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BEHAVIOR IN MENTALLY RETARDED AND NORMAL CHILDREN

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SUCCESS AND FAILURE AS DETERMINANTS OF GOAL-SETTING
BEHAVIOR IN MENTALLY RETARDED AND NORMAL CHILDREN

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ACKNOWLEDGMENTS

iii.

SUMMARY

The purpose of this study was to test the hypothesis that experimentally-induced success and failure experiences would differentially affect mentally retarded children, who are presumed to have had a history of failure experiences. It was expected that retarded children would set lower prediction of performance estimates and would be more variable in their estimates than would the normal children.

The Ss were 24 noninstitutionalized educable mentally retarded children, each matched with a Mental Age control and a Chronological Age control of the same sex. Each S was given six trials on a verbal five-item vocabulary task. Before each trial, Ss gave a prediction of performance estimate for that trial. The Ss were in counter-balanced design: three success trials (very simple words) preceded or followed by three failure trials (very difficult words).

Results of the study indicated that retarded Ss and their MA controls set higher estimates across trials than did the CA controls. The Ss who experienced initial failure set lower estimates than did Ss who had success first. The effect of the experimental manipulation of success and failure was a pronounced one, and was significant for all three groups. Variability of estimates did not differentiate between groups, but analysis of initial estimates showed that retarded Ss made higher predictions initially than did the other two groups.

Results were interpreted as being contrary to the hypothesis that retardates have had a greater history of failure experiences, and hence, have lower generalized expectancy of success. Several intervening variables were postulated as mediating failure experiences: special education, social attitudes, and cognitive inability to conceptualize success and failure.

INTRODUCTION

The purpose of this study was to compare the effects of success and failure on retarded and normal children as they predicted their performance level on a school-related task. It has been suggested by Gruen and Zigler (11) that simple short-term manipulations of success and failure in an experimental situation will not affect all subjects in the same way, but will be mediated in terms of the individual's own past history of success and failure experiences. If, as has been postulated by Heber and by Zigler (13, 23), retardates have had a greater history of failure experiences, then they should differ from normal children in their prediction of performance estimates. These differences should be further clarified by manipulations of success and failure in the experimental situation.

The social learning theory of Rotter (15) postulates that behavior is determined not only by the value of the reinforcement provided in a given situation but, also, by the individual's expectancy that the reinforcement will occur. This expectancy is a function of the schedule of reinforcement in the specific situation and of the generalized expectancy developed from other situations and generalized to the present situation. This component of generalized expectancy has been presumed to have special significance for mental retardation. Cromwell (3) suggests that the limited cognitive ability of the retardate causes him to have a greater history of failure experiences than does the average child. Hence, the average retardate is postulated to have lower generalized expectancy for success and a higher tendency toward avoidant behavior than does the typical normal child.

In experimental situations investigating these phenomena, Heber (13) found that the performance of normals and retardates was equally enhanced in a novel task situation following a failure condition; and that, while success enhanced the performance of both normals and retardates, the performance of retardates was enhanced more than was that of normals. Assuming a failure set as a result of a history of failure experiences, Stevenson and Zigler (17) tested the hypothesis that retardates would be willing to "settle for" a lower degree of success than would normal children of the same Mental Age. Using a probability learning task, the authors concluded that the maximizing behavior of the retarded children was a reflection of their low expectancy of success. Normal children had come to expect a high degree of success and responded with probability-matching behavior. In a different but parallel situation, Wachs and Cromwell (19) have found supporting evidence for the retardate's low expectancy of success and hence, his attempts to avoid failure, even at the cost of giving up chances of success.

