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ABSTRACT

To differentiate behaviorally, success-strivers and failure-avoiders within a group of educable mentally handicapped, two experiments were conducted. The effects of learning potential status (gainers, nongainers, high scorers) and motivational style (success strivers, failure avoiders) on discrimination learning when reinforcement was varied was examined. In the first experiment 24 educable mentally handicapped black adolescents from a low income housing area were tested using trials-to-criterion as the dependent variable in a two choice simultaneous discrimination problem. Only the learning potential, motivation interaction combination was felt to approach significance. Experiment II was modified only in certain test procedures. Twenty four white boys from lower class families were tested with modifications in motivational assessment, incentive, and cue set procedures. Contrary to prediction, it was concluded that the negative motivational feedback did not yield greater efficiency for the success-strivers. Results were felt to confirm the prediction that gainers and high scorers would be superior to nongainers on the discrimination task. The validity of the construct of failure-avoidance versus success-striving as it has been applied to the mentally handicapped group was questioned by the researchers. (CD)

STUDIES IN LEARNING POTENTIAL

THE EFFECTS OF LEARNING POTENTIAL, AND MOTIVATION ORIENTATION ON LEARNING AMONG THE EDUCABLE MENTALLY RETARDED

by

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Summary and Abstract

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Learning potential (LP) assessment describes a range of ability to reason among psychometrically defined EMRs. The effects of a success-striving versus failure-avoiding motivation within subgroups of EMRs homogeneous in LP was studied on a two choice discrimination learning task in which negative and positive feedback conditions were varied systematically. There were no effects of feedback conditions. General support for the hypothesis that the more able EMRs, defined by the LP procedure, would learn more efficiently than the less able EMRs was complicated by interacting effects of motivation. The more able (LP) EMR failure-avoiders learned more efficiently than any success-striver LP group; the less able (LP) failure-avoiders learned least efficiently.

THE EFFECTS OF LEARNING POTENTIAL, AND MOTIVATION ORIENTATION ON LEARNING AMONG THE EDUCABLE MENTALLY RETARDED

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An understanding of the learning processes and problems of the educable mentally retarded and attempts to remediate their educational handicaps must include an understanding of the motivational characteristics which might affect their learning. Much research has evolved from the quite reasonable assumption that retardates, because of inferior cognitive ability compared to normals, have experienced a much higher incidence of failure, and as a result, have developed a different motivational style than have normals (see Cromwell, 1963, for a review of research related to this view). This assumption has received support from the findings that retardates and normals do react differently to experimentally defined failure and success, as would be expected if their motivational style had originally evolved from different histories of success and failure (Heber, 1957; Gardner, 1958).

A specific motivational construct, success-striving versus failure-avoiding (SS-FA) was derived from this assumption of differences in experience of success and failure (Moss, 1958). A success-striver has a high generalized expectancy for success and responds to cues leading to success. A failure-avoider has a low generalized expectancy for success and responds to cues preventing further failure.

In practice, because of their relatively low success experience, retardates as a group have been designated as failure-avoiders, while normals because of their relatively high success experience, have been designated as success-strivers (see Moss, 1958; Cromwell, 1963, pp. 56-61). There appear to be no studies which have attempted to operationalize this motivational dimension with performance criteria within samples of EMRs, but it seems reasonable to assume that there would be EMRs who are more or less failure-avoidant or success-striving relative to each other.

Budoff's (1969) learning potential (LP) assessment procedure has differentiated three patterns of response among psychometrically defined EMRs to a nonverbal reasoning task (Kohs Block Designs) presented in a test-train-retest paradigm. Some Ss performed very well on the pretest, figuring out the task as average IQ Ss would (high scorers); other Ss performed poorly on the pretest but markedly improved their scores following training (gainers); while other EMRs performed poorly on the initial trial and failed to demonstrate improvement following training (nongainers). Since these LP groups differ in ability, the assumption that they should have had different experiences of success and failure, hence different motivations, could be applied with the expectation that the more able Ss would be more failure-avoidant. While this assumption was implicitly examined in the study, a further assumption was made: that success-striving and failure-avoiding motivations might both be represented within LP groups otherwise homogeneous in ability. Therefore, this study attempted to differentiate behaviorally success-strivers and failure-avoiders within each learning potential group. It was expected that conditions which lead to more efficient learning among supposedly success-striving nonretarded children would also lead to more efficient learning among success-striving EMRs.

