

PREVIOUS ACHIEVEMENT AND LEVEL OF ASPIRATION;
AN EXPERIMENT

by

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ABSTRACT

Level of aspiration, or the level of difficulty of a selected goal, has a large influence on performance, ability, and self-image. It is determined by a variety of factors, many of which originate from systematically discriminatory forces. This study was designed to examine 1) whether it is possible to reset the levels of aspiration of individuals or groups with previously low achievement backgrounds and 2) whether laboratory simulated success or failure affects low and high achievers differently.

An experiment using a Level of Aspiration Board similar to that designed by Alvin Zander was used to test the effects of failure, neutral, and success treatment on groups of low and high achievers. The results failed to show any beneficial effect to the low achievers of positive treatment, perhaps because the treatment lasted only the length of the hour session. However, striking differences between the low and high achievers' reactions to the experiment indicate the need to test a larger variety of groups before producing, or applying solutions derived from, level of aspiration theory.

I. BACKGROUND

A. Definition and Theory of Level of Aspiration

Level of aspiration is defined as the degree of difficulty of the goal toward which an individual or group aims. Kurt Lewin first developed this concept about forty years ago, as part of his field theory analysis of personality, in order to better explain and study the interrelationship between goal formation, subsequent performance with respect to that goal, and personality.

In my opinion, level of aspiration theory and experiments as they have been applied to classroom situations have great significance for some of the problems of today's urban environment. Specifically, the conclusions Ray Rist (discussed later) comes to about the development of great hostility between the students and the perpetuation of class differences created by teacher expectation influencing the students relates directly to the problems of dropouts, unemployment, rage and hostility resulting in riots, lack of productive organization among lower class groups, rising crime rates, and inability to function as a productive member of the urban community (i.e. Tally's Corner type mentality), to name merely a few. The precise relationship between the school experience and these factors has yet to be determined.

Following is an example particularly suited to level of aspiration analysis: "The Case Of A College Senior

Considering Graduate Work (caps mine) -- He might have to choose between entering a university that has such rigorous standards that only a fraction of the degree candidates actually receive degrees and entering one that has less of a reputation but where almost everyone admitted receives degrees." (Freedman, p 199) In this case, the level of aspiration of the student would be the difficulty, as perceived by him, of successfully completing the goal decided on, i.e. receiving the degree. In order for this concept to be analytically useful, the student must have perceived the difference in difficulty between achievement of the two goals (Deutsch, in Lindzey, p. 208), which in this case, he presumably, would have.

Lewin further theorized about the method by which an individual or group selects its goal or level of aspiration. In the previous example, there are two types of factors influencing the decision. The first is the chance of success or failure that the students assign to the two options. The second is the desirability, or pay-off, of achieving the goal and the penalty for failure. This second factor is generally referred to as the valence associated with success or failure to achieve a goal. (Lewin, DTP, p. 77) For all goals, a subjective probability of success or failure can be expressed numerically, while valence can often be expressed only in terms of relative preference.

The method by which an individual or group selects

its goal, or level of aspiration, can be quantified by means of valence theory, which was developed by Lewin.

$$\text{Valence given level of difficulty} = (|\text{Valence success}|) \left(\frac{\text{subjective probability of success}}{\text{subjective probability of failure}} \right) - (|\text{Valence failure}|) \left(\frac{\text{subjective probability of failure}}{\text{subjective probability of success}} \right)$$

The goal at which the valence is a maximum is the goal to which the individual or group will aspire. Thus, in the previous example, there is no clearcut choice for all students. For choosing the more difficult graduate school, the valence of success is presumably large, while the probability is small, and the valence of failure is presumably small (failing at such a difficult task is not so bad), while its probability is large. For choosing the easier graduate school, the valence of success is probably small, while the probability is large, and the valence of failure is probably large (failing at an easy task is generally quite humiliating), while the probability is small. Therefore, in this example, individual differences between students which result in their perception of different valences and probabilities will determine which goal has the maximum valence for them. It is therefore necessary to examine more closely factors which influence a student's determination of probability and valence.

An individual determines the probability of success or failure at a task by comparing it with other similar tasks

which he has already performed. The more successful he has been at similar tasks previously, the higher he is likely to rate his probability of attaining a similar goal. The determination of success or failure on previous tasks is made not only on the basis of absolute performance, but on the relationship of past performance to the past level of aspiration or past goal. It is a subjective judgement which may be influenced by factors other than those related directly to the present task. It may reflect the feelings of success or failure the individual has with respect to other unrelated situations or reflect exaggerations of previous successes or failures created to cope with other problems. In the graduate school decision example, for instance, there could be two students with objectively the same chances of success or failure who perceive them differently. This could be due to differences in the way they view their previous performance with respect to others, differences in the goals they had set for themselves, or, perhaps, differences in the goals that others had set for them.

Many factors influence an individual's determination of the valence of a particular situation. Cultural factors, group factors, one's self-image, other individuals, and other models all influence determination of valence.

In some cases, for instance, in case of the ideology underlying the college term "Gentlemen C," the group standard is equivalent to the maximum valence on the scale of success; to be either above or below this standard is consid-

ered less desirable than the standard. The fashion, particularly in democratic countries, frequently follows a similar pattern of an optimum rather than a maximum of elegance as the most desirable level. In other cases, the group standard merely indicates a level at which the valence gradient is particularly steep; there is little success valence and much negative valence of failure immediately below the group standard, and much success and little failure valence directly above group standard. (Lewin and others, p. 368)

Information available to the individual as to the performance or opinion of other groups will influence his determination of valence. The student trying to select a graduate school would be influenced by all of these factors affecting valence determination, generally referred to as 'scales of reference.'

B. Some Relevant Previous Studies

Clearly, determination of the factors which influence an individual's or group's level of aspiration was necessary before experimentation using the concept could be done. Most of the experiments have attempted to vary a limited number of factors, while holding the others as constant as possible, and thereby establish the role that that factor plays in setting level of aspiration.

Pauline Snedden Sears (1940) was the first to attempt to determine the effects of continuous previous success or failure in school on level of aspiration both in neutral and success or neutral and failure-simulated conditions. She selected twelve academically successful, twelve academi-

cally unsuccessful, and twelve mixed success students. First, she had them individually perform sets of familiar reading and arithmetic tasks. In between each set they were asked to estimate their time for the next set. At a second session, she led the subjects to believe that their performance had been and still was either very inferior or very superior. She found that under the neutral conditions of the first session, the academically successful students were most likely to have reasonable goals and levels of aspiration, while the unsuccessful students were most likely to have either unrealistically high or low goals, indicating a large fear of failure. The artificially induced success and failure seemed to have the same effect as the long term success and failure had had.

This experiment was important not only because it tried to analyze the effects of previous performance on level of aspiration, but also because it discussed the significance of present level of aspiration as it relates to present performance. It is not level of aspiration in an absolute sense that is important, but the difference between it and performance. This experiment helped explain the way in which students with different achievement levels set their goals with respect to their performance.

In a well known recent experiment, Robert Rosenthal and Lenore Jacobson (1968) studied the effect of teacher expectation on the levels of aspiration and performance of selected students in the class. They were attempting to verify

the theory of the "self-fulfilling prophecy." They tested students in an elementary school with what were supposed to be tests which would indicate which students would have great intellectual growth that year (the tests were, in fact, IQ tests). They selected a group of students at random and told their teachers that these students would "bloom" that year. They retested the students at the end of the year and collected teacher's ratings of the students. Although the teachers could not always remember who the "bloomers" were supposed to be, the selected students did, in fact, "bloom." A study done by Jere E. Brophy and Thomas L. Good (1970) investigated further the ways in which the teacher communicates to the student different expectations in such a way that they respond by meeting them. Their results support the self-fulfilling prophecy of Rosenthal and Jacobson, as they determined that indeed the mechanisms for the transfer of these expectations do exist.

Level of aspiration studies of students in classroom situations therefore indicates the importance of teacher expectation on the level of aspiration and performance of individual students within the classroom. A study done by Ray C. Rist (1970) further demonstrates that teacher expectations influence the goals and levels of aspiration of sub-groups within the classroom. During the period he was observing the classroom (a kindergarden class), the students not only set their goals and levels of aspiration in accordance with the

teacher's expectation but also mirrored the teacher's expectation of the others in the class in the way they spoke to and treated each other. Thus, both teacher and group expectation now worked on each student.