Within the framework of comparing normals and retardates in their reactions to success and failure, the results are conflicting and

ambiguous. Cromwell (2) hypothesized that individuals with a long history of failure (i.e., retardates) would respond more modestly to infrequent success and would be relatively immune to failure. Rosen, Diggory, and Welinsky (14) investigated goal-setting and predictive behavior in two groups of retardates, institutionalized and noninstitutionalized, and concluded that subjects from a sheltered environment were more confident of success when predicting performance than were those who had experienced a greater number of failures in their developmental histories. Davids and White (4) suggest that retardates, in their need to avoid further failure, manifest greater decrements under failure conditions than do normals in the goal-setting situation. Finally, Sears (16) reported higher goal discrepancy (discrepancy between actual performance and estimates of performance) and significantly greater variability in goal-setting among subjects who had experienced failure in the past than among subjects who had a history of success experience.

In this study, the expectation was that there would be differences between retardates and normals in performance predictions under both success and failure conditions, reflecting the interaction of these experimentally-induced experiences with the individual's interpretation of these factors in light of his own developmental history. More specifically, it was expected that the retardates would show greater variability of responses, and would react more positively to the success condition and more modestly to the failure condition than would the normal children.

METHOD

Subjects

The Ss were 24 noninstitutionalized retarded children in special education classes and 48 normal children in regular classes. Each subject group was equally divided according to sex; all were Caucasian. The Peabody Picture Vocabulary Test (5) was used to establish intellectual levels for all Ss. The Ss in the Retarded group had a mean IQ of 70.04, with mean MA of 91.54 months and mean CA of 142.25 months. The Retarded group was matched on MA by one group of 24 children (Normal MA group) who had a mean IQ of 103.95, mean CA of 85.95 months, and a mean MA of 92.16 months. The Retarded group was matched on CA by another group of 24 children (Normal CA group) with a mean IQ of 109.75, mean MA of 163.62 months, and mean CA of 141.66 months. The Ss were assigned randomly to one of two experimental conditions: Success first (S) or Failure first (F). The MA, CA, and IQ data for the three groups by experimental conditions is given in Table 1.

Materials

The materials consisted of twelve 3 x 5 cards, each of which had five words printed on them. Six of these cards were used with the

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TABLE 1.

MA, CA, and IQ Data for Retarded, Normal MA, and Normal CA Groups by Experimental Conditions

		Retarded N = 24		Normal MA N = 24		Normal CA N = 24	
		(S) N = 12	(F) N = 12	(S) N = 12	(F) N = 12	(S) N = 12	(F) N = 12
MEAN	MA (mos.)	90.33	92.75	91.08	93.25	163.00	164.25
	CA (mos.)	143.50	141.00	86.25	85.66	141.75	141.58
	IQ	69.08	71.00	103.25	104.66	109.33	110.16
RANGE	MA (mos.)	76-107	70-107	76-107	80-109	135-199	132-214
	CA (mos.)	133-154	131-152	75-95	78-95	133-154	133-153
	IQ	55-78	57-79	97-110	97-120	97-119	98-121
TOTAL MEANS	MA (mos.)	91.54		92.16		163.62	
	CA (mos.)	142.25		85.95		141.66	
	IQ	70.04		103.95		109.75	
TOTAL RANGE	MA (mos.)	70-107		76-109		132-214	
	CA (mos.)	131-154		75-95		133-154	
	IQ	55-79		97-120		97-121	

Retarded and Normal MA groups, while the other six were used with the Normal CA group. In each set of six cards, three included five "easy" words while the other three included five "difficult" words. The easy words were used in the success condition while the difficult words were used in the failure condition. The vocabulary words used for each group were obtained from the Ammons Full-Range Picture Vocabulary Test (1), Metropolitan Achievement Test (6), Stanford-Binet Intelligence Scale (18), and Wechsler Intelligence Scales (20, 21, 22). Of the 30 words used for both the Retarded and Normal MA groups, 15 were used in the success (S) condition and were selected to have a median difficulty level of about five years. The other 15 were used in the failure (F) condition and were selected to have a median difficulty level of about 16 years. Of the 30 words used for the Normal CA group, the median difficulty of the words used in the (S) condition was about nine years while that of the words used in the (F) condition was at the adult level.