To test this prediction, a discrimination learning task was selected because it has demonstrated differential effects among nonretarded children under conditions which would be expected to relate to motivational styles of success-striving and failure-avoiding (Brackbill & O'Hara, 1958; Hamilton, 1969a, 1969b; Penney, 1967; Penney and Lupton, 1961; Spence, 1966). Negative feedback conditions, in which reinforcement was contingent solely on a child's incorrect responses, has resulted in more efficient discrimination learning among nonretarded children than positive feedback conditions, in which reinforcement was contingent solely on the child's correct responses. The superiority of learning under negative feedback conditions has been explained in terms of differential motivation accruing to the positive and negative concrete reinforcement, e.g., motivation to avoid punishment is stronger than motivation to approach reward (Brackbill & O'Hara, 1958), and in terms of the negative cue having greater informational value than the positive cue in studies using only verbal feedback (Hamilton, 1969a).

The two experiments reported here examined the effects of learning potential status and the motivational style variable on discrimination learning when the motivating properties of the feedback conditions were systematically varied. A two choice discrimination learning task was constructed. For the feedback conditions a procedure similar to that of Brackbill and O'Hara's (1958) was adopted. In the positive feedback condition tokens were given for each correct choice and no token reinforcement occurred for incorrect choices; in the negative feedback condition, S was initially provided with tokens and a token was taken away for each incorrect choice, while no token reinforcement occurred for correct choices. Information value of the two cues was held constant through appropriate verbal feedback on both correct and incorrect choices.

The following predictions were made:

a. that negative feedback would result in more efficient learning than positive feedback for the success-strivers. This was an empirical prediction based only on the relative performance of presumably success-striving normal children under conditions of positive and negative feedback; therefore, no prediction was offered regarding the performance of failure-avoiders;

b. that the more able Ss by the learning potential criterion (gainers and high scorers) would be superior to the less able Ss (nongainers).

EXPERIMENT I

Method

Subjects The subjects for Experiment I were 22 Black and 2 white boys and girls from special classes serving a low income housing project. These children ranged in age from 132 months to 196 months with a mean CA of 165.92 months. Their IQs, based on WISCs or Stanford-Binets administered within 30 months of the present experiment, ranged from 61 to 91 with a mean of 74.04. The 24 subjects of this experiment were selected according to the SS-FA motivational criterion from a pool of 27 subjects (9 each of non-gainers, gainers, and high scorers), roughly matched on chronological age and IQ across LP groups, who had been used in a previous experiment (Pines and Budoff, 1970). The subjects of that experiment had originally been selected from a larger, more heterogeneous pool of EMRs.

Overview of Procedure The learning potential status of each S had been determined prior to the present experiment with an assessment strategy involving the Kohs Block Designs (Budoff & Friedman, 1964).

In the first experimental session, S was assigned a relatively success-striving or failure-avoiding motivational status within each learning potential group on the basis of a procedure involving the Kohs Block Designs. S was then pretrained on matching-to-sample (MTS) principles with an unidimensional MTS problem prior to determining his relative preference for the stimulus dimensions of form versus spatial configuration in a two-dimensional MTS task. In the second session, one day later, a two-dimensional simultaneous discrimination problem was administered with S's more difficult nonpreferred dimension relevant to solution. The discrimination problem was administered under one of two motivational feedback conditions: positive motivational feedback for correct responses only or negative motivational feedback for incorrect responses only. Verbal feedback was provided on both correct and incorrect responses. All procedures were individually administered.

Learning Potential Assessment The individual assessment of learning potential using Kohs Block Design materials has been described in detail elsewhere (Budoff & Friedman, 1964). Each child was given a pretest (K_1) with a set of 22 block designs, including a practice design, sixteen Kohs Block Designs as test items and five additional designs to be used in subsequent coaching (practice and coaching designs are not scored in determining LP status). Children who solved a difficult nine block design (A9 or more difficult designs of the Kohs series) were designated high scorers and not coached. The remaining children were given intensive individual coaching on principles thought necessary to block design construction with emphasis on detailed design analysis and careful continual checking of their designs against the standard during the construction phase. Coaching was followed one day later by an immediate posttest (K_2) and one month later by a delayed posttest (K_3). Gainers were defined by an improvement of four or more correct test designs from pretest to either of the posttests. Nongainers were defined by a failure to meet this criterion of improvement.

