

Motivation and Performance: Two Consequences of Winning and Losing in Competition

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The present study examined the effects of competitive outcome—either a win or a loss—on intrinsic motivation. Winning was hypothesized to facilitate both performance and intrinsic motivation. Fifty-four participants, 29 females and 25 males, competed against a same-gender confederate in a puzzle-solving contest. Following the competition, participants' intrinsic motivation was surreptitiously measured by the amount of time spent playing with the puzzle while alone. Results showed that winning facilitated both actual competitive performance and intrinsic motivation relative to losing. The importance of considering the outcome when predicting intrinsic motivation after competition is discussed.

Deci (1975) has defined intrinsically motivated behaviors as those motivated by the underlying need for competence and self-determination. Since that text, researchers have become increasingly willing to accept that continuing interest for an activity is a function of the presence of competence feedback (Arkes, 1978, 1979; Bandura & Schunk, 1981; Rosenfield, Folger, & Adelman, 1980). Bandura's (1982a, 1982b) theory of self-efficacy is exemplary. In Bandura's model, the individual's perception of competence (or "self-efficacy") mediates one's performance attainments and intrinsic motivation. Following the attainment of a goal, intrinsic motivation is enhanced through satisfaction derived from the perception of self-efficacy.

A second interpretation of the cause of intrinsic motivation is the attributional perspective (Lepper, Greene, & Nisbett, 1973), which is based

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on the assumption that people seek out possible explanations for behavior. When a person is aware of an external cause (e.g., a reward), then they "discount" an internal cause (e.g., an interest). If there is no apparent external cause, the person attributes behavior to an internal cause, i.e., to intrinsic motivation. Similarly, cognitive dissonance theorists (e.g., Wicklund & Brehm, 1976) utilize a "cognitive distortion" process to explain diminished interest. The external cause, such as a reward, creates an inequity that is restorable by viewing the activity as less intrinsically interesting than when it is not paired with an external cause.

The attributional interpretation has been questioned by studies showing that even though tangible rewards often lead individuals to "discount" internal interest, verbal rewards do not (Anderson, Manoogian, & Reznick, 1976; Deci, Cascio, & Krusell, 1975; Dollinger & Thelen, 1978). The attributional interpretation appears best suited to the administration of salient, tangible, and superfluous rewards (Lepper & Greene, 1978; Lepper, Sagotsky, Dafoe, & Greene, 1982). The administration of nonsuperfluous social reinforcements, such as verbal rewards, have been demonstrated to be confounded with the transmission of competence information to the individual. Such findings have served to persuade researchers that it is the information acquired from the rewards and not the presence of the reward per se that affects intrinsic motivation (e.g., Ryan, Mims, & Koestner, 1983).

In order to explain why some rewards increase and others decrease a person's intrinsic motivation, Deci (1975, 1980) suggested that all rewards have two potential aspects: (1) Rewards have a controlling aspect that functions to divert one's attention from doing the task for its own sake and toward performing the task to obtain the reward. That is, when a reward is offered for the performance of a task, the reward is controlling to the extent that obtaining the reward is more important than performing the task. (2) Rewards have an informational aspect that functions to provide the person with information about the person's competency at a task. The informational aspect of a reward informs the individual whether he/she is competent or incompetent in those behaviors related to the performance of the task.

In the present study, the focus was on competitive situations. Prior research (e.g., Deci, Betley, Kahle, Abrams, & Porac, 1981) has suggested that intrinsically motivated behaviors are adversely affected by competition. For Deci et al. (1981), the reward of winning was considered to be controlling. In their study, participants in a competitive puzzle-solving task were instructed to try to beat the other person, i.e., offered a controlling reward, and the participants in the noncompetitive situation were instructed to do the best they could at the task. Consistent with exceptions, the

authors found that intrinsically motivated behaviors were suppressed by the competitive instructions.

The present authors agree with Deci et al. (1981) that the initial motivational orientation of competitors who are instructed to try to win is controlling. However, we suggest that not all competitive experiences are alike, and that the outcome of the competition—either a win or a loss—can have a profound effect on intrinsic motivation.