Procedure

Each S was seen individually. The S was brought into the experimental room and seated at a table across from E. Several minutes' time was allowed for a "warm up" chat, so that the S felt relatively comfortable in the testing situation. The Peabody Picture Vocabulary Test, Form B, was administered using standard instructions. Following this, each S was presented with the Vocabulary Task:

"I have some cards here with words on them and I want to find out how many of these words you know. I will say the word and then I want you to tell me what the word means. Do you understand what I want? Fine."

An initial estimate was obtained thus:

"This first card has five words on it. How many of these words do you think you will be able to tell me the meaning of?"

After this initial estimate had been obtained and recorded, the words on the card were read to S one at a time. The Ss in (S) condition were read five easy words and were told after each definition: "That's good" or "That's right." After the third definition, S was told: "You're doing very well, aren't you?" The Ss in (F) condition were read five difficult words one at a time and were told after each definition: "That's wrong" or "That's not right." After the third definition, S was told: "You're not doing well, are you?" Appropriate tone of voice and facial expressions accompanied these statements for both conditions.

After completion of the first card, the second card was introduced thus:

"This next card has five more words on it. How many of
these words do you think you'll be able to tell me the
meaning of?"

The prediction of performance estimate was recorded and the words read
with appropriate response to S's definitions.

This same procedure was carried through the completion of six
cards, each containing five vocabulary words. The Ss in (S-F) condi-
tion were given three cards of easy words, followed by three cards of
difficult words; Ss in (F-S) condition were given three cards of diffi-
cult words first, followed by three cards of easy words.

If an S gave an incorrect definition during the (S) condition, he
was praised for it and told that the definition was acceptable. If a
correct definition was given during the (F) condition, the S was pressed
for further elaboration and eventually told that he had not given a
correct definition. This occurred only three times during the course
of testing. All Ss were given five easy words at the end of the session
and were praised extensively for their participation, so they could
complete the procedure on a successful note before returning to the
classroom.

Experimental Design

In the present study, a 3 x 2 x 2 x 6 repeated measures factorial
design was employed with three types of subjects (Retarded, Normal MA,
and Normal CA), two sexes, and two experimental conditions, (S-F) and
(F-S), over six trials. The dependent variables included the perfor-
mance prediction estimates, the initial estimate of performance, and
the variability of estimates over trials.

RESULTS AND FINDINGS

Preliminary analyses revealed no significant effect of sex for any
of the dependent variables. Therefore, sex was not considered as a
separate factor in the following analyses. A 3 x 2 x 2 x 6 analysis
of variance performed on the performance prediction estimates revealed
a significant main effect for Type of S ($F_{2/60}$ = 6.27, p < .01), a