Motivational Assessment The test of motivational style consisted of giving the child the deck of coaching and test design cards used in the learning potential assessment, the design cards being in unsystematic order. He was asked to look at each card in the deck, after which he was asked to pick one of the design cards that he would like to make with the blocks. E emphasized that this was not a test and that he didn't care which design the child picked. The child was provided sufficient blocks to make any of the designs and asked to make the design he had chosen. After S constructed the design successfully, he was asked to pick another design that he would like to do. The design cards had been previously rank-ordered in terms of difficulty and assigned a numerical rank from 1 (very easy) to 22 (very difficult).

The measure of motivational style was based on the difficulty rank value of the second design minus the difficulty rank value of the first design picked by the S. Thus, a child who picked an easier design on the second trial would have a negative score, and a child who picked a more difficult design on the second trial would be assigned a positive score. Within each of the three learning potential categories, Ss were ranked from lowest to highest on the basis of this difference score. The four children with the algebraically lowest scores were designated failure-avoiders and the four with the highest scores were designated success-strivers. Block design construction, with which the Ss were familiar, was selected to assess motivational status, because it was thought that a familiar task would most clearly reflect a more pervasive, generalized motivational state. Motivational assessment with a neutral task would be more likely to reflect transitory motivational states which of course, might have quite different effects on learning.

Dimension Preference Assessment S's relative preference for the dimensions of form versus spatial configuration to be used in the criterion discrimination problem was determined in a two dimensional matching-to-sample (MTS) problem. To first assure that S understood MTS principles, he was pretrained to a criterion of five consecutive correct responses on a simple unidimensional numerousity MTS problem. In this problem S had to choose which of two stimuli (one or two squares) arranged in separate frames at the bottom of card was the same as the stimulus in a frame at the top of the card. Both stimulus values to be matched (one or two squares) appeared unsystematically but with equal frequency in the top frame. The position of the correct response varied unsystematically but with equal frequency between the left and right bottom frames. The problem was administered under a noncorrection procedure (i. e., one response per trial) with verbal feedback for correct and incorrect responses. All Ss were able to solve this problem.

Instructions were:

> I am going to show you some cards. Each card has three pictures on it like this one (E holds up first card). I want you to look at this top picture here (E points). Now, point to the picture at the bottom -- this one or this one (E points) -- that looks most like this picture up here.

Immediately upon attaining criterion in the pretraining problem, S's dimension preference was determined with a four-trial MTS task. The four trials are presented schematically in Table 1 where "S" and "F" represent the spatial configuration and form dimensions respectively and the subscripted numbers represent specific cues on these dimensions. For each trial the top combination of spatial configuration and form cues represents the stimulus to be matched and the bottom combinations represent S's response alternatives. Either response alternative would be a correct match to the stimulus combination, since if S were matching on the basis of the form cue he would pick one response, and if he were matching on the basis of the spatial configuration cue he would pick the alternative response. In this way E could determine to which dimension S was responding. If S responded on the basis of one dimension on at least three of four trials he was defined as preferring that dimension. In this study all Ss preferred form. No feedback was provided on the dimension preference trials. Instructions were:

> I'm going to show you some pictures like the last ones. First look at the top picture and then point to the bottom picture that looks most like the top picture. This time do it as quickly as you can. O.K.?

Insert Table 1 about here

Criterion Discrimination Problem The criterion learning task consisted of a two choice simultaneous discrimination problem in which S's nonpreferred dimension was made relevant to solution to increase problem difficulty. Since all Ss preferred the form dimension in this study, spatial configuration was consistently the relevant dimension. S's preferred dimension, form, was irrelevant to solution. The irrelevant cues varied within trials with both cues appearing simultaneously, each paired with one of the relevant cues. The four possible combinations of relevant and irrelevant cues, including counterbalancing for position, are schematically presented in Table 1. "S" and "F" represent the spatial configuration and form dimensions respectively; subscripted numerals represent specific cues from each dimension; and + and - represent the correct and incorrect responses, respectively. Cues from the relevant dimension varied unsystematically but with equal frequency between left and right positions. Cues from the irrelevant dimension varied as did the relevant cues with respect to position and in addition, were paired unsystematically but with equal frequency with each of the relevant cues. Thus, only systematic responding to the correct relevant cue led to solution of the problem; systematic responding to irrelevant cues or to position led to chance performance.