In the organization of hostility within the classroom, there may be at least the tentative basis for the rejection of a popular "folk myth" of American society, which is that children are inherently cruel to one another and that this tendency towards cruelty must be socialized into socially acceptable channels. The evidence from this classroom would indicate that much of the cruelty displayed was a result of the social organization of the class. Those children at Tables 2 and 3 [the 'slow learners'] who displayed cruelty appeared to have learned from the teacher that it was acceptable to act in an aggressive manner towards those from low-income and poorly educated backgrounds. Their cruelty was not diffuse, but rather focused on a specific group--the other poor children. Likewise, the incidence of such behavior increased over time. The children at Tables 2 and 3 did not begin the school year ridiculing and belittling each other. This social process began to emerge with the outline of the social organization the teacher imposed upon the class. The children from the first table were also apparently socialized into a pattern of behavior in which they perceived that they could direct hostility and aggression towards those at Table 2 and 3, but not towards one another. The children in the class learned who was vulnerable to hostility and who was not through the actions of the teacher. She established the patterns of differential behavior which the class adopted. (Rist, p. 430)

The primary focus of Rist's research was the determination of the factors which influence the formation of a teacher's expectation. He did a longitudinal study of a class, starting from their entrance in school in kindergarten to the middle of second grade. His study consists mainly of observations made in the classroom with some background data on

the students. At the end of the first eight days of school, the teacher assigned the students to three different tables, based on what she perceived to be ability. In fact, according to Rist, she had no information as to their ability, and she appeared to base her expectations purely on external indicators of the social class to which the child belonged. (The study was done in an all-black ghetto school with all black teachers and administrators.) The primary physical distinctions were neatness and attractiveness of appearance and grooming, ability to speak standard English, and leadership ability. Upon further research, Rist found that the groups were, in fact, also segregated by family income, educational attainment of parents, and family size. Most of this specific information was unknown to the teacher.

These groups, determined by social class, formed castes within the classroom which remained rigid throughout the two and a half year study. As the study progressed, the students began to live up to the teacher's expectations of them, and those expectations were then reinforced. The self-fulfilling prophecy became reality when at the end of kindergarten real differences between the groups of students showed up on achievement tests. Therefore, future teachers no longer needed to make subjective judgements about the ability of the students; they had 'objective' tests to use for placement. In this way, the self-fulfilling prophecy of

the low ability and performance of students with low social status became self-perpetuating.

When a teacher bases her expectations of performance on the social status of the student and assumes that the higher the social status, the higher the potential of the child, those children of low social status suffer a stigmatization outside of their own choice or will. Yet there is a greater tragedy than being labeled as a slow learner, and that is being treated as one. The differential amounts of control-oriented behavior, the lack of interaction with the teacher, the ridicule from one's peers, and the caste aspects of being placed in lower reading groups all have implications for the future life style and value of education for the child.

(Rist, p. 448)

This result of perpetuation of existing class lines by means of the schools is also noted in the Coleman Report(1966).

It states that not only is performance in school highly correlated to social class, but that this correlation increases with the amount of time one has been in school.

Thus, public education, far from providing equal opportunity, in fact reinforces existing class inequalities.

II. DESIGNATION OF PROBLEMS TO BE STUDIED

One of my main objectives in the following study was to determine whether it is possible to reset levels of aspiration once they have become established through many years of schooling. If it is true that after only eight days, students' levels of aspiration and performance are already being determined by the expectation of the teacher, and if one considers it desirable to prevent this channelling procedure which insures that the inequalities of the present system will continue to exist unchanged, then one must devise a system in which these teacher expectations are never communicated to the student (either because they are never formed or because they are somehow successfully suppressed). There will, however, continue to be children and adults whose levels of aspiration and abilities have been determined by this systematically unfair procedure.

I tried to devise an experiment which would give an indication of whether the resetting of levels of aspiration, which would raise goals and ability, is possible. Many compensatory education programs, such as Upward Bound, are based on the premise that this is possible. "If teachers could increase their expectations of these students, constitute a positive comparative for them, would the students once they perceived new opportunities, upwardly adjust their level of aspiration and level of comparison and subsequently improve their achievement?"(Terry, p. 1-2) An experimental

situation which tests the response to treatment on previously formed self-images and levels of aspiration in a group situation would help answer this question.

III. DEVELOPMENT OF THE APPARATUS USED IN THIS EXPERIMENT

The Level of Aspiration Board was first developed in 1942 by Rotter. He designed it to test the relationships between expressed goals, performance, and personality traits. He originally intended it to be used for clinical purposes. It is about four feet long and several inches wide with a channel down the center. There are small holes at one end of the board, and the holes are each assigned a point value between one and ten. There are nineteen such holes designated one to ten to one. The subject grasps a miniature pool cue and propels a small steel ball along the channel. The holes tend to slow the ball and steady it beside a number which represents the score for that shot.

The subjects performed trials of five shots each, trying to maximize their score on each trial. In between the subjects were asked to state their goal for the next trial. Rotter studied the discrepancies between the prediction for a given trial and the score received on the preceding trial. From the pattern and magnitude of these discrepancies, he fit an individual into one of nine pattern types. He associated personality traits and disturbances with each pattern of response. Rotter used level of aspiration analysis techniques to diagnose personality disorders, rather than solely for the purpose of clarifying theory.

Alvin Zander and Herman Medow modified the Rotter board so that it could be used by either an individual

or a group. This provided a laboratory method for determining a group's level of aspiration. They did experiments testing the effect of different treatments on individual and group levels of aspiration. (Zander & Medow, 1963)
(Zander and others, 1965)

Using an enlarged Rotter Board (exact specifications can be found in Appendix A), they had both individuals and groups perform the same task Rotter had designed. They showed that groups have levels of aspiration which are formed in a similar manner to that of individuals. In an experiment performed on groups of eleventh and twelfth grade boys (1965), Zander varied the feedback given to the groups as to their performance relative to other groups. He tried to measure the effects of success or failure treatments on the levels of aspiration and performance of the groups. He also had the subjects answer questions between trials and at the end of the experiment which indicated some of the methods the group members used to cope with repeated failure or success. They found that the levels of aspiration for the failure treatment groups were considerably higher than those of the success or neutral treatment groups. Although high, they were still within the limits defined by Rotter as "the culturally 'normal' reaction to success and failure, a middle ground between flexibility of reaction to success and failure and stability." (Rotter, SLCP, p. 319) This would fit in with a 'try-harder' theory. A group thinking it

was doing above average would tend not to press its luck further by aspiring to much harder goals, and a group which believed it was doing worse than average would try very hard to pull itself up to average.

While this theory may hold true for subjects who are normally high achievement individuals, as perhaps were the subjects in this case, I found it difficult to imagine an individual who is used to failure persisting in the 'try-harder' approach. My own observations made in classrooms in an urban high school indicate the opposite is true; low achievers seem to get more discouraged by failure than high achievers.

Therefore, the second thing I wanted to discover with the experiment I devised was what differences in reaction to failure or success are exhibited by low and high achievement groups. Using apparatus almost identical to Zander's (see Appendix A for further details) and a similar task, I wanted to 1) see whether there was any resetting of levels of aspiration by low achievement groups as a result of simulated success or failure and 2) see whether the reactions of low and high achievement groups to simulated success or failure differed.

IV. METHODOLOGY

A. The Task

The apparatus used is the modified version of Zander's level of aspiration board described in Appendix A. All experiments were conducted in a laboratory at MIT. The subjects were informed that they were going to participate in a motor coordination of groups experiment which would involve all three members of the group grasping the pool cue in an overhand grip and hitting the croquet ball up the board with it. They were told that the object was to maximize their score. They were then directed to take fifteen practice shots before receiving additional instructions.

After fifteen shots, the subjects were permitted to review their scores on these shots. They were told that performance was measured in sets of five shots each, referred to as a trial. They were told that before beginning the next trial, they would first individually have to fill out form AAA(see Appendix B). Next, the group would have to decide unanimously on a prediction for the score for the next trial. Then, the subjects were to individually fill out form BBB(see Appendix B). They would then proceed to shoot five shots. The experimenter then informed them of their total for that trial. The experiment proceeded through fifteen trials in this manner. At the end of the fifteenth trial, subjects were asked to individually fill out the evaluation forms(see Appendix B) in order to help the experi-

menter assess the value of the experiment.

Prior to the experiment, the subjects were categorized into six types of groups:

high-achievers, failure treatment
high-achievers, neutral treatment
high-achievers, success treatment
low-achievers, failure treatment
low-achievers, neutral treatment
low-achievers, success treatment

There were three members in each group, and three of each type of group was tested, for a total of eighteen groups or fifty-four subjects.

The difference between treatments consisted in the type of feedback, if any, given to the subjects about their performance relative to other groups which have completed the same experiment. The neutral treatment consists of no feedback; the experiment is performed exactly as outlined previously. The success treatment consists of giving false feedback to the subjects which leads them to believe that they are scoring about four points higher than the average for any given trial. Immediately following the practice shots, this feedback begins, continuing throughout the experiment. The failure treatment consists of giving feedback to the subjects which leads them to believe that they are doing about four points worse than the average. This feedback is also begun directly after the practice shots and continued throughout the experiment. In both the success and failure treatments, feedback is given in the form of

false average scores for the given trial.

