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ABSTRACT

A study examined cognitive and behavioral consequences of continuous success or failure in a competitive situation involving 40 undergraduate males. Three performance variables were selected for examination: expectancies for success, amount of self-motivated practice, and performance quality. Subjects were informed that they would be competing against another student in a best-three-out-of-five dart tossing contest. For each competitive trial, the subject estimated his chances of outscoring his opponent by marking a 17-point expectancy scale. Competitors were given a 5-minute practice period to be used at their own discretion. The number of throws made was recorded unobtrusively. Subjects then made a set of five throws at a target located on the floor 5 feet away, using the non-preferred hand. Fictitious feedback that the individual had either defeated or lost to his opponent on that trial was administered. Subjects were then asked to rate the importance of six factors in determining whether they won or lost: (a) task difficulty; (b) natural ability; (c) opponent's natural ability; (d) effort; (e) opponent's effort; and (f) luck. Results provided evidence for both cognitive and behavioral consequences as a result of consistent competitive outcomes. In general, the data suggested a motivational decrement with repeated success in such situations. (JM)

Effects of Achievement Tendencies and Competitive Outcomes on Performance

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The present study examined the cognitive and behavioral consequences of continuous success or failure in a competitive situation. Previous research along these lines was considered deficient in several ways. First, there are conflicting results in the literature. Some studies show behavioral effects with both high rates of success and failure; other studies show either no effects or effects limited to one type of outcome (see e.g., Brunig & Mettee, 1966; Diggory, Klein, & Cohen, 1964; Iso-Ahola, 1976; Martens & White, 1975; Swingle, 1969). Second, most of the research in this area has used simple tasks and measured only a single performance parameter (e.g., reaction time or speed of lever pressing). Thirdly, cognitive correlates of the behavioral variables have generally been ignored. Finally, individual difference variables which may mediate the behavioral effects have received insufficient attention.

In an attempt to address these inadequacies, multiple aspects of the responseto repeated success or repeated failure on a relatively complex competitive task were examined. Achievement tendencies were considered as a personality disposition which might moderate the effects of continuous success or

failure. Three performance variables were selected for examination: (a) expectancies for success, (b) amount of self-motivated practice, and (c) performance quality. The perceived importance of several causal factors in determining the competitive outcomes was also assessed.

The procedure was as follows. The Mehrabian Scale of Achieving Tendencies (Mehrabian & Bank, 1978) was administered to 80 undergraduate males, and a median split was used to classify them as relatively high or low in achievement tendencies. Mean scores were 81.40 and 42.80 for the high and low groups, respectively. Twenty individuals from each group were then randomly selected to participate in the study. Subjects were informed that they would be competing against another student in a best-three-out-of-five dart tossing contest. Prior to each trial of competition, they would be given a few minutes to practice. The subjects performed in separate rooms to enable the experimenter to manipulate wins and losses without respect to actual scores.

There were four phases to each competitive trial:

(a) The subject was asked to estimate his chances of outscoring his opponent on that trial by marking a 17-point expectancy scale. This scale was anchored at one end by the statement "very sure I will win", in the middle by "uncertain", and at the other end by the statement "very sure I will lose". Higher numbers indicated a greater expectancy for success.

(b) Competitors were given a five-minute practice period and in-

formed that they could use this time to practice as much or as little as they desired. The number of throws made during this practice period was unobtrusively recorded.

(c) Subjects then made a set of five throws at a target located on the floor five feet away. Throws were made using the nonpreferred hand. (This aspect of the study had been explained earlier and the subjects had been reminded to use the nonpreferred hand during the practice period.) These targets were modified versions of the National Rifle Association Official 25-foot Slow Fire Pistol Target. They had a one centimeter bull's-eye and nine equidistant concentric rings. Their diameter was 19 centimeters.

(d) Fictitious feedback that the individual had either defeated or lost to his opponent on that trial was administered. This feedback had been predetermined during the first practice period by a coin flip, and it remained consistent throughout the study. That is, a given individual either won every time or he lost every time. After the third trial of "competition", one person had ostensibly won the best-three-out-of-five contest.