When predicting intrinsic motivation after the competitive win or loss, the effect of the competitively contingent reward on intrinsic motivation depends “on which aspect of the reward is more salient” (Deci et al., 1975, p. 83). Once a competition has ended and the winner and loser have been identified, the informational aspect of the reward, not the controlling aspect, should be salient. If one accepts the argument that winning leads to competence feedback and losing to incompetence feedback, then the effect of competition on intrinsic motivation clearly has been predicted by Deci and Ryan (1980): “Perceiving oneself as competent at an activity will increase one’s intrinsic motivation for the activity; perceiving oneself as incompetent will decrease one’s intrinsic motivation” (p. 61). It follows that the existence of a relationship between competition outcome and type of competence feedback negates the prediction by Deci et al. (1981) that intrinsically motivated behaviors are adversely affected by competitive situations.

One focus of the present study was to determine the effect of the competitive outcome on a competitor’s intrinsic motivation. We assumed that winners receive competence feedback and that losers receive incompetence feedback (Arnold, 1976; Weiner, Russel, & Lerman, 1979). Thus, it was hypothesized that winners in a competitive situation should exhibit more intrinsic motivation toward the task than losers.

The perception of competence at a task is not only operative after the task, i.e., intrinsic motivation; it is also salient *during* the performance of the task (Atkinson, 1983). Rather than affecting one’s attributional processes, the role that competence feedback from competition has on an individual is motivational, i.e., it affects the person’s expectancy of future success. Specifically, competence information serves to increase an individual’s subjective belief that a certain action produces a specific, favorable outcome (Shapira, 1976).

This increase in subjective probability of success has behavioral implications. Through competence feedback, an actor tends to persist at an activity for a longer duration and progresses rapidly in self-determined learning (Bandura & Schunk, 1981), and preexisting interest and abilities are heightened (Bandura, 1982a). Therefore, it would follow that competence feedback during the performance of a task would affect the

actual quality of an individual's performance. Thus, it was hypothesized that participants receiving competence feedback from winning would outperform the participants receiving incompetence feedback from losing.

METHOD

Subjects

Participants were 54 undergraduate students, 29 females and 25 males, enrolled in introductory psychology at Texas Christian University. Each participated as a partial fulfillment of a course requirement. Six participants were deleted from the sample because the confederate they participated with failed to apply appropriately the criteria of winning or losing the competition.

Materials

The puzzle used in the study was a three-dimensional, eight-cubed assembly that can be shaped into a wide variety of forms. Participants were asked to solve five forms of the puzzle. An ink drawing of each of the five solutions was presented simultaneously with a scaled wooden replica of each form of the puzzle.

Procedure

Participants were randomly assigned to one of two groups: competitors who won and competitors who lost. The participant and a same-gender confederate were escorted by a same-gender experimenter to a room that contained a large round table, two puzzles, and two example figures with their associated drawings and blocks.

Each participant was informed that the experiment involved puzzle solving in a competitive situation, and that the object of the task was "to complete the puzzle before the other person." After two example figures were presented, the two participants were informed that five trials would be conducted, two practice and three competitive. A maximum time allotment of 4 and 8 minutes was given for the practice and competitive trials, respectively.

The practice trials allowed the participant to become familiar with the puzzle and to gain the initial impression that participant and confederate were of comparable competence. On the first practice trial, the confederate never completed the puzzle in the allotted 4 minutes; thus, the participant always won the first trial. On the second practice trial, the confederate always won. For the win–lose manipulation, the confederate either won or lost all three competitive trials. When the confederate lost, he or she did not solve any of the three puzzles in the allotted 8 minutes. When the confederate won, he or she solved each puzzle within the 1st minute.

After all five trials were completed, the experimenter requested a private interview with each competitor in order to discuss the personal effects of the competition. The confederate was always selected first and asked to return to the original meeting room with the experimenter. After the two left for the alleged interview, the participant was left alone in the room for 8 minutes. In addition to the puzzles, the experimental room was equipped with a number of distractors, including magazines, a television set, and the experimenter’s behavioral notes. To allow an accurate rating of the participant’s puzzle-playing time, the 8-minute free-choice interval was videotaped through a two-way mirror. When the 8 minutes had elapsed, the experimenter reentered the experimental room and the participant was debriefed.