significant main effect for experimental condition ($F_{5/300}$ = 129.64,

p < .001). Mean performance prediction estimates for the three S
groups are depicted in Figure 1. The significant effect for type of
S reflects the fact that both the Retarded Ss and the Normal MA Ss had
higher mean estimates across trials ($\bar{x}$ = 3.20 and 3.11, respectively)
than did the Normal CA group ($\bar{x}$ = 2.45). The fact that the retarded Ss
were more like their younger MA controls than their CA controls is
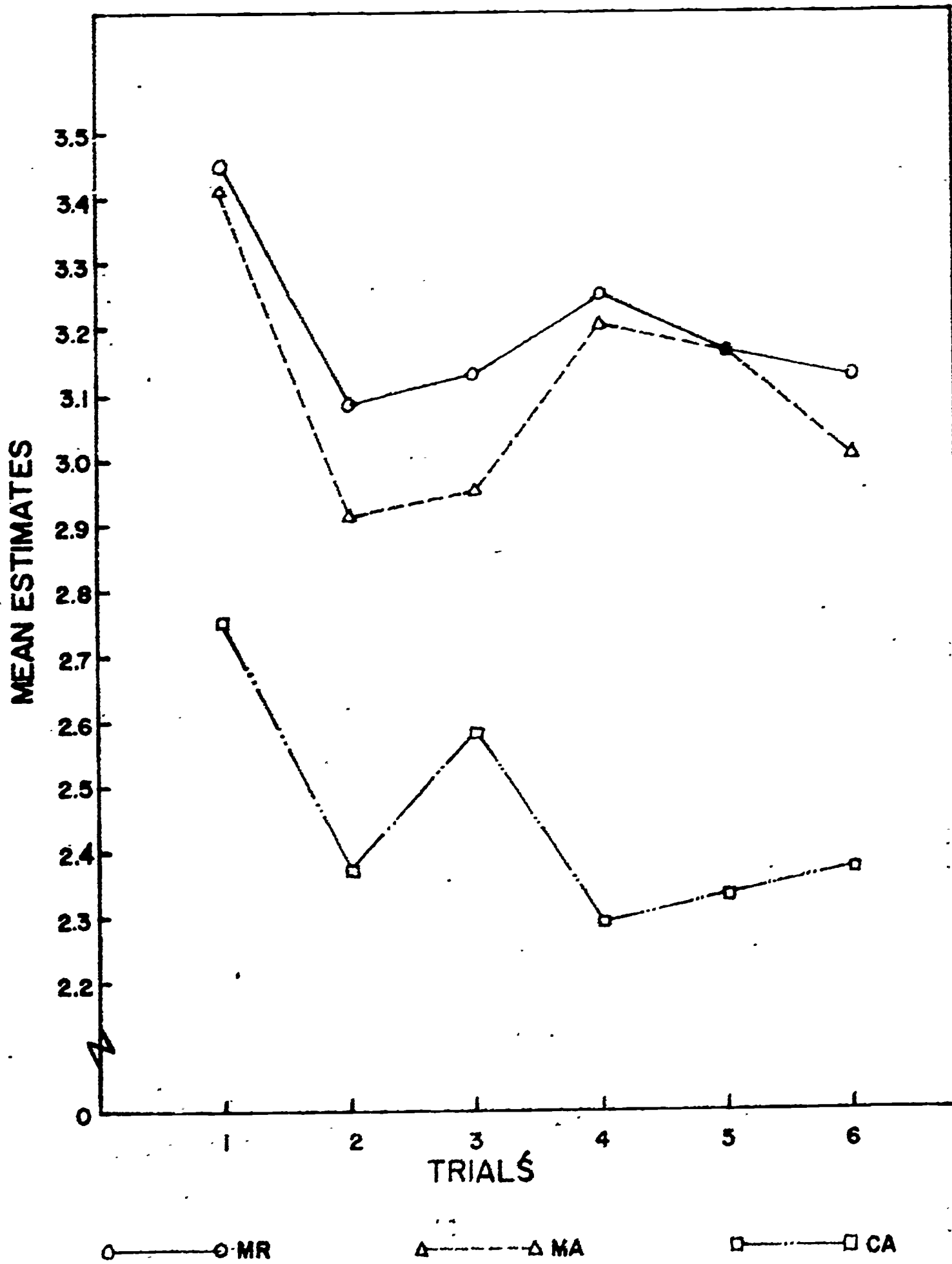interesting. It may indicate that predicting performance on a task

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Figure 1.   Mean Performance Prediction Estimates for each
Type of Subject.

such as this is more related to one's level of cognitive development than it is to the number of years one has experienced success or failure. Further, there was a tendency for Ss in the Retarded group to set significantly higher initial estimates ($\bar{x}$ = 3.66) than Ss in the Normal CA group ($\bar{x}$ = 2.9) (t = 1.56, p < .10). The mean initial estimate for Normal MA group ($\bar{x}$ = 3.2) was not significantly different from the other two groups. The expectation, then, that the Retarded group, in light of their history of failure experiences, would set lower estimates across trials than either of the control groups was not confirmed. Setting an initial prediction of performance estimate has been interpreted by Davids and White (4) as reflecting the degree of confidence with which the child approaches a novel task. If this is the case, the finding of higher performance prediction estimates for the Retarded Ss in this study would suggest that these retarded children did not suffer from a lack of confidence in their own cognitive resources.