The raw data consisted of the scores on the fifteen practice shots, the scores for each of the fifteen trials, the prediction decided on by the group for each trial, the answers to the questions on forms AAA and BBB, and the answers to the questions on the evaluation forms.

B. The Subjects

Because it was not possible to do pre-testing or extensive screening of subjects, I selected two groups which are probably at extremes along the high-achievement-lowachievement continuum. I decided to use MIT undergraduate male students as my high achievement subjects, under the assumption that high achievement is generally a prerequisite for entrance to MIT. They were selected from a fairly small living unit at MIT, and most of them were at least acquaintances of each other.

For the low achievement subjects, I chose boys enrolled in a special school for low achievers, the Achievement School, in Cambridge. These students, although of normal ability, were, for a variety of reasons, one or more years behind in school. They are placed in seventh and eighth grade classes, although their achievement levels are often far below that. They range from fourteen to sixteen years of age. They have been separated from 'normal achievement' students in their classes, and are looked down upon by both the teachers and other students in their school building,

which also houses Rindge Technical High School. They are definitely low achievers, evidenced by their low grades and low national achievement test scores (Shea, p. 3) which resulted in their removal from regular elementary school programs. Having observed and taught them for two years, I can say I have seen much hostile and destructive behavior between them of the type described by Rist as having developed by the end of the first year of school.

In order to examine the two questions I had set out to study, it was necessary to find high and low achievement subjects. Although the contrast between MIT students and Achievement School students is rather extreme, I thought they would be excellent for studying differences for that very reason. If there is going to be a difference at all, one would expect to find it especially between the extremes.

C. Justification for using this Design

There were four major reasons which influenced my choice of this experimental design. First, the group nature of the task simulates many of the factors at work in the classroom. Second, the task is presumably an unfamiliar one to all subjects. Third, it produces data which was sufficient to examine the questions I wanted to study, while being easy to work with. Fourth, the experimental design is one that has already been used extensively by Rotter and Zander with success.

The group nature of the task provides a setting similar to a classroom situation. There is a group of people

being directed by an authority figure who is in the position of being able to provide feedback on the learning of a new task. The task requires some cooperation between group members. In addition to the influence of the authority figure on the behavior of the students is the influence of the interaction between students. The same kind of peer pressure that exists in the classroom exists in the experiment on a small scale. (Remember that the members of each group of three are familiar with each other. The Achievement School students are classmates, and the MIT students are members of the same living group.) Hopefully the interaction is sufficiently similar to that occurring in the classroom that the two situations can be compared.

Presumably, none of the subjects have ever done a task similar to the one presented by the level of aspiration board. Therefore, there should be no differences in ability to perform the task due to prior learning. Nor should there be previous successes or failures related to the performance of the task. Therefore, differences in the way the two groups view their probability of success or failure must be due to factors related to every new learning situation they encounter. In order to avoid the association of this task with playing pool, it was stressed that the subjects must all shoot simultaneously and with an overhand grip on the stick. However, there is always the possibility that some subjects have generalized feelings about their level of competence in

any motor task. However, after only one or two shots, it becomes apparent that this motor skill is really quite different than all other similar ones. Subjects whose initial reaction had indicated some sense of familiarity with such a task were quick to remark after trying a shot that it was, in fact, not very familiar at all. Thus, certainly after the first few shots, the groups' approach to learning the new skill should have been the same as the approach used on any learning situation.

This experiment furnished data sufficient to determine:

1. actual performance over time
2. level of aspiration over time
3. discrepancy (magnitudes and patterns) between 1. and 2.
4. indications of the methods used to cope with repeated success or failure

This data is easy to work with, as it is all in numerical form.

D. Transformation of the Data

Much of the raw data had to be numerically manipulated and/or statistically analysed before it could be used to examine the differences between groups. In order to study the two questions I originally posed, I felt it necessary to have available the following processed data:

1. mean corrected performance scores, trial by trial, in groups of five trials, and for all fifteen trials--for each type of group
2. mean D-scores, in groups of five trials, and for all fifteen trials--for each type of group
3. mean B1, B2, E1-E7* scores, in groups of five trials, and for all fifteen trials--for each type of group (*B1=form BBB, question 1, B2=form BBB, question 2, E1= evaluation form, question 1, etc.)

4. success rate, mean for all fifteen trial--for each type of group
5. pattern of response to previous success or failure, in %, total for all fifteen trials--for each type of group

Mean Corrected Performance Scores

Because there were differences in performance on the practice shots, it was necessary to correct for this using analysis of covariance on the scores for each trial. The result was performance scores for each trial for each type of group (ie, the six groups defined on p.) that were able to be compared to look for differences in performance that could be attributed to differences in experimental conditions. In Appendix C are superimposed trial-by-trial graphs of performance, and tables indicating the statistical significance of the differences in performance.

Mean D-scores

The term D-score or discrepancy score refers to the deference between the prediction for trial $x+1$ and the raw performance score for trial x . This is a more useful measure than the level of aspiration itself because it is independent of the level of performance. Rotter identified specific patterns and magnitudes of D-scores with different types of personalities. A low positive D-score pattern is considered a normal response to success and failure. Extremely high positive or negative D-score pattern indicates very high fear of failure and unreasonable goals with respect to performance. Very unstable patterns of D-scores represent

inadequate coping with the realities of performance and the test situation.(Rotter)

For both of the questions I was studying, D-scores are the most important indicator of the effect of treatment. Tables of D-scores for the different types of groups are found in Appendix C. Analysis of variance was performed on the D-scores. These results are also in Appendix C.

Mean B1, B2, E1-E7 Scores

Means were computed for the answers to form BBB and the evaluation form. Analysis of variance was used to determine the significance of the differences in means.(Tables in Appendix D.) The answers to all these questions reflect methods by which an individual could be coping with his group's continuous failure or success.

Success Rate

The success rate is the percentage of trials in which a group equaled or exceeded their prediction. It can be important in that one of the important factors in determination of the probability of success at a given goal is past success or failure with respect to that goal. (Chart in Appendix D.)

Pattern of Response to Previous Success or Failure

This chart(in Appendix D) indicates the behavior of each type of group following a success or failure. Will it raise, keep, or lower its prediction? Differences in the ways groups respond to success and failure indicate some of

the same things that D-scores indicate. Unreasonable behavior (such as lowering the goal after a success) is indicative of maladjustive behavior. Differences between treatment groups indicate the effects of treatment on rationally dealing with the test situation. This chart with the analysis of variance on it can be found in Appendix D.

V. DISCUSSION OF RESULTS

A. Introductory Remarks

Before analysing the results, I feel that it is necessary to describe some of the situations occurring during the laboratory experiment which do not appear directly in the data. The first relates to the behavior of the Achievement School students during the experiment. Although many of them started out with remarks about how easy the task looked and the high probability of their scoring very well on this 'test', after a short time, many of the groups fell to horsing around, fighting, name-calling, and other disruptive behavior. There were several cases of rather serious fights and wrestling matches during the experiment, and generally an atmosphere of real status competition between the Achievement School subjects existed. This behavior, which from my experience is very similar to the behavior they exhibit in classroom situations, is marked by the kind of hostility described by Rist. In one case, the three subjects, all of whom were Portugese, continually insulted each other with comments such as, "The reason we got such a lousy score on that trial is because of that stupid Portugee (the derogatory term for a Portugese person in the teen-age vocabulary). (second person chimes in) Oh, all Portugees behave crazy-like." In this particular group, two of the subjects ganged up on the third and threw him in the wastepaper basket. In another group, one of the

subjects hid my pocketbook and tried to convince me that one of the others had stolen it. While this activity certainly influenced the results of the experiment, it is so typical of the way these students behave in the classroom that it probably serves to make the situation a more real simulation of a classroom situation.

Another problem with the laboratory set-up not apparent in the processed data is the extremely high raw scores of some of the MIT groups (see Appendix E). Improvement of scores beyond a certain point on this board ceases to be a linear function (there is only one ten on the board). For some of these groups improvement was much harder than for others. For example, in the practice shots, the MIT success groups averaged forty. With practice they improved to about forty-two or three, but were unable to score consistently above that. This board should be modified to include a much larger range of scores over which improvement is linear, if it is to be used successfully with groups such as MIT students, who for some reason scored extraordinarily well. (Zander's groups got approximately thirty-four on the practice shots, improving to thirty-seven or eight by the end of the experiment.)

B. MIT Students

Treatment did not statistically significantly affect either the performance or the D-scores of the MIT students. However, for some reason, the corrected performance scores

of the three MIT groups vary together. (See graph in Appendix C of mean corrected performance scores of MIT students.) This indicates some additional factor (which I cannot identify) which is affecting their behavior. Treatment affected the other factors being considered.

The success subjects had more faith in their teammates and the group's prediction than the failure groups did. They were more optimistic about the performance of their team and more satisfied with their team's performance and their own personal performance. In all four of these areas, the neutral group scored lowest of all, indicating that any kind of treatment resulted in more confidence and team spirit among teammates.