The discrimination problem was learned under one of two motivational feedback conditions modified after Brackbill and O'Hara (1958). Ss in the positive motivational feedback condition earned a token for each correct response, with no token reinforcement occurring on incorrect responses. Ss in the negative motivational feedback condition were initially given 100 tokens, and a token was taken away each time an incorrect response was made, with no token reinforcement occurring on correct responses. Informational feedback in the form of a verbal "right" or "wrong" was provided on both correct and incorrect trials regardless of S's motivational feedback condition. Ss were introduced to the discrimination problem with variations of the following instructions:

> How would you like to win a free trip to a baseball game or a free picnic (several other options were provided)? In the next few weeks we are going to give you a chance to earn points for the ______ (picnic, baseball game, etc.). If you've earned enough points you will get to go. I'm going to give you a chance to earn some points right now. I am going to show you two pictures at a time. One of the pictures is always correct and the other picture is always wrong. I want you to figure

out which picture is always correct and point to it each time I show you the pictures.

Ss in the positive motivational feedback condition were given the following additional instructions:

> Every time you point to the correct picture you will win a chip or a point towards the (reward that S chose). If you solve the game quickly, you can win up to 90 extra bonus chips or points. O.K.?

Criterion for acquisition of the discrimination was eight consecutive correct responses. Ss failing to attain criterion were stopped at the first error beyond the 96th trial and returned the next day for additional instructions and up to 96 additional trials if criterion was not attained on the second day. The instructions, designed to make more explicit the requirements of the task, were:

> You didn't figure out the picture problem last time. I'm going to give you another chance to figure it out today so you can win more chips (points) towards the trip. Today however, your chips are only worth half as much as last time -- it takes two chips to make a point.
>
> I am going to show you the same pictures I showed you last time (E presents the first card). Remember, one of these pictures is always correct -- every time I show it to you it will be correct; the other picture is always wrong. If you look carefully at the pictures you can figure out which ones are always correct. The pictures change in certain ways from card to card, so be

sure to look carefully at the pictures. To show me that you have figured the picture problem out you must point to the correct picture eight times in a row.

Following these instructions, the instructions specific to the positive or negative motivational feedback conditions as presented in the previous experimental session were repeated. In addition, on the first six trials of each block of 24 trials E told the child that the picture he had picked correctly was always correct, that every time he picked that picture it would be correct, or that the picture he had picked incorrectly was wrong and would be wrong every time he picked it.

Two problems involving different form and spatial configuration cues were constructed and used in counterbalanced fashion across experimental conditions in order to minimize inter-subject communication of the correct solution to the task.

Materials and Stimuli Stimulus materials for the pretraining, dimension preference and criterion discrimination tasks were constructed on 11 x 14 inch poster cards. The stimuli, cut from black construction paper, were mounted in four-inch square frames outlined in heavy black ink. The cards were finished with washable vinyl plastic. Two "response" frames were centered one inch from the bottom of the card and two inches apart. In the MTS pretraining and dimension preference tasks, an additional "stimulus" frame was centered one inch above the response frames. The two stimuli for the numerousity MTS pretraining problem consisted of one or two black squares measuring one inch on a side. These were centered in the frame with the elements of the "two" stimuli separated horizontally by one inch. Three different sets of stimuli incorporating the form and spatial configuration dimensions were constructed for the dimension preference task and the two versions of the criterion discrimination problem. Two values of each dimension were used in each set. Each form cue was composed of four identical forms, e.g., circles, hexagons, etc., each having maximum boundaries circumscribed by a 15/16th inch square. Each spatial configuration cue was constructed by placing the four identical forms in a specified pattern on an imaginary 4 x 4 inch grid within the frame. Thus, four two-dimensional compound stimuli could be constructed from the two values of each dimension: pattern A made of either four circles or four hexagons, and pattern B made of either four circles or four hexagons.

Experimental Design The conditions of the experiment constituted a 3 x 2 x 2 factorial design with the following factors: learning potential status (nongainer, gainer or high scorer), motivation (success-striving versus failure-avoiding), and feedback (positive versus negative motivational feedback). The dependent variable was trials-to-criterion in the two choice simultaneous discrimination problem, exclusive of the criterion run of eight trials.

Results

The results of the analysis of variance are tabulated in Table 2 (mean performance is reported in Table 4 with the results of Experiment II). Only the learning potential x motivation interaction approached significance ($F_{2/12}$ = 3.43, p < .066). A parallel analysis using psychometric IQ as a covariate revealed an $F_{2/11}$ of 3.99, p .05, for the same LP x motivation interaction.