The significant main effect for experimental conditions is not interpretable except in the light of the interaction between experimental conditions and trials ($F_{5/300}$ = 129.6, p < .001). This highly significant interaction is illustrated in Figure 2 and suggests that the short-term manipulation of experimentally-induced success and failure experiences in this study was successful. A break-down of this effect revealed significant differences between experimental conditions at trials one, two, three, and six (p < .01). All Ss responded immediately to the change in success-failure manipulations, altering their estimates in the appropriate direction at Trial 4, the first trial at which the experimental conditions were reversed. The lack of significant differences at Trial 5 indicated a period during which Ss were still adjusting to the new experience, suggesting that Ss had a more difficult time revising their predictions in the face of a new, contrary experience than they had in adjusting to the original experimental condition.

The effect of the experimental manipulations over trials supports the findings of other investigators that success experiences lead to raising of estimates, while failure experiences lead to lowering of the performance predictions (7, 8). This effect may have been emphasized in this study because of the intensity of success and failure experiences in the experimental context. None of the groups reacted to the failure experiences by persistently setting high prediction estimates, as has been found by Gardner (9).

A further break-down of the mean performance prediction estimates for each type of S by experimental condition is shown in Figure 3. As can be seen here, the Ss who experienced failure in the first three trials did not regain in the last three trials the level of estimates made by Ss whose initial experience was successful. Similarly, Ss who experienced success in the first three trials did not lower their estimates under the failure condition in the last three trials to the level of estimates made by Ss whose initial experience was failure.
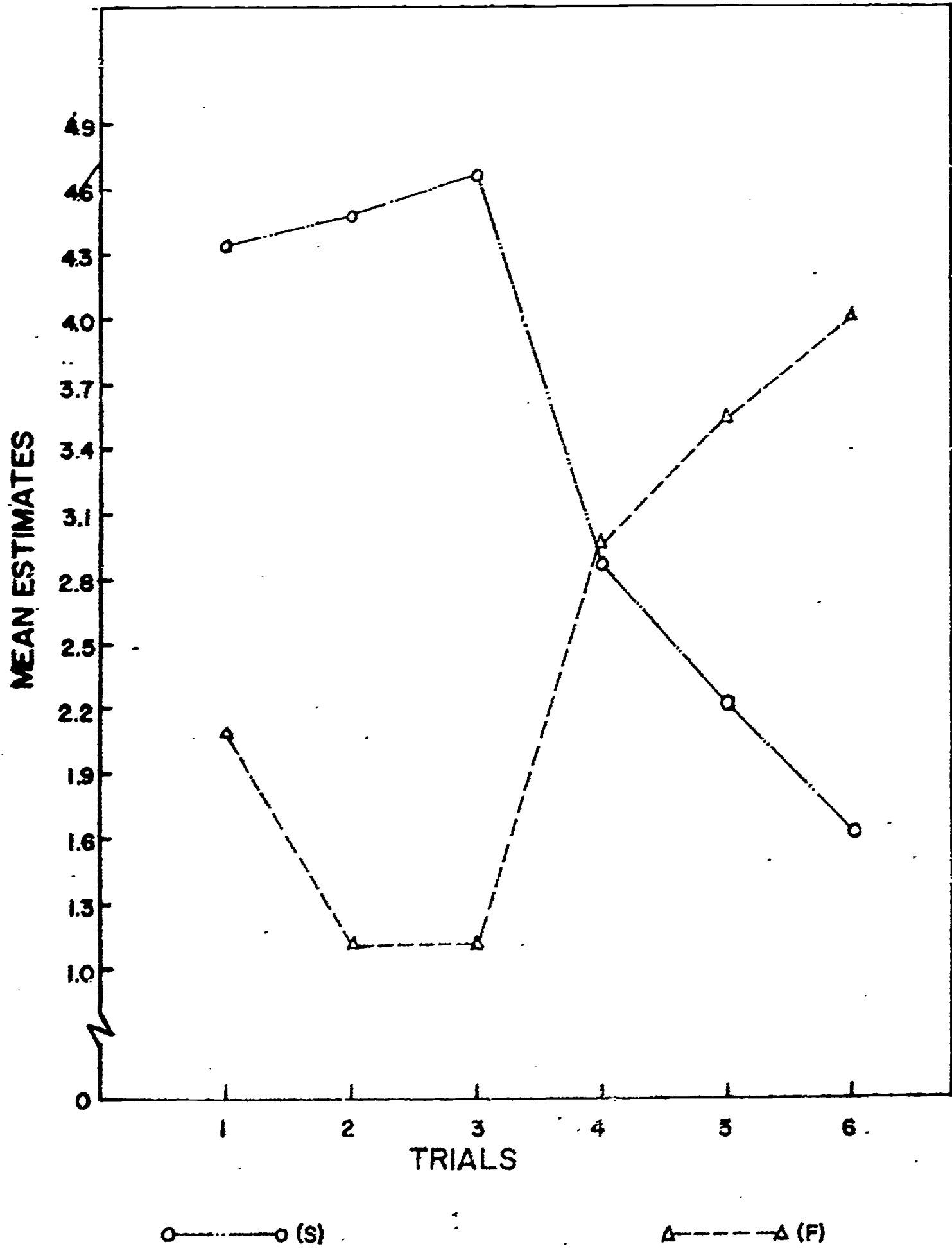
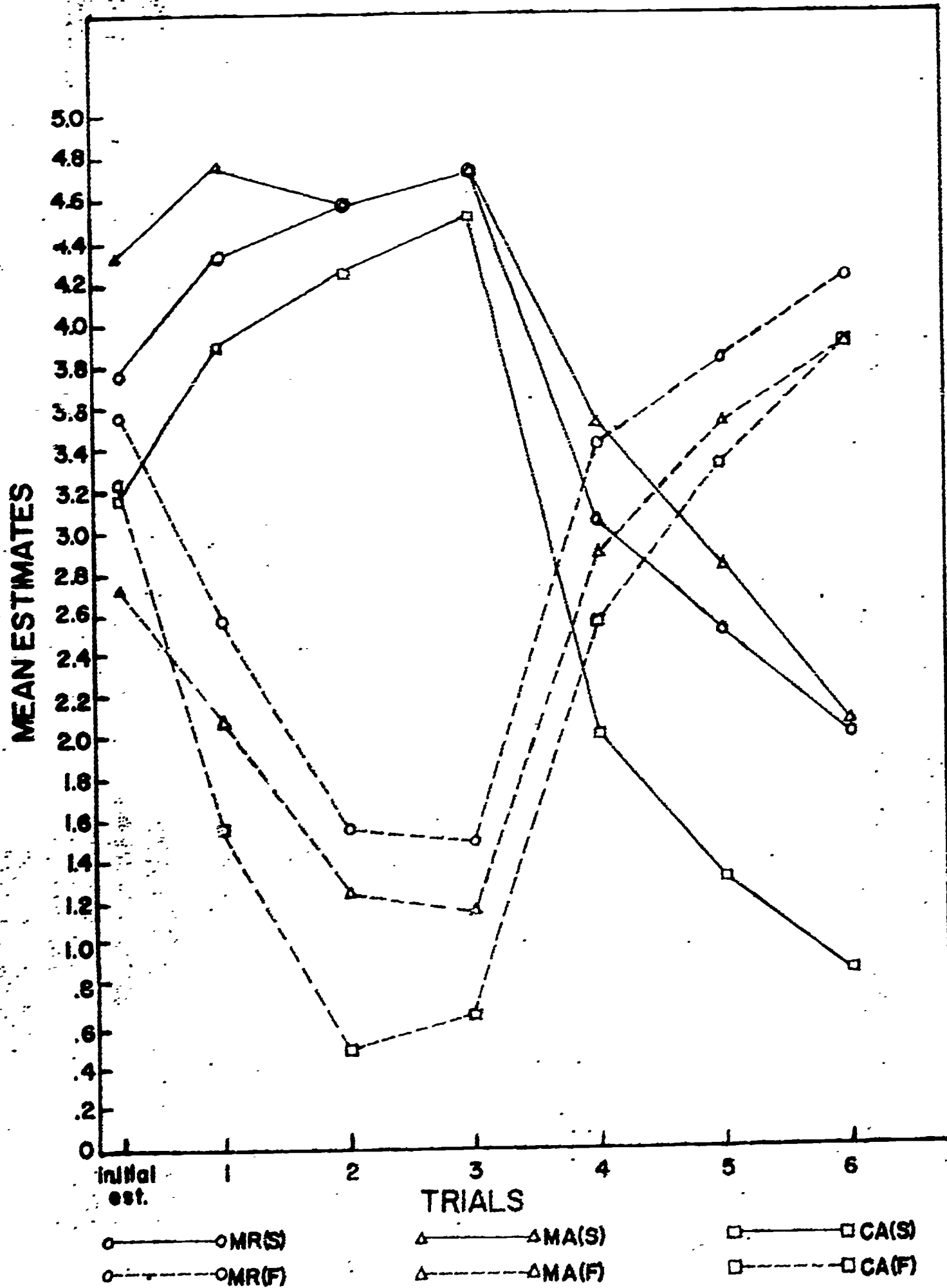Figure 2. Mean Performance Prediction Estimates for each Experimental Condition.