The answers to the last four questions on the evaluation reflect standard coping behavior on the part of the failure subjects. They think least of the value of the test, importance of performing well, importance of the skill being tested, and importance of doing as well as others in their school.

The MIT success groups were much more likely than other groups to be satisfied with a successful performance and not raise their prediction (.05 level of significance). This could be interpreted as indicative of the kind of reasoning that assumes a success group does not want to push its luck. It has succeeded at a level that is four points above average. The valence is high, and the proba-

bility of success is also high (they have just succeeded), so they, therefore, do not raise their prediction (resulting in a negative D-score). However, it could also be due to the realisation on the part of these subjects that regular improvement beyond the 42 or 43 they were receiving is improbable. Then, the result would be attributable to the deficiencies in the board(scale too small).

C. Achievement School Students

The differences between performance scores by treatment of Achievement students is not statistically significant; however, the graph of their performance scores (in Appendix C) is still very informative. The scores of groups in all treatments is extremely erratic, varying from one trial to the next by as much as fifteen points. This very erratic performance, which was not modified by success treatment, is similar to their performance in the classroom. This erratic performance is probably due in large part to the attitude and behavior of the students in the test situation.

The D-scores of the subjects were all in the normal range. The failure group had D-scores higher than the success groups(difference significant at .01 level). This result had not been anticipated. This would indicate that failure treatment was, in fact, beneficial to the students. In addition, for trials six through fifteen, the mean D-score for success groups was negative. A pattern of continuous negative D-scores is generally associated with

failure-coping behavior. I cannot explain this unusual behavior of the Achievement School students.

In two out of the nine questions related to coping behavior, both success and failure treatment had the same effect. It both lowered the confidence in the prediction made by the team and added to the importance of the team's doing well. The second is probably explained by the fact that both of the treatments give an imaginary average group with which the group is competing. The neutral treatment provides no opportunity for competition.

The failure groups showed rather incomplete coping with the failure situation. They were less likely to think their team was doing well or to be satisfied with the team's performance than either of the other two teams (differences significant at the .05 level). They did, however, attach less significance to the importance of the team's doing well and doing well with respect to others in the school (differences significant at the .10 level). Their D-scores did not show normal patterns associated with coping with failure.

D. MIT vs. Achievement School Students

The Achievement School groups performance scores were much more erratic and much lower than the MIT scores. Even the adjusted scores show a difference of about three points between MIT groups and Achievement School groups (significant at the .05 level). This indicates that the

MIT groups improved more than the Achievement School groups. Considering that they were also doing better in the practice shots, and improvement was therefore probably more difficult, this represents a considerable difference. It was probably due, among other things, to the more serious attitude that the MIT students took toward the task.

Treatment affected the D-scores of the Achievement School students more than MIT students. The differences of the Achievement School groups by treatment were significant, while the MIT group's weren't. Considering the lack of seriousness with which they took the test situation as a whole, this is quite surprising.

MIT groups had more confidence in their teammates and more confidence in their predictions than did the Achievement School groups. The Achievement School groups felt that it was a more valid test, it was more important for their team to do well (significant at the .01, .02, ns levels, by negative, neutral, and positive treatment), and more important to do well in comparison to other groups from their school (significant at the .01, .02, .01 levels).

Thus, despite the fact that the Achievement School students valued doing well on the task more highly than MIT students and that they would be, if anything, more likely to have positive associations with a similar task (such as pool) than MIT students, they behaved in a manner during the experiment which prevented them from doing well

on a consistent basis. The MIT student, on the other hand, despite his low opinion of the value of doing well, took the task fairly seriously, and, as a result, did much better than the Achievement School students.

VI. RESULTS VIS-A-VIS INITIAL QUESTIONS

A. What Do the Results Mean in Terms of the two Questions Being Studied?

The experiment failed to show anything conclusive about the possibility of resetting levels of aspiration which have become established over years of school experience. Positive treatment had no beneficial effect on the magnitude of the performance scores, consistency of performance, or D-scores (indicators of level of aspiration). However, there is no evidence showing this to be impossible.

The experiment did demonstrate the need to test more than one type of group before theorizing about the effects of treatment on levels of aspiration and performance. The difference in the response to the laboratory situation and the differences in reaction to treatment between the two groups tested, high and low achievement, show the necessity of testing many different kinds of groups before theorizing. It also showed that, in the case where experiments are being conducted for application to specific types of groups, the experimental subjects should as closely as possible represent members of those groups.

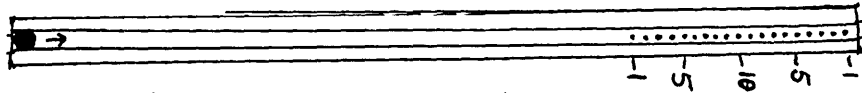
B. What Future Investigations Would Be Useful?

I feel the results of this study indicate two areas in which future study would be useful. First, further study should be conducted about the possibility of resetting. These studies should involve treatment which extends over a

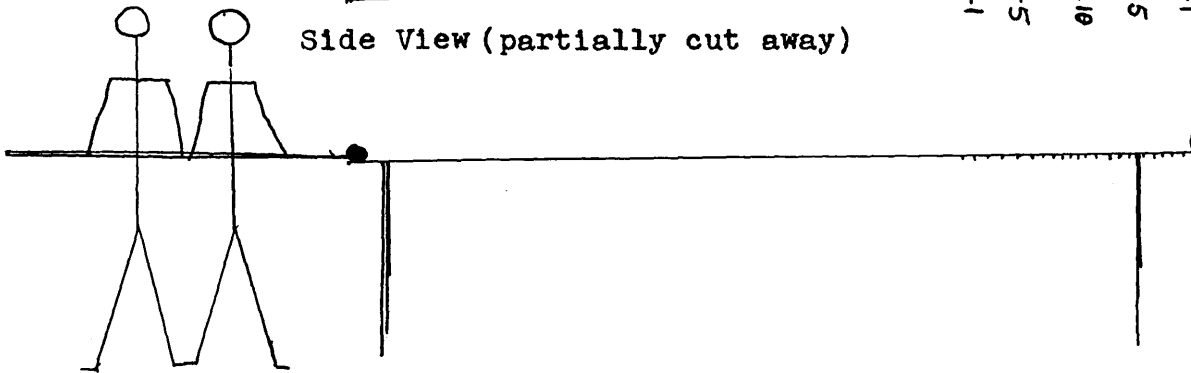
longer period of time than in this experiment because there were no observable improvements after the hour of positive treatment. The second area of study I think would be useful would be systematic study of the kind of interaction especially the hostile behavior, that took place during my experiments between the Achievement School students. This interaction greatly influenced the performance and goals of these subjects in the experiment, as it influences their performance and goals in classroom situations. Perhaps if more were understood about these influences, resetting would be facilitated.

APPENDIX A LEVEL OF ASPIRATION BOARD

Top View



Side View (partially cut away)



(diagrams not exactly to scale)

DIMENSIONS

ZANDER'S: board: 12 feet long and 8 inches wide with a channel 3.5 inches wide down the length of the board made of parallel rails 1.75 inches high holes are .75 inch diameter, three inches apart starting at non-player end of board

ball: wooden croquet ball, 3 inches diameter

pole: aluminum, rubber tipped, 6 feet long

for use by 1-5 subjects simultaneously

THIS EXPERIMENT:

board: same as Zander's except solid walls to channel(no rails)

