psychology, vol. 39, 1948, p. 107.

McCandless, Boyd R. and Castaneda, Alfred. "Anxiety in Children, School Achievement and Intelligence," Child Development, vol. 27, 1956, p. 382.

McDavid, J., Jr. and Schroder, H. M. "The Interpretation of Approval and Disapproval by Delinquent and Non-Deliquent Adolescents," Journal of Personality, vol. 25, 1957, p. 539.

McGeoch, John A. The Psychology of Human Learning. Longmans, Green and Co., Inc., New York, 2nd edition, 1952.

Montague, E. K. "The Role of Anxiety in Serial Rote Learning," Journal of Experimental Psychology, vol. 45, 1953, p. 91.

Mower, O. H. "Anxiety-Reduction and Learning," Journal of Experimental Psychology, vol. 27, 1940, p. 297.

Owen, Wayne A. "Effects of Motivating Instructions on Reaction Time in Grade School Children," Child Development, vol. 30, 1958, p. 261.

Porter, Lyman W. "The Effect of 'Right' in a Modified Thorndikian Situation," The American Journal of Psychology, vol. 70, 1957, p. 219.

Postman, Leo. "The History and Present Status of the Law of Effect," Psychological Bulletin, vol. 44, 1947, p. 489.

Rosenfeld, Howard and Lander, Alvin. "The Influence of Teachers on Aspirations of Students," Journal of Educational Psychology, vol. 52, 1961, p. 1.

Sarason, Irving B. and Sarason, Barbara R. "Effects of Motivating Instructions and Reports of Failure on Verbal Learning," The American Journal of Psychology, vol. 60, 1957, p. 92.

Sarason, Irwin. "Effect of Anxiety, Motivational Instruction, and Failure on Serial Learning," Journal of Experimental Psychology, vol. 51, 1956, p. 253.

_____. "The Effects of Associative Value and Differential Motivating Instructions on Serial Learning," The American Journal of Psychology, vol. 70, 1957, p. 326.

_____. "Relationships of Measures of Anxiety and Experimental Instructions to Word Association Test Performance," Journal of Abnormal and Social Psychology, vol. 59, 1959, p. 37.

Sarason, Seymour B., Mandler, George and Craighill, Peyton. "The Effect of Differential Instructions on Anxiety and Learning," Studies in Motivation, David C. McClelland, Editor, Appleton-Century-Crofts, Inc., New York, 1955.

Schmidt, H. O. "The Effect of Praise and Blame as Incentives to Learn," Psychological Monographs, vol. 53, 1941, p. 56.

Stassi, Eugene J. "Disfluency of Normal Speakers and Reinforcement," American Speech and Hearing Association Journal - ASHA, vol. 3, 1961, p. 341.

Stevenson, Harold W. and Weir, Morton W. "Developmental Changes in the Effect of Reinforcement and Non-reinforcement of a Single Response," Child Development, vol. 20, 1961, p. 1.

Taylor, J. A. and Spense, K. W. "The Relationship of Anxiety Level to Performance in Serial Learning," Journal of Experimental Psychology, vol. 44, 1952, p. 61.

Thorndike, E. L. "Animal Intelligence," Psychological Review, Monograph Supplement, no. 8, 1898.

Tyler, Bonnie. "Expectancy for Eventual Success as a Factor in Problem Solving Behavior," The Journal of Educational Psychology, vol. 49, 1958, p. 171.

Waite, Richard R., Sarason, Seymour B., Lighthall, Frederick F. and Davidson, Kenneth S. "A Study of Anxiety and Learning in Children," Journal of Abnormal and Social Psychology, vol. 57, 1958, p. 267.

Wicker, Thomas A., Jr. "Examiner Influence in a Testing Situation," Journal of Consulting Psychology, vol. 20, 1956, p. 23.

Wright, W. R. "Some Effects of Incentives on Work and Fatigue," Psychological Review, vol. 13, 1906, p. 23.

APPENDIX I

Standard List of Verbal Statements for Encouraged Group Used During Test "T"

Instructions: You did so well on the first test I gave you that I want to check you again. You were so much faster and took so many fewer times to learn all the cards than the other children I want to see if you can do it again.

For correct response: "Good"

For incorrect response (comments were made in the order listed and the list repeated as necessary.)