Insert Table 2 about here

Before the analyses of Experiment I had been performed, the experiment was replicated in another school to increase the sample size. The second experiment incorporated minor modifications dictated by experience in the first experiment.

EXPERIMENT II

Subjects The subjects for Experiment II were 24 white boys from three classes in a suburban special class school. These children, who came from lower class families, ranged in age from 141-186 months with a mean of 162.96 months and ranged in IQ from 63 to 95 with a mean IQ of 76.75. The 24 subjects of this experiment were selected according to the SS-FA motivational criterion from the entire population of 28 nonorganic EMRs in the school whose chronological age was between 11 and 16 years. The original pool consisted of 8 nongainers, 9 gainers, and 11 high scorers.

Procedure The procedure of Experiment II was identical to that of Experiment I with three exceptions:

a. Motivational Assessment In the first experiment Ss were given the 22 design cards in random order. In the second experiment, the cards were laid out on a table in linear fashion from easiest to hardest. E pointed out that each successive design was more difficult than the previous one in the series before S was asked to pick the one he would like to do. Otherwise, the motivational assessment was the same as in the first experiment. The basis for assigning an S to the failure-avoiding or success-striving groups was again the difference in rank value between his first and second choice. The difference in procedure led to a number of nongainers picking the easiest design on their first choice and the next easiest design on their second choice. Where these ties occurred in the difference scores, Ss were ranked according to the most difficult design they had achieved in the learning potential assessment. Ss who had previously demonstrated the greater ability were ranked the more failure-avoidant.

b. Incentive The incentive in this study was a free movie ticket. Instructions to the S were modified to reflect this difference.

c. Cue Sets Communication among Ss had not been a problem in the first experiment; therefore, only one set of cues was used for the discrimination problems of this experiment, rather than two sets counterbalanced over conditions.

Results

The results of the analysis of variance are tabulated in Table 3. The learning potential x motivation interaction was significant ($F_{2/12} = 4.752$, $p < .03$), as was the learning potential main effect ($F_{2/12} = 6.40$, $p < .01$). An analysis of covariance with psychometric IQ as the covariate did not alter these results appreciably.

Insert Tables 3 and 4 about here

The results of the two experiments (See Table 4) in the two schools were in such close agreement with each other that the data were pooled for a combined analysis in spite of procedural differences and the confounding of motivational measurement, race, type of incentive and sex with the school effects. The results of this analysis (Table 5) showed no significant schools main effect nor any significant interactions of schools with other factors, thus, justifying the combined analysis.

The analysis revealed a significant main effect for learning potential, $F_{2/24} = 7.25$, $p < .003$. Previous research has usually indicated greater differences between nongainers versus gainers and high scorers than between gainers and high scorers. Therefore, the two degrees of freedom for the LP main effect were separated into discrete null hypotheses:

$$B_1 : NG = \frac{G + HS}{2} \qquad B_2 : G = HS$$

The nongainers did more poorly than did the gainers and high scorers, $F_{1/24} = 14.15$, $p < .001$, while the latter groups did not differ.

Also in this analysis, there was a significant learning potential x motivation interaction ($F_{2/24} = 8.02$, $p < .002$)[3]. There are two reasonable ways of looking at this interaction. One is to examine the differences between LP groups of similar motivation and the other is to examine the differences between Ss of different motivations within individual LP groups.

Comparison of LP Groups of Similar Motivation The sums of squares and df of the individual null hypotheses under the LP main effect and the LP x motivation interaction were repartitioned to assess the simple effects within each motivational condition. Only the comparison of the nongainer versus the gainers and high scorers classified as failure-avoiders proved significant and accounted for the bulk of the variance: $F_{1/24} = 30.15$, $p < .001$. Failure-avoidant nongainers learned significantly more slowly than failure-avoidant gainers and high scorers; the latter two groups did not differ significantly. Success-strivers, regardless of LP category, did not differ significantly among themselves on the discrimination task (See Figure 1).

Insert Figure 1 about here

Comparison of Motivational Styles The sums of squares and df for the motivation main effect and the LP x motivation interaction were repartitioned to assess the simple effects comparing failure-avoidant Ss with success-striving Ss within each of the three LP groups. The results showed that failure-avoidant nongainers learned the discrimination problem significantly more slowly than did success-striving nongainers ($F_{1/24} = 8.02$, $p < .01$). The contrary was found for the other two conditions: failure-avoidant gainers learned signifcantly faster than success-striving gainers ($F_{1/24} = 4.50$, $p < .05$) and failure-avoidant high scorers tended to learn faster than success-striving high scorers, although the comparison did not reach significance ($F_{1/24} = 4.09$, $.05$ p $.10$).

