

AN OBJECTIVE STUDY OF THE EFFECTS OF
EXPECTATION ON COMPETITIVE
PERFORMANCE*

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A. INTRODUCTION

One of the most crucial aspects of human behavior pertains to its energization. Because human beings are alive and functioning, psychologists are compelled to deal with questions about (a) the assumed *sources* of the energy involved and (b) the *direction* in which this energy is channeled as it is expended. Some of the effects of motives and attitudes on behavior have been studied systematically by such outstanding investigators as Festinger (3), Hull (4), McClelland *et al.* (6), Miller and Dollard (7), Rotter (8), Skinner (10), and Spence (11).

More recently, the effects of expectation on performance have been studied intensively. Ellis and Sermat (2) studied motivational determinants of choice behavior in two-person games. Diggory *et al.* (1) found substantial correlations between expectations of success and muscle-action potentials. Korman (5) studied the effects of subject expectation on performance of creative tasks, such as listing as many uses as possible for a brick. He concluded that "Social evaluations of one's competence for a task . . . appear to become internalized by the individual in such a manner as to affect his performance for the task."

The purpose of this experiment was to study the effects of expectation and physical strength on outcomes in a competitive situation. This paper describes a direct method of measuring actual arm strength so that competitive situations—particularly arm wrestling contests—can be studied objectively.

There are several possible contests between Ss of different expectation and actual arm strengths. For example, it is possible to match a contestant who is actually stronger and expects to win with an opponent who is actually weaker and expects to lose. The obvious outcome—the stronger man winning and the weaker man losing—would not be surprising or informational.

On the other hand, since expectation and actual strength predict opposite outcomes in this experiment, the effects of expectation on competitive per-

* Received in the Editorial Office on January 24, 1972, and published immediately at Provincetown, Massachusetts. Copyright by The Journal Press,

formance can be studied meaningfully. It was predicted that where actual strength differences were reasonably small, the weaker man would win if both he and his opponent thought him the stronger of the two.

B. METHOD

1. *Task and Apparatus*

The basic task of this experiment was to measure actual arm strength of *Ss*, record judged arm strengths, and then pit selected *Ss* in arm wrestling contests in which both contestants thought the weaker of the two to be the stronger of the two.

The apparatus for measuring arm strength was designed specifically for this arm wrestling experiment. The apparatus consists of a hand grip and rope and pulley system which allows the rope to pass freely over the edge of a table. An open-sided elevator-type container was designed to hold 15 five-pound weights which could easily be inserted into the container while suspended from one end of the rope.

In order to have arm strength measured, *S* would lean across the table, right arm in a simulated arm wrestling position, forearm vertical. The right hand then grasped the hand grip which was attached to the rope that held the container six inches above the floor. Each *S* was instructed to hold the container off the floor as long as possible while weights were added to the container. The number of weights in the container when it touched the floor was recorded as *S's strength factor*.

2. *Subjects*

The *Ss* were 32 male undergraduate students enrolled in Social Psychology at Villanova University. All of the *Ss* were in the same section, and the experiment was undertaken near the end of the semester when ample opportunity to meet each other had been provided.

3. *Procedure*

As each *S* came to class on the day of the experiment, his strength factor was measured by means of the special apparatus. The *Ss* were not told their strength factors and were not allowed to watch each other being measured. Next, each *S* was given a sheet of paper upon which he was instructed to list his peers according to whether he thought they did better or worse on the strength measurement tests.

After listings were completed, the *Ss* engaged in the usual class activity while the experimenter made pairings for arm wrestling bouts. The partici-

pants were not told that they were going to arm wrestle, and they were not given the opportunity to discuss the experiment while bouts were being arranged.

Using the actual strength factors measured and the listings by the 32 participants, the experimenter was able to arrange 12 pairings to suit the situation where both contestants thought the weaker of the two to be the stronger.

The arm wrestling contests that were conducted are presented in Table 1.

C. RESULTS

Following Siegel (9), a sign test was used to analyze the results. Table D (p. 250) shows that for $N = 12$, an $x \leq 2$ has a one-tailed probability of occurrence under H_0 of $p = .019$.

Thus, in this experiment, statistically significant results were found ($p < .05$). Table 1 shows that 10 out of the 12 contests were won by the contestant with the lower strength factor.

D. DISCUSSION

The results of this experiment indicate that expectation of winning can have a greater influence than an actual moderate strength handicap. However, each outcome was also conditional on the stronger opponent expecting to lose.

In the two cases where the stronger opponent won, other factors (such as greater experience in hand wrestling) may have been operating. In general, however, it seems safe to conclude that in competitive situations, all other

TABLE 1
ARM WRESTLING CONTESTS WITH WINNERS SHOWN

Contest	Strength factors	Expected	Winner	Actual
<i>S1 vs. S2</i>	7 vs. 6	<i>S2</i>		<i>S2</i>
<i>S3 vs. S4</i>	10 vs. 9	<i>S4</i>		<i>S3^a</i>
<i>S5 vs. S6</i>	9 vs. 8	<i>S6</i>		<i>S6</i>
<i>S7 vs. S8</i>	8 vs. 7	<i>S8</i>		<i>S8</i>
<i>S9 vs. S10</i>	7 vs. 6	<i>S10</i>		<i>S10</i>
<i>S11 vs. S12</i>	7 vs. 6	<i>S12</i>		<i>S11^a</i>
<i>S13 vs. S14</i>	6 vs. 5	<i>S14</i>		<i>S14</i>
<i>S15 vs. S16</i>	6 vs. 5	<i>S16</i>		<i>S16</i>
<i>S17 vs. S18</i>	11 vs. 10	<i>S18</i>		<i>S18</i>
<i>S19 vs. S20</i>	5 vs. 4	<i>S20</i>		<i>S20</i>
<i>S21 vs. S22</i>	12 vs. 11	<i>S22</i>		<i>S22</i>
<i>S23 vs. S24</i>	8 vs. 7	<i>S24</i>		<i>S24</i>

^a Contrary to expectation.

material things being equal as far as we know, a positive attitude towards winning seems to be a crucial factor.

E. SUMMARY

Actual arm strength of male college students was measured by use of special apparatus designed to measure arm (wrestling) strength. Following the measurement, each *S* judged his peers as either stronger or weaker than himself according to how well he thought they did in the strength measurement tests. None of the *Ss* was informed of the actual strength measurements or told the real purpose of the experiment. Next, selected *Ss* engaged in arm wrestling contests. In support of the experimental hypothesis, contest results were more closely related to expected strength than to actual strength. In other words, in a contest between *S*1 and *S*2, where *S*1 was measured stronger than *S*2, but both contestants thought *S*2 was stronger, *S*2 had a significantly higher probability of winning.

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