Subjects were then asked to rate the importance of six factors in determining whether they had won or lost. These factors were: (a) the difficulty of the task; (b) his own natural ability; (c) his opponent's natural ability; (d) his own effort; (e) his opponent's effort; and (f) luck.

Results[1]

The design of the study required that the trial 1 data be

analyzed separately from the data from trials 2 and 3. This was necessary because outcome could not be manipulated until after the trial 1 scores had been obtained. Only the achievement tendency factor was used, therefore, when analyzing the trial 1 data. Both outcome and achievement tendency were used as factors when analyzing the trial 2 and 3 data.

Expectancies

There was no significant effect of achievement tendencies on the trial 1 expectancies. There was, however, a significant outcome x trials interaction in the analysis of the trial 2 and trial 3 expectancies. Means for this variable are given in Table 1, and the effect is graphed in Figure 1. It can be seen that the expectancy ratings of winners and losers did not differ on trial 2 (i.e., after one outcome), but they did differ on trial 3 (after two outcomes). More interesting, perhaps, is the pattern of expectancy change across trials for winners and losers. Examination of change scores reveals a significant increase in expectancies for winners but no significant change for losers. This result is contrary to the typical finding in the expectancy literature. Several studies have shown that expectancies normally change faster after predominant failure than after predominant success (Feather, 1966, 1968; Feather & Saville, 1967; Rychlak & Lerner, 1965). Two explanations appear viable. First, losers may be maintaining an unrelistically high expectancy for future success as a defensive mechanism. Scanlan & Passer (1981) have suggested that such a mechanism may operate with regard to expectancies in competitive situations. Second, failure

may have had less diagnostic value than success on the experimental task.[2] Ajzen and Fishbein (1975) have suggested that such an effect is likely when the task is judged to be relatively difficult.

Practice Behavior

There was no significant effect of achievement tendencies on the trial 1 practice behavior. However, a significant outcome effect was obtained in the analysis of the trial 2 and 3 practice data. Means for this variable can be found in Table 2, and Figure 2 illustrates the effect graphically. It can be seen that winning outcomes were associated with significantly less practice across trials 2 and 3 than were losing outcomes. The combined mean for winners was 51.42 throws while the combined mean for losers was 58.42 throws. This finding suggests that there is a motivational decrement associated with high rates of success in competitive situations. In addition, it is interesting to note that this decrement occurred rather quickly. Practice behavior was substantially reduced after only one victory (i.e., on trial two).

Performance Quality

The total number of points scored on the five "competitive" throws constituted the measure of performance quality. The highest possible score was 50 points and the lowest possible score was zero.

The effect of achievement tendencies on the trial 1 performance scores approached significance ($p < .08$). High achievers had a tendency to perform better than low achievers on this trial.

The mean number of points scored was 16.00 for high achievers and 12.95 for low achievers. No main effects or interactions were significant in the analysis of the trial 2 and 3 performance scores.

Attributions

A multivariate anlaysis of variance was conducted using the six causal factors as dependent variables. A significant multivariate effect of achievement tendencies was obtained. Examination of univariate F-ratios revealed that differential ratings of the importance of one's own effort were primarily responsible for this effect. High achievers considered their own effort to be more important as a causal factor than did low achievers. Mean ratings of importance on a nine-point scale were 7.60 for high achievers and 6.15 for low achievers.

Summary of Results

In summary, the present study provided evidence for both cognitive and behavioral consequences as a result of consistent competitive outcomes. In general, the data suggested a motivational decrement with repeated success in such situations. Achievement tendencies, as defined in the present study, did not appear to moderate these effects. Their influence was restricted to the causal interpretations placed on the competitive outcomes.

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Footnotes

[1] The results presented in this paper differ somewhat from those published in abstract form in the AAHPERD conference proceedings. The abstract was based on an inappropriate analysis of the data which did not separate the trial 1 data from the data from trials 2 and 3. In the present analysis, the trial 1 data was treated separately.

[2] The authors are indebted to Glyn C. Roberts for his comments along these lines.