ball: same

pole: wooden pool cue, 5 feet long

for use by 1-3 subjects simultaneously

APPENDIX B EVALUATION FORM

EVALUATION

GROUP# _____

SUBJECT# _____

1. How well do you think your team has done?

very poorly 1 2 3 4 5 6 7 very well

2. Are you satisfied with how well your team did?

very dissatisfied 1 2 3 4 5 6 7 very satisfied

3. How well do you think you personally did?

very poorly 1 2 3 4 5 6 7 very well

4. Would you say this was a good or a poor test of teamwork in muscle control?

not very good 1 2 3 4 5 6 7 very good

5. How important was it to you that you team do well?

very unimportant 1 2 3 4 5 6 7 very important

6. In your opinion, how important is it for your group to be good at teamwork in muscle control?

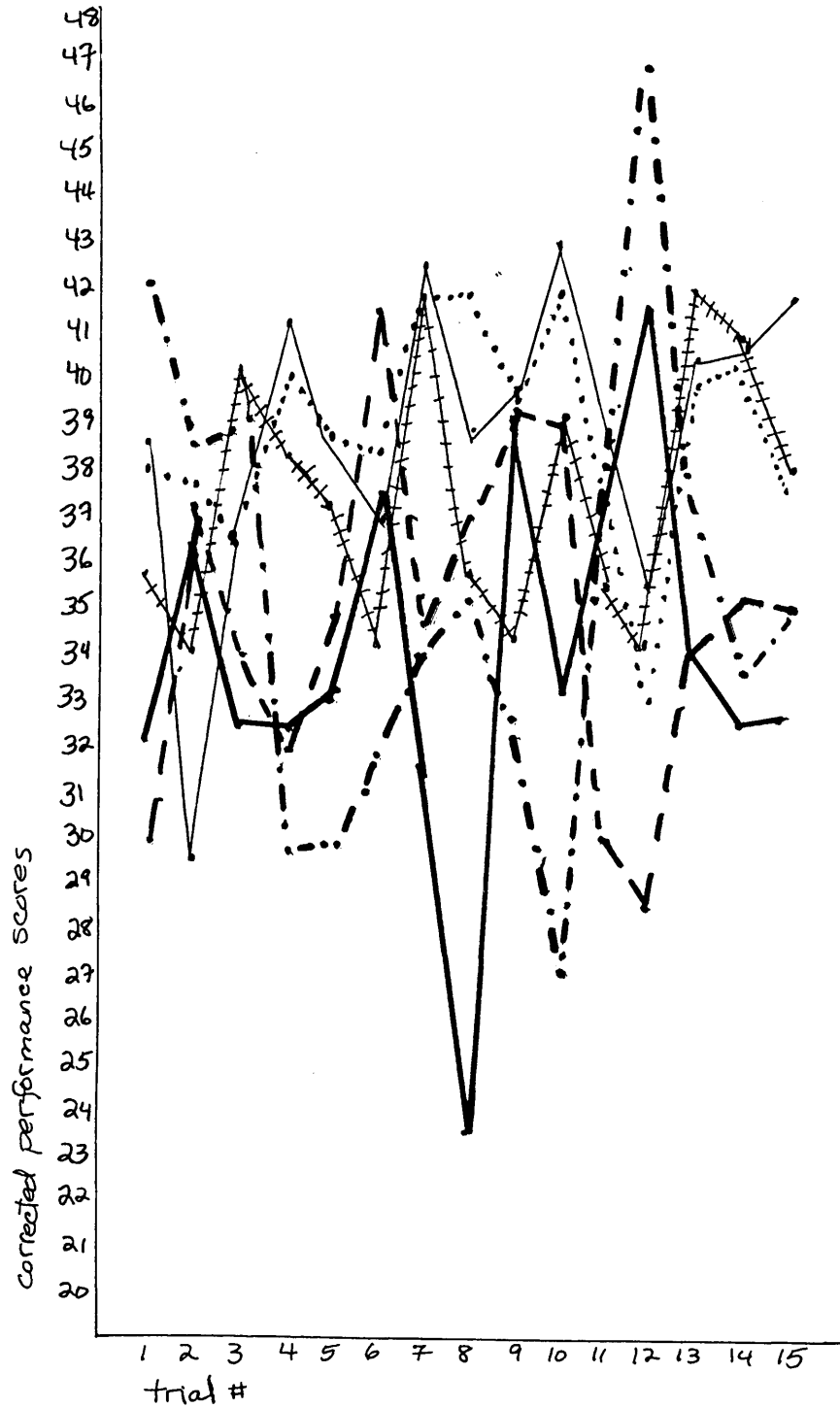
very unimportant 1 2 3 4 5 6 7 very important

7. How important is it for your group to do as well as other groups from your school?

very unimportant 1 2 3 4 5 6 7 very important

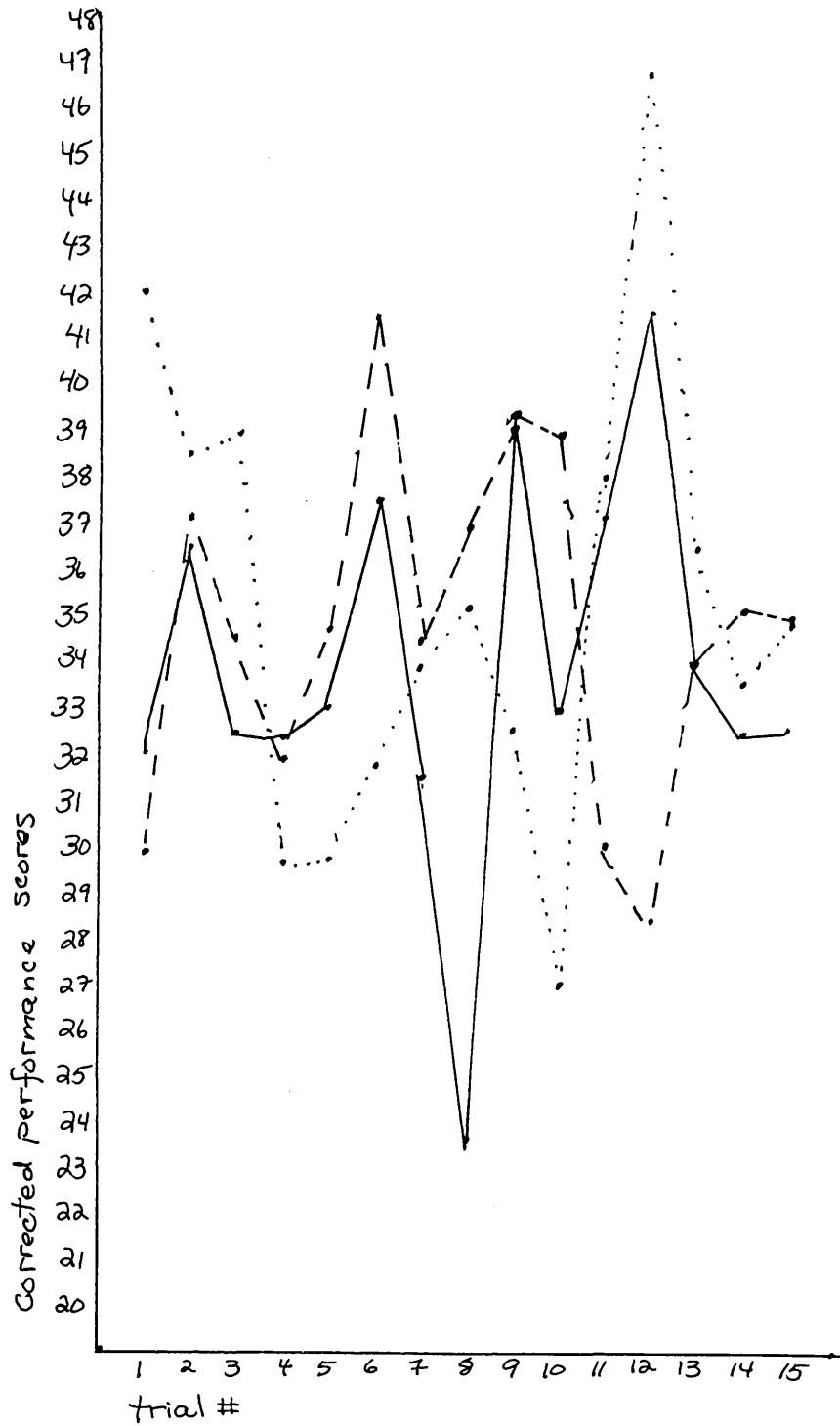
APPENDIX C CORRECTED PERFORMANCE SCORES

Achievement	failure	- · - ·	MIT	failure
School	neutral	- - - -		neutral	+++++
	success	————		success	————