Figure 3. Mean Performance Predictions Estimates for each
Type of Subject in Each Experimental Condition.

Analysis of the relative effects of initial success (success in Trials 1-3) as compared with success after failure experiences (success in Trials 4-6) revealed a highly significant difference ($F_{1/66} = 26.9$; $p < .001$) between the two orders in which success appeared, with initial success yielding higher performance predictions than success after failure. Furthermore, the difference was significant for each type of $\underline{S}$: Retarded $\underline{Ss}$ ($F_{1/66} = 4.95$; $p < .05$); Normal MA $\underline{Ss}$ ($F_{1/66} = 14.83$; $p < .01$); Normal CA $\underline{Ss}$ ($F_{1/66} = 8.46$; $p < .01$).

In the same way, analysis of the difference between initial failure and failure after success experiences indicated a significant effect ($F_{2/66} = 6.01$; $p < .01$) for the time at which failure was experienced, with $\underline{Ss}$ making significantly higher estimates under failure after success than they made under initial failure. Further analyses revealed that this effect was not significant for all types of $\underline{S}$. In fact, this effect was significant for only the Normal MA group ($F_{1/66} = 6.85$, $p < .05$), indicating that for these $\underline{Ss}$ estimates made under failure after initial success were significantly higher than those made under initial failure conditions.

The variability of estimates was computed as the sum of the absolute differences in estimates across trials. That is, the difference between the initial estimate and estimate on Trial 1 was computed and added to the difference in estimates for Trials 1 and 2, the difference for Trials 2 and 3, etc., across all trials. The expectation that the Retarded $\underline{Ss}$ would be more variable in their estimates across trials was not confirmed. A 3 x 2 analysis of variance revealed no significant effect for type of $\underline{S}$ ($F_{2/66} = 1.29$, $p > .05$). However, the $\underline{Ss}$ in (F-S) condition were shown to be significantly more variable in their predictions than were those in (S-F) condition ($F_{1/66} = 7.14$, $p < .01$). This suggests that the (F-S) condition was more disturbing than the (S-F) condition, perhaps due to some cognitive dissonance between what was initially predicted and what was actually experienced across the first three trials. The intensity of the failure experience may have contributed to this effect, since the $\underline{Ss}$ in (F-S) condition experienced fifteen consecutive failures before reaching the success condition.