Discussion

Effects of Motivational Feedback Contrary to prediction, negative motivational feedback did not yield greater efficiency than positive motivational feedback for the success-strivers; nor were there any effects for the failure-avoiders. There were also no interactive effects of feedback conditions in comparisons between more able and less able Ss defined by the LP criterion. These comparisons are analogous to comparing nonretarded with retarded children, the procedure Moss (1958) used for differentiating success-strivers and failure-avoiders. It can be concluded, therefore, that for the EMRs in this study emphasis on correct responses or emphasis on incorrect responses did not systematically influence learning efficiency and was possibly not differentially motivating. Since comparable experimental data under the conditions of this experiment are lacking for normals, one can only speculate as to why there were no motivational feedback effects. It can be argued that success-striving and failure-avoidance represent nominal categories of motivation such that a success-striver would have a pattern of motivation that is qualitatively different from a failure-avoider, rather than a pattern of motivation which differs only in degree. If this were the case, and if retardates are failure-avoiders as has been alleged, then the discrimination between motivational patterns in this experiment would have been between degrees of failure-avoidance, not between failure-avoidance and success-striving. Had the study included normals, i.e., presumably success-strivers, differential motivational feedback effects might have been found as expected. If such effects were not to be found, then it would have to be concluded that positive and negative motivational feedback is not differentially motivating, in agreement with the informational feedback hypothesis (Hamilton, 1969a).

Effect of Learning Potential and Motivation The results clearly confirm the prediction that gainers and high scorers would be superior to the nongainers on the discrimination task. What is enigmatic, however, is that while the failure-avoiders were superior to the success-strivers among the gainers and high scorers, the reverse was true of the nongainers. This may be partially explained by the fact that seven of the sixteen nongainers picked the easiest possible design on their first choice followed by the next easiest design on their second choice in the motivational assessment. These nongainers, in contrast to the gainers and high scorers, were assigned to the motivational categories on the basis of a second criterion: the difference between their first choice and their previously demonstrated level of competence with the block designs during the learning potential assessment procedures. The more able nongainer who picked the easiest item was classified as more failure-avoidant while the less able nongainer who also picked the easiest item was classified as more success-striving. The result of ties among nongainers, then, was that a number of them were assigned a motivational status on the basis of the joint application of two defining operations. This was not true of the gainers and high scorers and makes questionable any conclusions regarding the motivational equivalence of the nongainers to the gainers and high scorers. Even so, what must be noted is that nongainers, so defined as success-strivers, learned as efficiently as gainers and high scorers defined as success-strivers.

Comparisons within motivational conditions revealed no differences between gainers and high scorers. What was most interesting is that failure-avoiding gainers were superior to success-striving gainers and failure-avoiding high scorers tended to be superior to success-striving high scorers. The discrimination learning task used in this study could be considered a "closed-ended" problem, since there are a limited number of ways of being wrong, as opposed to an "open-ended" problem, in which there are many ways of being wrong. These data, on the one hand, support Moss's (1958) contention that failure-avoiders would be superior to success-strivers in a closed-ended task in which identifying and eliminating the limited number of incorrect instances leads rapidly to solution of the problem. The data may be viewed in yet another way. Instead of assuming the success-strivers in this study to be most like normal children, it may be assumed that the children who learned the fastest were most comparable in their performance and motivation to normal children. The data for gainers and high scorers clearly shows a positive relationship between failure-avoidance and learning competence. By extrapolation, then, one would assume that normal children, who would be expected to perform even better, might be even more failure-avoidant. This brings into question the validity of the construct of failure-avoidance versus success-striving as it has been applied to retarded and nonretarded children. Indeed, there is no compelling reason why children who have experienced a high degree of success and who come to have a high generalized expectancy for success should necessarily have a success-striving motivation. Success and expectancy for success could as logically have derived from the successful application of a motivation to avoid failure. This position receives some support from the findings of Heber (1957) and Gardner (1958). Heber found in a reaction time task that normal children were more responsive to an experimental failure experience than to experimental success experience. Similarly, Gardner, in a card sorting task, found normals to increase performance even more than retardates after an interpolated failure experience. If the construct of success-striving and failure-avoidance has been adequately operationalized in this study, it would appear that the construct is not yet on conceptually firm ground.