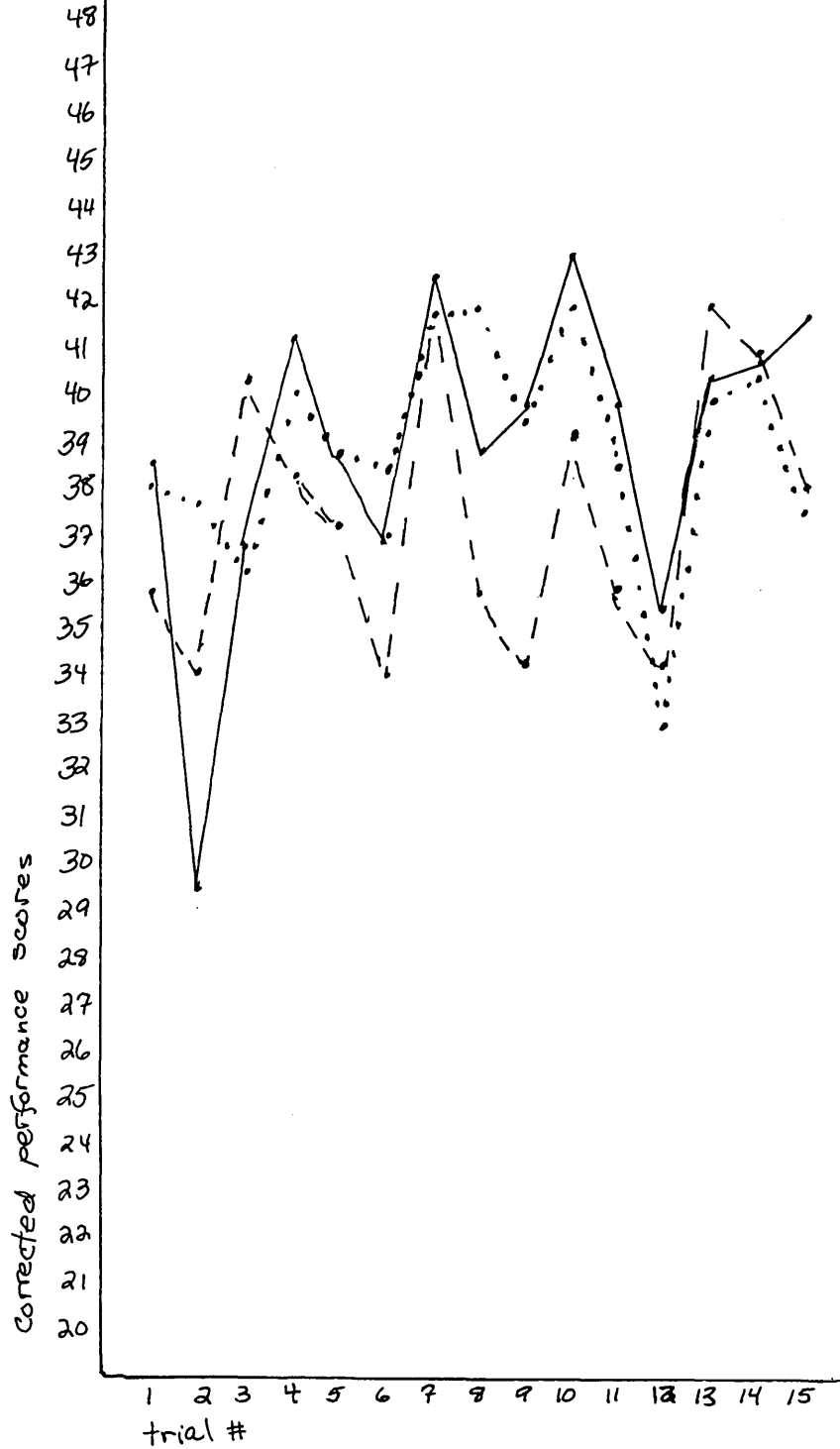
APPENDIX C CORRECTED PERFORMANCE SCORES

Achievement School failure
neutral ---
success ———



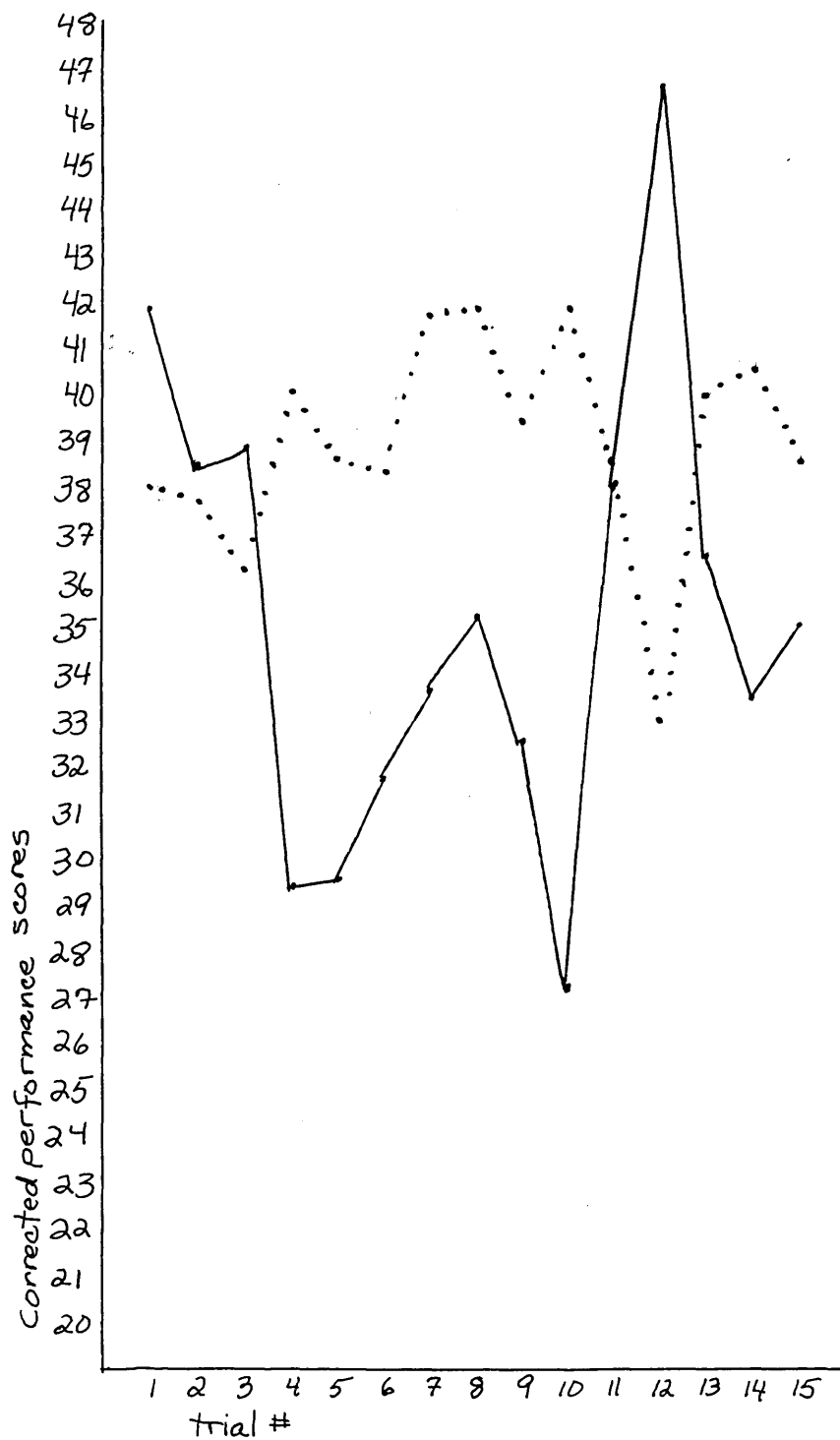
APPENDIX C CORRECTED PERFORMANCE SCORES

MIT failure.....
neutral-----
success———



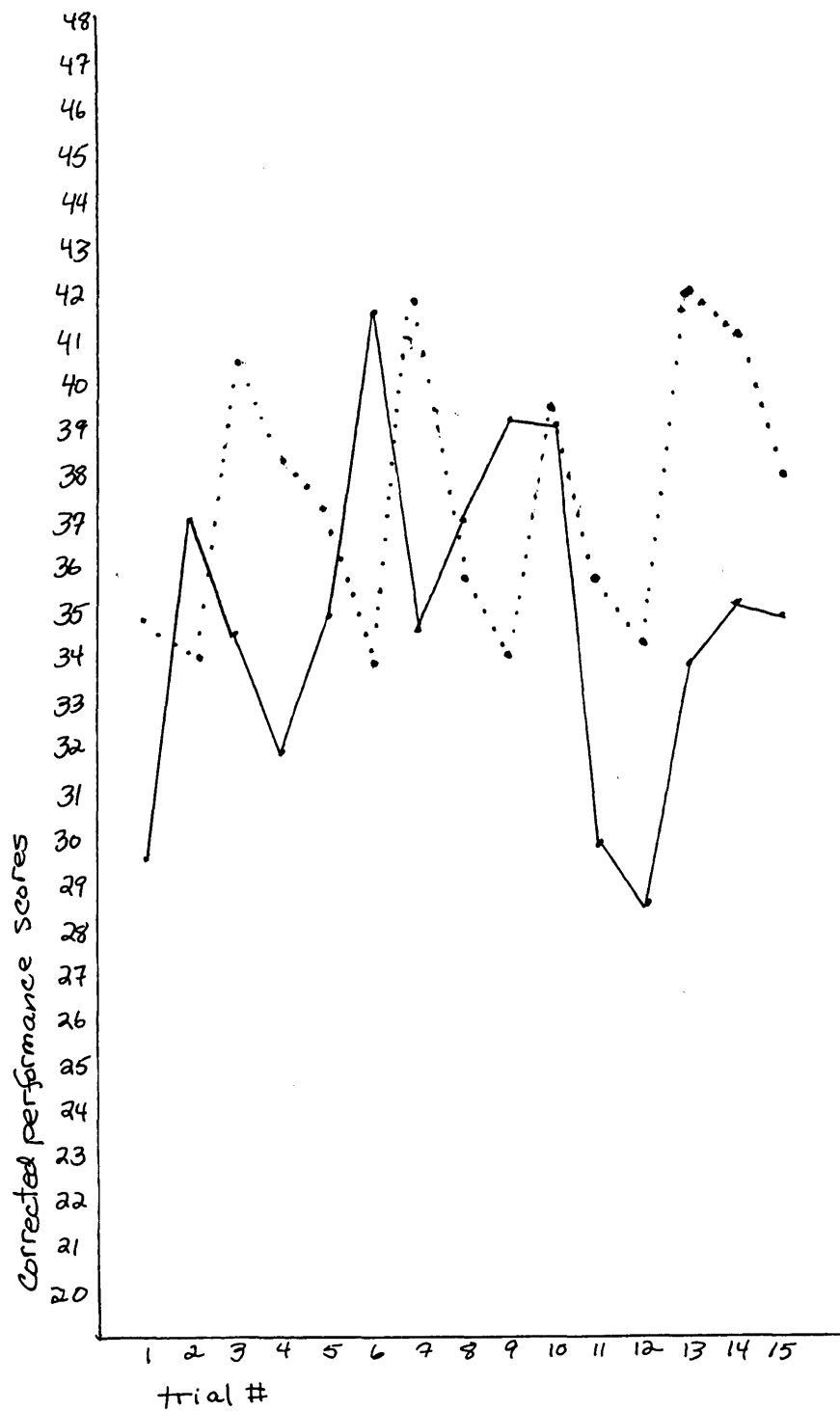
APPENDIX C CORRECTED PERFORMANCE SCORES

Failure MIT
 Achievement School _____



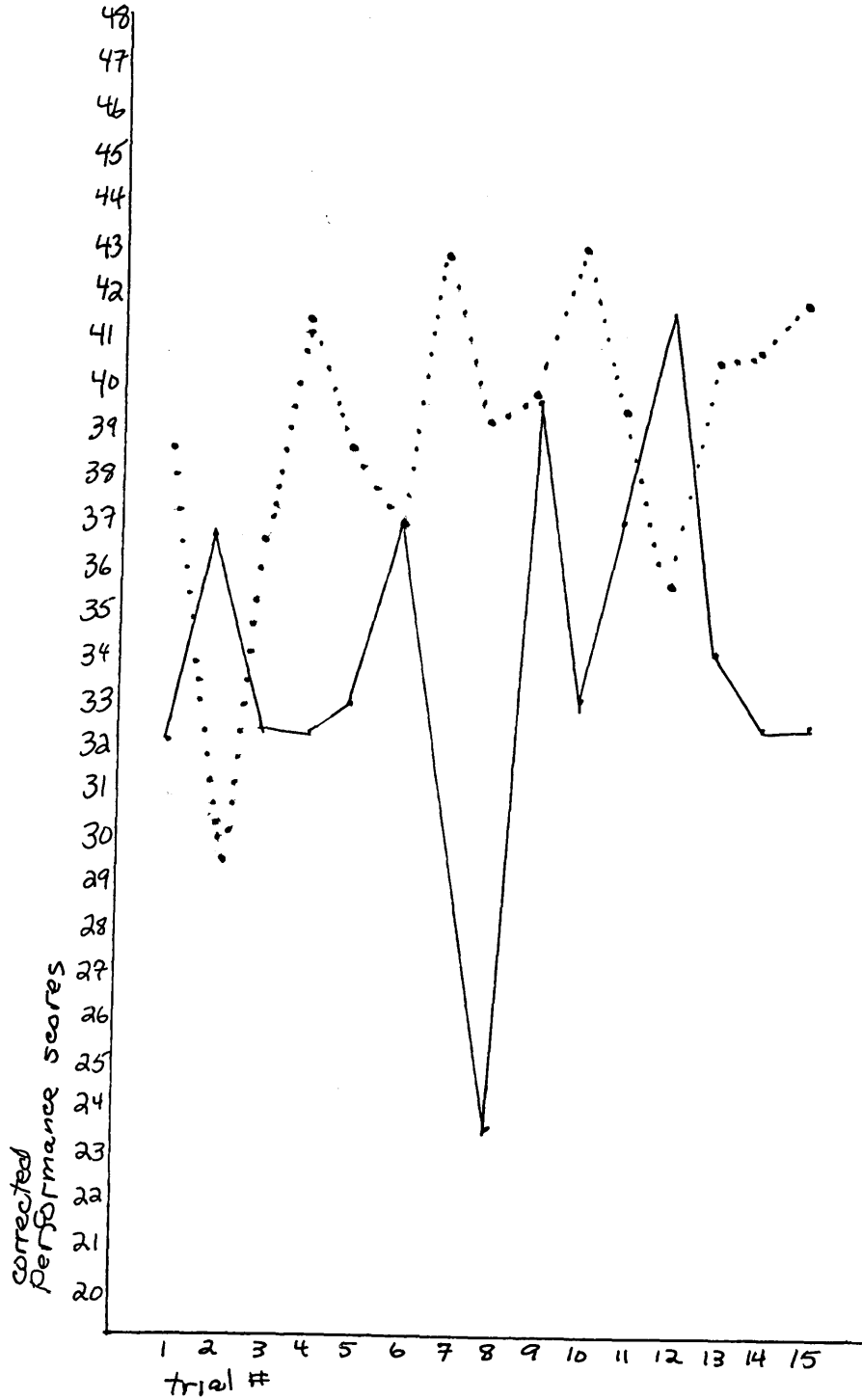
APPENDIX C CORRECTED PERFORMANCE SCORES

Neutral MIT
 Achievement School _____



APPENDIX C CORRECTED PERFORMANCE SCORES

Success MIT
Achievement School _____



APPENDIX C CORRECTED PERFORMANCE SCORES--MEANS

trials	ACHIEVEMENT				MIT		
	F	N	S		F	N	S
1-5	35.6	33.6	33.2	*	38.2	37.1	37.0
6-10	32.0	38.1	32.9	**	40.6	37.0	40.3
11-15	37.8	32.4	35.5	***	37.8	38.3	39.5
1-15	35.1	34.7	33.9	+	38.9	37.4	38.9
practice	24.8	31.9	29.8		34.7	36.3	40.0

Significant Differences

	.10	.05	.02	.01
*	3.8	4.6	5.5	6.2
**	3.8	4.6	5.6	6.3
***	3.9	4.8	5.7	6.5
+	2.3	2.8	3.4	3.8