It has been suggested by Gruen and Zigler (11) that experiences in special education classes, which are specially designed for the retarded child, may reduce the amount of failure experiences which the child has had. If this is so, then one might expect the Retarded $\underline{Ss}$ to set estimates at least as high as those set by the control $\underline{Ss}$. In fact, if the special education classes seldom incorporate the aspects of "testing" and, hence, of failure experiences, one might hypothesize

that the Retarded $\underline{S}$s would be overconfident or unrealistic in assessing their cognitive abilities.

In order to assess this variable, a series of $\underline{t}$ ratios were computed which compared the six $\underline{S}$s who had been in special education classes less than two years with the six $\underline{S}$s who had been enrolled in special classes for more than four years. No significant differences were found between these two groups on initial estimates, mean estimates across trials, or variability of estimates ($\underline{t}$ < 1, all factors). Because of the small number of $\underline{S}$s used in this analysis (N = 12), no conclusions can be drawn, but it would appear that the length of time actually spent in special education classes has not exerted a differentiating influence on the Retarded $\underline{S}$s.

CONCLUSIONS

The results of this study call into question the basic hypothesis that retarded children have experienced a great deal more failure, and hence, have lower expectancies for success than do normal children. Several intervening variables might be hypothesized: special education classes, social attitudes, and cognitive inability to conceptualize success and failure. Although there is no direct evidence in the present study that participation in special education classes is responsible for raising the expectancies for success of retarded children, a more thorough investigation of the philosophy and curriculum of special education may shed further light on this variable. Clarification of this issue may be attained by comparing the performance of retardates in special education classes with retardates who have been retained in the regular school system. That social attitudes may contribute to protecting retardates from failure has been suggested by Guskin (12), who finds that persons who come into contact with the retardates are prone to do things for him, not to challenge him, and to protect him from failure experiences. Since this is especially true of the retardate's family, it may well be that the retardate is not meeting with failure in most of his dealings with his immediate environment. A final possibility is related to the retardate's inability to conceptualize his role in whatever success or failure he experiences. If the retardate has not been challenged or allowed to "try his wings," then one might expect him to be unrealistic (from our point of view) in assessing his strengths and weaknesses, much like the younger child who also has had relatively little experience in testing himself. The effects of success and failure on the retardate's estimate of his performance certainly has far-reaching implications for academic and vocational programs. However, to assume past history of failure experiences for all retarded children without gathering pertinent life-history information appears to be unwarranted.

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RETRIEVAL TERMS

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601 Success-failure
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IDENTIFIERS

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ABSTRACT

800 This study was designed to test the hypothesis that experi-
801 mentally-induced success and failure experiences would diff-
802 erentially affect mentally retarded and normal children. This
803 hypothesis was based on the assumption that mentally retar-
804 ded children have had a greater history of failure experiences.
805 24 educable mentally retarded children and their matched MA
806 and CA controls were given six trials on a verbal 5-item vo-
807 cabulary task; the Ss were given, in counter-balanced design,
808 3 success trials (simple words) and 3 failure trials (diffi-
809 cult words). All Ss gave a prediction of performance esti-
810 mate for each trial. The retarded Ss and their MA controls
811 set higher estimates across trials than the older CA controls.
812 The retarded Ss also set higher initial estimates. Results
813 were interpreted as being contrary to the hypothesis that re-
814 tardates have had a greater history of failure experiences
815 resulting in lower generalized expectancy of success.
816 Several intervening variables are postulated.
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