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Footnotes

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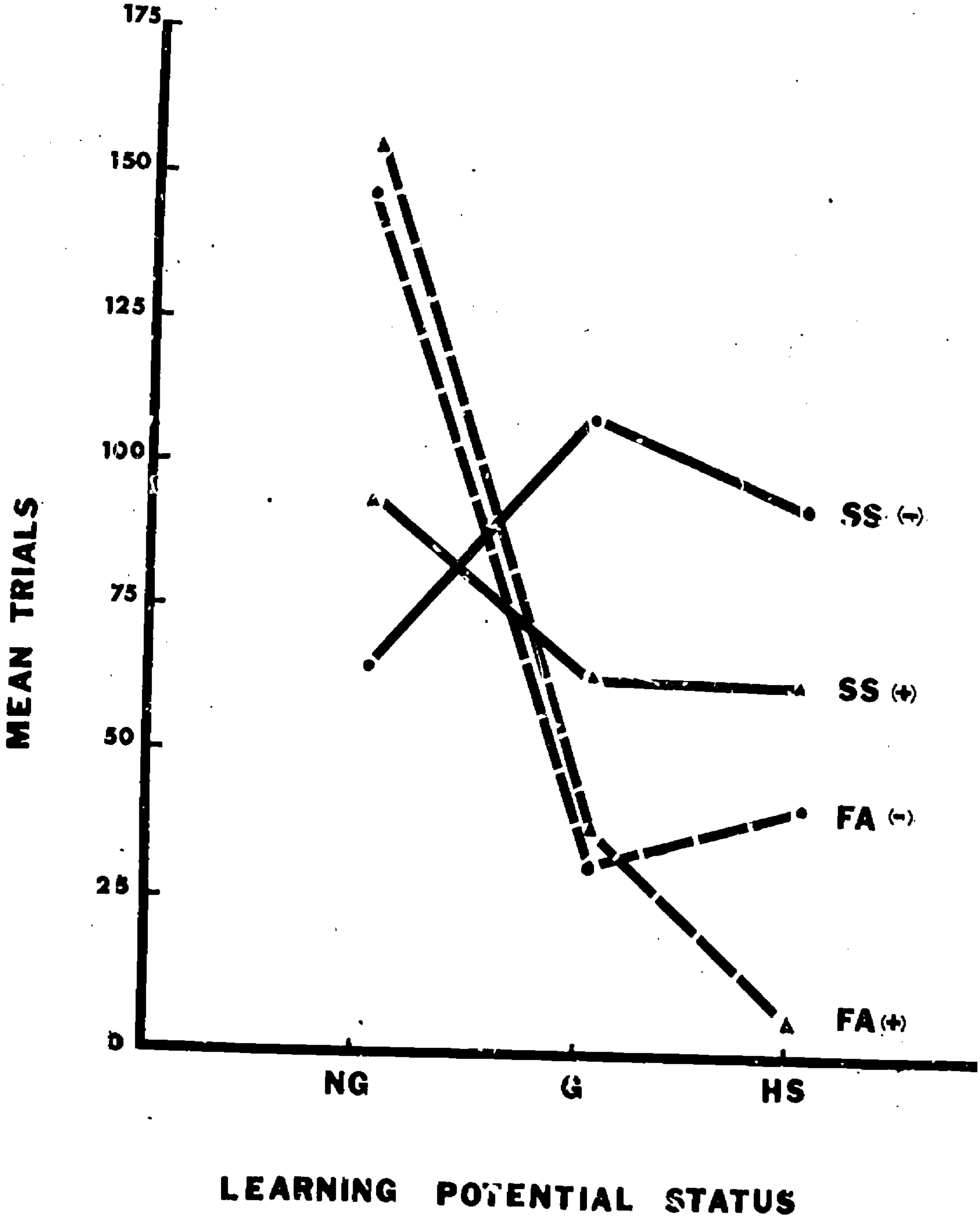
3. If, as it has been argued, individuals of low ability are more likely to be failure-avoidant than more able individuals, then there should be a relationship between a direct measure of SS - FA motivations and ability level as represented by learning potential status. In these experiments SS and FA motivations were ascribed to subjects at the extremes of a motivational difference score continuum within each LP group. The absolute cutting point and range could vary somewhat for each group. To check the above hypothesis the second choice-first choice difference scores were correlated with learning potential status and resulted in a product-moment correlation of +.0024 (N = 55, the total initial samples from both schools). Eliminating subjects whose first choice permitted no subsequent [illegible]ward deviation resulted in a correlation of +.099 (N = 44).