Note: On this and all other tables F=failure treatment
 N=neutral treatment
 S=success treatment

APPENDIX C D-SCORES--MEANS

TRIALS	ACHIEVEMENT				MIT		
	F	N	S		F	N	S
1-5	3.9	2.3	1.5	*	0.6	1.4	0.9
6-10	3.0	-2.3	-0.2	**	1.4	1.7	0.2
11-15	0.2	1.3	-1.3	***	1.2	0.5	0.5
1-15	2.4	0.4	0	+	1.1	1.2	0.5

Significant Differences

	.10	.05	.02	.01
*	2.7	3.2	3.8	4.3
**	3.1	3.7	4.4	4.9
***	3.2	3.8	4.5	5.0
+	1.3	1.5	1.8	2.0

APPENDIX D

B1--Means

trials	ACHIEVEMENT				MIT		
	F	N	S		F	N	S
1-5	6.0	6.2	6.1	*	6.3	6.1	6.7
6-10	5.0	5.7	5.5	**	6.2	5.8	6.8
11-15	5.9	5.7	5.5	***	6.2	5.9	7.0
1-15	5.6	5.8	5.7	+	6.3	5.9	6.8

Significant Differences

	.10	.05	.02	.01
*	.43	.52	.62	.69
**	.61	.74	.88	.98
***	.68	.82	.98	1.1
+	.33	.39	.47	.52

APPENDIX D B2--Means

trials	ACHIEVEMENT					MIT		
	F	N	S			F	N	S
1-5	4.9	5.6	4.8	*		4.9	5.1	5.3
6-10	4.3	5.5	4.9	**		5.2	4.6	5.6
11-15	5.1	5.5	5.6	***		5.1	4.4	5.5
1-15	4.8	5.5	5.1	+		5.1	4.7	5.5

Significant Differences

	.10	.05	.02	.01
*	.37	.44	.52	.58
**	.63	.76	.90	1.0
***	.63	.76	.90	1.0
+	.33	.39	.47	.52