1. The first one is probably the hardest.
2. That's all right; it will take a little time.
3. You're doing fine.
4. Okay.
5. It's very confusing at first.
6. Just keep trying.
7. Don't worry; it takes a little time to get them all.
8. That's fine.
9. You're getting better each time.
10. Don't get discouraged
11. You're doing all right, even if it seems slow.
12. I think you're getting the idea.
13. You're doing as well as most people.
14. Okay
15. Don't give up; you're doing fine.
16. I think you're getting the idea.
17. It's not easy to solve, that's for sure.
18. Don't worry; you'll get it.
19. It seems awfully hard to solve, I know.
20. I think you're getting there.

APPENDIX II

Standard List of Verbal Statements for Discouraged Group Used During Test "T"

Instructions: You did so poorly on the first test I gave you that I want to recheck you and see if you couldn't do a little better on this one. You took so much more time and so many more guesses than the other children I want to give you another chance.

For correct response: "It's about time you got one right"; or "you finally got one right."

(When there were two consecutive correct responses and when the above would be inappropriate, S was told, "that was just luck.")

For incorrect response (comments were made in the order listed and the list repeated as necessary.)

1. You missed it.
2. Wrong again.
3. No.
4. Try a little harder.
5. You're not doing very well.
6. You're not getting anywhere.
7. You seem to be having more trouble than most people have.
8. You just don't seem to be trying.
9. No, you were way off of that one.
10. You'll have to concentrate on it.
11. You're just not getting the hang of it.
12. You're pretty slow at solving it.
13. Missed again.
14. No.
15. I think you're confused.
16. That wasn't so good.

17. Wrong again.
18. I guess you still don't have the idea.
19. That's no good.
20. You're not making any progress.

APPENDIX III

Standard List of Verbal Statements for Inconsistent Group Used During Test "T"

Instructions: Some of the other children did better on the first test than you did and some of them did worse. I want to see what will happen to your score when we try you on this test.

For correct response: Alternately "good" and "it's about time you got one right" (or "well, that was lucky" if more appropriate).

For incorrect response: (comments were made in the order listed and the list repeated as necessary).

1. You missed.
2. That's fine.
3. Wrong again.
4. Okay.
5. No.
6. Just keep trying.
7. You're just not trying.
8. That's good.
9. You goofed again.
10. You're doing better than most people.
11. You're way off now.
12. Don't get discouraged.
13. You'll have to concentrate.
14. You'll get it.
15. You just don't seem to get the idea.
16. You're doing all right, even if it seems slow.
17. That's no good.
18. I think you're getting closer.
19. You should have gotten it by now.
20. It's hard to figure out.

APPENDIX IV

Arrangement of Cards

Test "A"

Sample		
1.	swing	belt
2.	tent	brush
3.	bus	cow
4.	horn	boat
5.	glass	dog
6.	feet	key
7.	frog	broom
8.	cat	bed
9.	star	train
10.	moon	door
11.	ball	rake
12.	sled	bone
	spoon	slide

Test "B"

Sample		
1.	skate	ring
2.	bread	clock
3.	tree	shoe
4.	kite	fish
5.	coat	sun
6.	duck	saw
7.	bird	lamp
8.	hat	cup
9.	comb	drum
10.	leaf	house
11.	chair	dress
12.	box	pig
	car	fork

Test "T"

1.	top	pail
2.	iron	horse
3.	milk	book
4.	flower	shirt
5.	mouse	candle

APPENDIX V

Statistical Procedure

An analysis of variance was used to determine the effect of verbal motivation on both the number of trials to criteria and the time required to reach this criteria.

The model for these analyses was:

$$Y = \mu + G_i + S_j + \epsilon_{ij}$$

Where; G = Subject groups
S = Subjects within the groups
ϵ = Error term

And; i = 1,2,3,4
j = 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16, 17,18,19,20

An analysis was completed for each group of data to determine the feasibility of using the analysis of variance technique described above. The Bartlett test of homogeneity of variance was employed. The formula for this test was:

$$X^2 = \frac{(\log_e 10)\ (n-1)\ (a \log s^{-2} - \Sigma \log s^2)}{1 + \frac{a+1}{3a\ (n-1)}}$$

The Fisher's "t" test was used to locate the significant differences which were detected by the analysis of variance. A one-tailed test was employed.

The formula used for this test was:

$$t = \frac{M_1 - M_2}{\frac{\Sigma x_1^2 - \Sigma x_2^2}{N_i (N - 1)}}$$