There appears to be no support for a hypothesis relating ability level and SS - FA motivation.

Figure Captions

Figure 1. Mean discrimination trials as a function of positive (+) or negative (-) feedback and success-striving (SS) or failure-avoiding (FA) motivation among learning potential groups.

Figure 1



175
150
125
100
75
50
25
0
MEAN TRIALS
SS (-)
SS (+)
FA (-)
FA (+)
NG
G
HS
LEARNING POTENTIAL STATUS

Table 1

Stimulus Displays for Dimension Preference and Two-Choice Discrimination Tasks

Display	Dimension Preference	Two-Choice Discrimination
I	S_1F_1	
	S_2F_1 vs S_1F_2	$S_1F_1(+)$ vs $S_2F_2(-)$
II	S_1F_2	
	S_1F_1 vs S_2F_2	$S_2F_2(-)$ vs $S_1F_1(+)$
III	S_2F_1	
	S_2F_2 vs S_1F_1	$S_1F_2(+)$ vs $S_2F_1(-)$
IV	S_2F_2	
	S_1F_2 vs S_2F_1	$S_2F_1(-)$ vs $S_1F_2(+)$

S= Spatial Configuration Dimension; F= Form Dimension
Numeral subscripts = specific cues of the subscripted dimension
(+) = Correct Response, (-) = Incorrect Response

Table 2
Analysis of Variance
Experiment I

Source	df	MS	F
Learning Potential (A)	2	5370.54	
Motivation (B)	1	1107.04	
Feedback (C)	1	975.38	
A x B	2	10095.04	3.43*
A x C	2	2888.38	
B x C	1	51.04	
A x B x C	2	463.04	
Error	12	2942.76	

* $p < .05$

Table 3

Analysis of Variance

Experiment II

Source	df	MS	F
Learning Potential (A)	2	16378.62	6.40*
Motivation (B)	1	522.67	
Feedback (C)	1	600.00	
A x B	2	12154.04	4.75*
A x C	2	501.13	
B x C	1	888.17	
A x B x C	2	1865.54	
Error	12	2557.56	

* $p < .05$

Table 4

Discrimination Learning: Mean Trials to Criterion

LP Status	Nongainer				Gainer				High Scorer			
Motivation	FA		SS		FA		SS		FA		SS	
Feedback	-	+	-	+	-	+	-	+	-	+	-	+
Experiment I												
N = 24	171.5	148.5	72.0	87.5	2.5	46.0	106.0	66.0	16.5	2.5	77.0	35.0
Experiment II												
N = 24	123.5	158.5	59.5	86.0	53.0	21.0	110.0	63.0	57.5	7.5	96.5	87.5
I & II Pooled												
N = 48	147.5	153.5	65.8	86.8	27.8	33.5	108.0	64.5	37.0	5.0	86.8	61.3

Table 5

Analysis of Variance
Experiments I & II Combined

Source	df	MS	F
Schools (A)	1	713.02	
Learning Potential (B)	(2)	19939.39	7.25**
B_1: NG=(G + HS)/2	1	38921.76	14.15**
B_2: G = HS	1	957.03	
FA versus SS (C)	1	1575.52	
Feedback (D)	1	1552.69	
A x B	2	1809.77	
A x C	1	54.19	
A x D	1	22.69	
B x C	2	22044.64	8.02**
B x D	2	1953.81	
C x D	1	256.69	
A x B x C	2	204.44	
A x B x D	2	1435.69	
A x C x D	1	682.52	
B x C x D	2	1218.06	
A x B x C x D	2	1116.52	
Error	24	2749.73	
Repartitioned Simple Effects			
LP w/i Motivation	(4)		
B_1 w/i FA	1	82917.19	30.15**
B_1 w/i SS	1	80.08	
B_2 w/i FA	1	370.56	
B_2 w/i SS	1	600.25	
Motivation w/i LP	(3)		
FA vs SS w/i nongainer	1	22052.25	8.02**
FA vs SS w/i gainer	1	12376.56	4.50*
FA vs SS w/i high scorer	1	11236.00	4.09

* $p < .05$
** $p < .01$