TABLE 1

MEANS AND STANDARD DEVIATIONS

FOR EXPECTANCY RATINGS

CONDITION	n	TRIAL 1	TRIAL 2	TRIAL 3
WIN	20	11.45 [2.86]	12.35 [2.50]	14.00 [2.81]
LOSE	20	12.05 [3.35]	12.00 [3.34]	11.35 [3.99]

NOTE: RATINGS WERE MADE ON A 17- POINT SCALE.

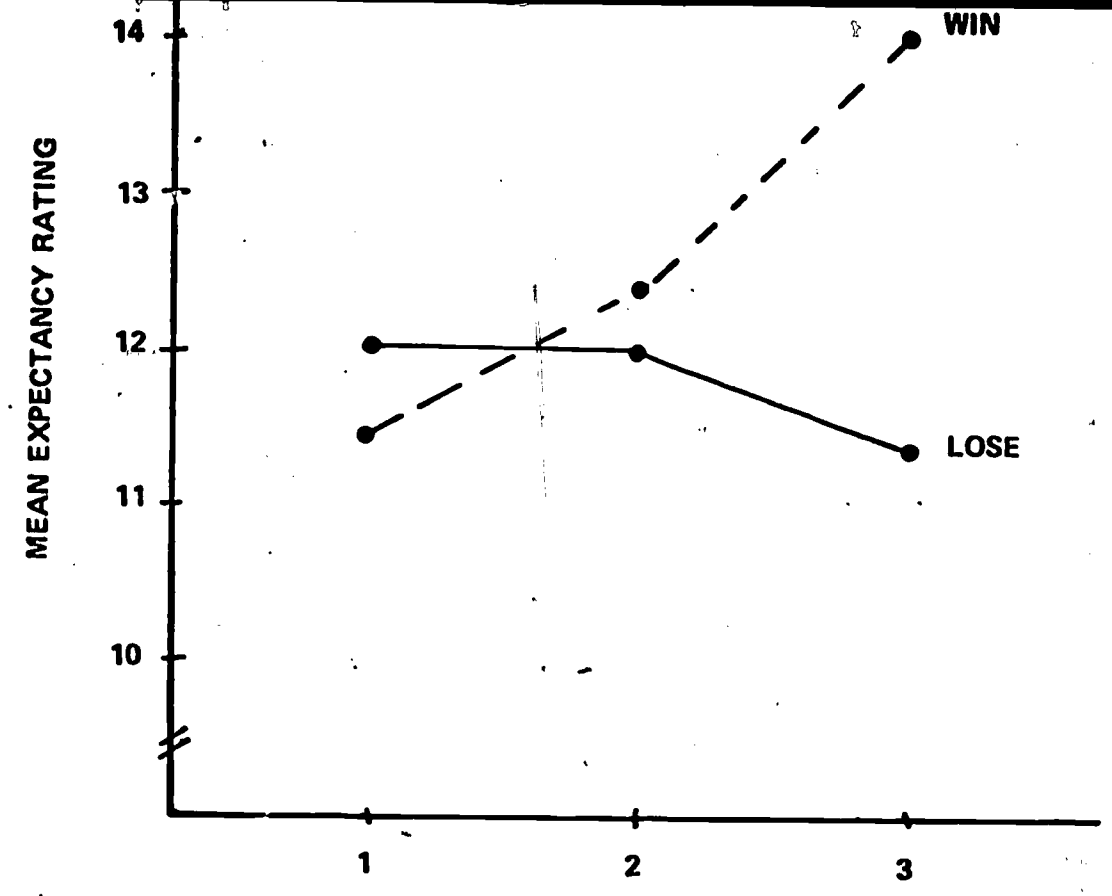
TABLE 2

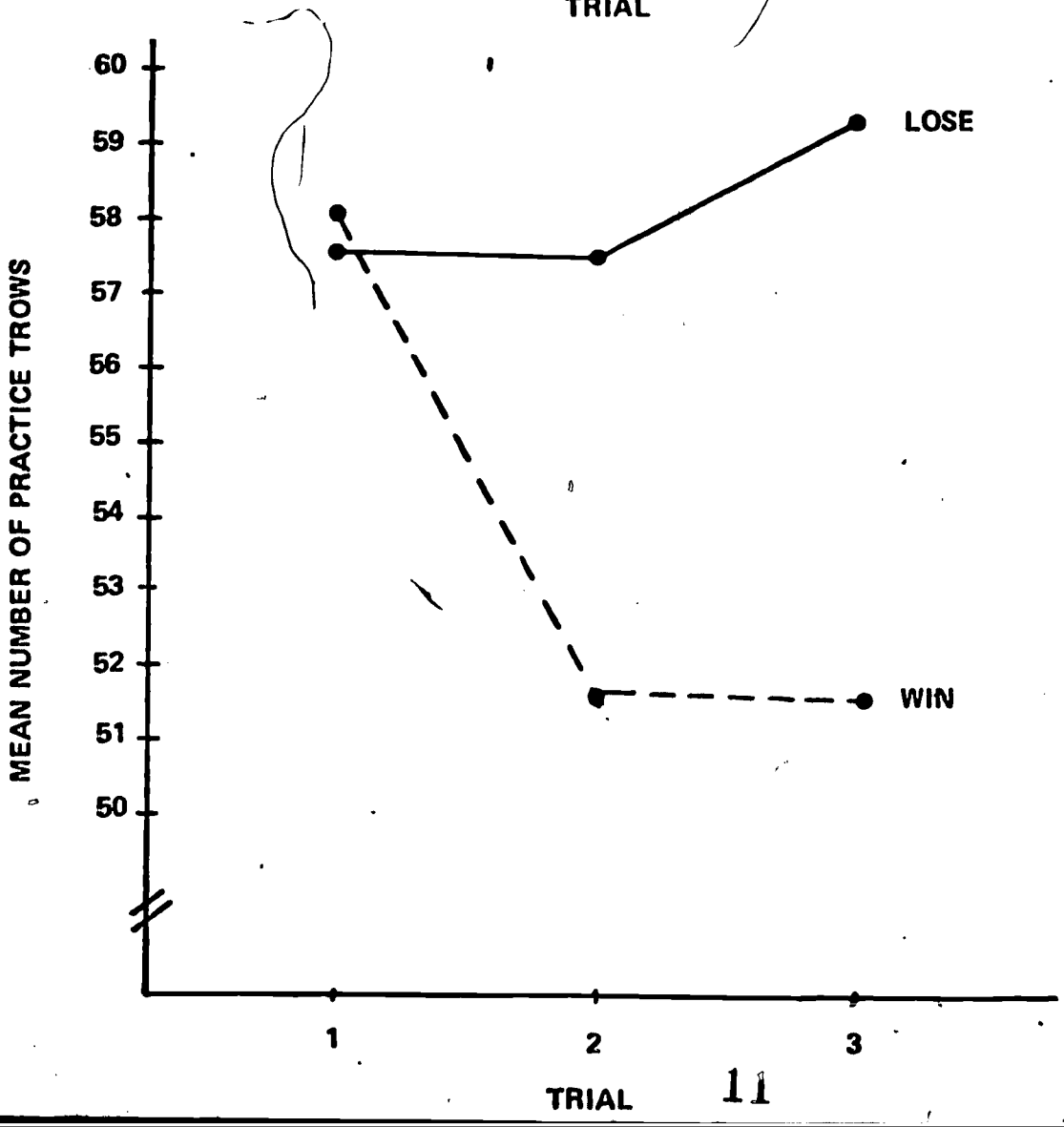
MEANS AND STANDARD DEVIATIONS

FOR NUMBER OR PRACTICE THROWS

CONDITION	n	TRIAL 1	TRIAL 2	TRIAL 3
WIN	20	58.10 (8.26)	51.65 (11.33)	51.55 (12.95)
LOSE	20	57.60 (16.39)	57.40 (15.46)	59.30 (11.84)

NOTE: EACH PRACTICE PERIOD = 5 MIN.


MEAN EXPECTANCY RATING
14
13
12
11
10
WIN
LOSE
1
2
3
TRIAL


MEAN NUMBER OF PRACTICE TROWS
60
59
58
57
56
55
54
53
52
51
50
LOSE
WIN
1
2
3
TRIAL