APPENDIX D EVALUATIONS--MEANS

	ACHIEVEMENT			MIT			SIGNIFICANT DIFFERENCES	
	F	N	S	F	N	S		
E1	4.4	5.6	6.1	4.9	4.2	6.6	.10	1.3
							.05	1.5
							.02	1.8
							.01	2.0
E2	4.4	6.0	5.6	5.6	4.4	6.7	.10	1.3
							.05	1.6
							.02	1.9
							.01	2.1
E3	4.3	5.4	5.3	5.2	4.4	6.3	.10	1.2
							.05	1.4
							.02	1.7
							.01	1.9
E4	4.7	6.1	5.6	3.3	3.8	5.1	.10	1.3
							.05	1.6
							.02	1.9
							.01	2.1
E5	5.4	4.0	5.7	3.2	5.1	4.8	.10	1.7
							.05	2.1
							.02	2.5
							.01	2.9
E6	5.6	6.0	5.9	3.0	4.2	4.9	.10	1.2
							.05	1.4
							.02	1.7
							.01	1.9
E7	5.0	5.0	6.3	2.3	3.1	3.7	.10	1.3
							.05	1.5
							.02	1.8
							.01	2.0

APPENDIX D SUCCESS RATE

ACHIEVEMENT			MIT		
F	N	S	F	N	S
51%	49%	58%	40%	47%	56%

(average for all trials)

APPENDIX D PATTERN OF RESPONSE TO PREVIOUS SUCCESS
OR FAILURE

TRIAL N		TRIAL N-1--FAILED	EQUALED	SUCCEEDED	
L	P	Achievement F	69.3*	#	0 +
O	R	Achievement N	87.7*	#	0 +
W	E	Achievement S	83.3*	#	6.7+
E	D	MIT F	62.6*	#	0 +
R	C	MIT N	57.0*	#	0 +
	N	MIT S	48.0*	#	0 +
S	P	Achievement F	25.0**	#	4.7++
A	R	Achievement N	12.7**	#	4.7++
M	E	Achievement S	13.3**	#	31.0++
E	D	MIT F	27.0**	#	4.7++
	C	MIT N	38.3**	#	4.7++
	N	MIT S	52.0**	#	36.3++
R	P	Achievement F	5.7***	#	95.3+++
A	R	Achievement N	0 ***	#	95.3+++
I	E	Achievement S	3.3***	#	62.3+++
S	D	MIT F	10.3***	#	95.3+++
E	C	MIT N	4.7***	#	95.3+++
	N	MIT S	0 ***	#	63.7+++

(in percentages)

Significant Differences

	.10	.05	.02	.01
*	30.0	37.0	45.0	51.0
+	3.4	4.2	5.2	5.9
**	25.0	31.0	38.0	43.0
++	22.0	27.0	33.0	38.0
***	9.9	12.0	15.0	17.0
+++	22.0	27.0	33.0	38.0

#incomplete data--some groups never equaled their prediction

APPENDIX E RAW PERFORMANCE SCORES

	ACHIEVEMENT			MIT		
	F	N	S	F	N	S
1	36.7	29.0	30.0	39.3	38.0	43.0
2	27.0	35.7	32.0	40.3	38.7	39.7
3	32.0	33.7	29.7	37.7	43.3	42.7
4	28.3	31.7	32.0	40.3	38.7	42.0
5	26.7	34.7	32.0	39.3	38.3	41.7
6	26.0	40.7	35.3	39.7	36.3	42.0
7	33.7	34.3	31.3	41.7	41.7	42.7
8	31.7	36.3	22.3	42.7	37.3	42.0
9	28.7	38.7	37.7	40.0	35.7	43.0
10	27.0	39.0	33.0	42.0	39.3	43.0
11	31.7	29.0	35.0	39.7	38.7	45.0
12	37.3	27.3	38.0	35.0	38.3	43.7
13	35.7	32.7	33.7	40.0	42.3	41.0
14	31.3	35.0	31.7	40.7	41.7	42.0
15	33.0	34.7	31.7	38.0	38.7	43.3
practice shots mean	24.8	31.9	29.8	34.7	36.3	40.0

BIBLIOGRAPHY

- Aronson, E., and J. M. Carlsmith. "Performance Expectancy as a Determinant of Actual Performance," Journal of Abnormal and Social Psychology, 65(1962), 178-182.
- Atkinson, John W., and Norman T. Feather. A Theory of Achievement Motivation. New York: John Wiley & Sons, Inc., 1966.
- Brophy, Jere E., and Thomas L. Good. "Teachers' Communication of Differential Expectations for Children's Classroom Performance: Some Behavioral Data," Journal of Educational Psychology, Vol. 61, No. 5(1970), 365-374.
- Cofer, C. N., and M. H. Appley. Motivation: Theory and Research. New York: John Wiley & Sons, Inc., 1964.
- Coleman, James S., and others. Equality of Educational Opportunity. Washington: U.S. Government Printing Office, 1966.
- Deutsch, Morton. "Field Theory in Social Psychology," Handbook of Social Psychology, Volume One. Gardner Lindzey, ed. Cambridge, Mass.: Addison-Wesley Publishing Company, Inc., 1954. Pp. 181-223.
- Ferguson, George A. Statistical Analysis in Psychology and Education. New York: McGraw-Hill, Inc., 1966.
- Frank, Jerome D. "The Influence of Level of Aspiration in One Task on the Level of Aspiration in Another," Journal of Experimental Psychology, 18(April, 1935), 159-171.
- Freedman, Jonathan L., and others. Social Psychology. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1970.
- Garrett, Henry E. Statistics in Psychology and Education. New York: David McKay Company, Inc., 1966.
- Hare, A. Paul. Handbook of Small Group Research. New York: The Free Press of Glencoe, 1962.
- Lavin, David E. The Prediction of Academic Performance: A Theoretical Analysis and Review of Research. New York: Russell Sage Foundation, 1965.
- LeVine, Robert A. Dreams and Deeds: Achievement Motivation in Nigeria. Chicago: The University of Chicago Press, 1966.

- Lewin, Kurt. A Dynamic Theory of Personality: Selected Papers. Trans. Donald K. Adams and Karl E. Zener. New York: McGraw-Hill Book Company, Inc. 1935
- Lewin, Kurt. Resolving Social Conflicts: Selected Papers on Group Dynamics. Gertrud Weiss Lewin, ed. New York: Harper & Brothers, 1948.
- Lewin, Kurt, and others. "Level of Aspiration," Personality and Behavior Disorders, Volume One. J. McV. Hunt, ed. New York: The Ronald Press Company, 1944.
- Liebow, Elliot. Tally's Corner: A Study of Negro Street-corner Men. Boston: Little, Brown, 1967.
- McClelland, David C. The Achievement Motive. New York: Appleton-Century-Crofts, Inc., 1953.
- Murray, Edward J. Motivation and Emotion. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1964.
- Noujaim, Khalil E. "Some Motivational Determinants of Effort Allocation and Performance." Unpublished Ph.D. thesis, Alfred P. Sloan School of Management, Massachusetts Institute of Technology, 1968.
- Pendse, Shripad Gopal. "An Investigation Into Sources of n Achievement." Unpublished M.S. thesis, Alfred P. Sloan School of Management, Massachusetts Institute of Technology, 1967.
- Rist, Ray C. "Student Social Class and Teacher Expectations: The Self-Fulfilling Prophecy in Ghetto Education," Harvard Educational Review, Vol. 40, No.3(August, 1970), 411-451.
- Rosenthal, Robert. "The Effect of the Experimenter on the Results of Psychological Research," Progress in Experimental Personality Research, Vol. 1. B. A. Maher, ed. New York: Academic, 1964. Pp. 79-114.
- Rosenthal, Robert, and Lenore Jacobson. Pygmalion in the Classroom: Teacher Expectation and Pupils' Intellectual Development. New York: Holt, Rinehart and Winston, Inc., 1968.
- Rotter, Julian B. "The Role of the Psychological Situation in Determining the Direction of Human Behavior," Nebraska Symposium on Motivation: 1955. Marshall R. Jones, ed. Lincoln, Nebraska: University of Nebraska Press, 1955.

- Rotter, Julian B. Social Learning and Clinical Psychology. New York: Prentice-Hall, 1954.
- Sears, Pauline S. "Levels of Aspiration in Academically Successful and Unsuccessful Children," Journal of Abnormal and Social Psychology, 35(1940), 498-536.
- Sears, Pauline S. "Level of Aspiration in Relation to Some Variables of Personality: Clinical Studies," Journal of Social Psychology, 14(Nov., 1941), 311-336.
- Sewell, William H., and Vimal P. Shah. "Social Class, Parental Encouragement, and Educational Aspirations," The American Journal of Sociology, Vol. 73, No. 5 (March, 1968), 559-572.
- Shea, Gerald F. "Achievement Classes: A History," Cambridge, Mass., The Carrel, Vol. 4, No. 8(April, 1972), 1-2.
- Snedecor, George W., and William G. Cochran. Statistical Methods. Ames, Iowa: The Iowa State University Press, 1967.
- Terry, John. Unpublished paper on laboratory and field experiment on level of aspiration.
- Zander, Alvin, and Herman Medow. "Individual and Group Levels of Aspiration," Human Relations, Vol. 16(1963), 89-105.
- Zander, Alvin, and others. "Observers Expectations as Determinants of Group Aspirations," Human Relations, Vol. 18(1965), 273-287.