RESULTS

The measure for intrinsically motivated behavior was the amount of time the participant spent playing with the puzzle while alone. The videotapes were used to allow two scorers independently to measure the number of seconds each participant spent playing with the puzzle. The scorers’ judgments were virtually identical. Means and standard deviations of the puzzle-playing time for each condition are presented in Table I.

The first hypothesis, that winners in a competitive situation would exhibit more intrinsic motivation toward the puzzle than losers, was

Table I. Means and Standard Deviations of Puzzle-Playing Time in Seconds for Competitive Outcome by Gender^a

Gender		Competitive outcome	
		Win	Lose
Females	\bar{X}	248.8	82.1
	<i>SD</i>	(191.9)	(135.3)
Males	\bar{X}	231.3	184.1
	<i>SD</i>	(193.5)	(171.7)

^aThere were 12 participants per cell. Maximum score = 480.

assessed by a 2(win, lose) X 2(male, female) analysis of variance (see Table I for a summary of the data used in the analysis). There was a significant main effect for competitive outcome ($F(1, 44) = 4.12, p < .05$). As calculated from the data in Table I, winners showed more intrinsic motivation than losers. As expected, neither the main effect for gender nor the interaction effect approached significance.

In order to evaluate the second hypothesis, that winners would outperform losers, the competitive performance—the time needed to solve each of the five forms—of the winners was compared with that of the losers. Figure 1 shows the average time needed to solve each trial for both groups. As previously noted, all subjects won the first and lost the second practice trial. Thus, all subjects first experienced competence feedback and then experienced incompetence feedback prior to participation in the three competitive trials. Thus, on the first competitive trial, each competitor, regardless of condition, had similar competent–incompetent experiences. Predictably, the difference between winners and losers on the initial three trials was not significant ($t(46) = 1.02$). However, beginning with the fourth trial, the winners' performance is in response to competence feedback and the losers' to incompetence feedback. The hypothesis of a differential feedback between the competitors is evidenced by the fact that winners displayed a marked tendency to outperform the losers on trials 4 and 5 ($t(46) = 2.99, p < .004$, two-tailed).

DISCUSSION

The present investigation demonstrates the importance of the outcome in a competitive situation through two principal findings. First,

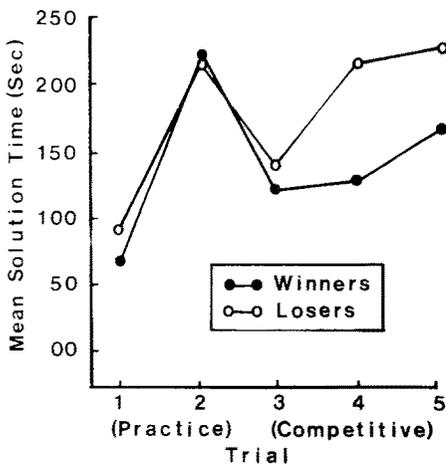


Fig. 1. Mean trial-by-trial performance in seconds for winners and losers on the five puzzle forms.

winning facilitated intrinsic motivation relative to losing. Second, the actual performance of winners was superior to that of losers.

These results do not lend themselves to an attributional interpretation; rather they show that, in competition, the informational aspect of a reward, rather than the reward itself, is responsible for affecting intrinsic motivation. Further, the results do not support an attributional interpretation in that both winners and losers were given an extrinsic reason to participate in the task, i.e., the competition. If people were making attributions to explain their participation, both groups should have made external attributions ("The experimenter asked me to compete") and therefore discounted an internal attribution ("I was interested in the puzzle"). But winners displayed significantly greater intrinsic motivation than did losers. Winners receive a message that they are competent and losers receive a message that they are incompetent; therefore, winning enhances intrinsic motivation relative to losing. Thus, when predicting intrinsic motivation after competition, the results of the current study clearly emphasize the importance of considering the competitive outcome. Also, the finding that winners outperformed losers credits the notion that the competitive experiences of winners and losers are different.

From the results summarized in Table I, it appears that a trend may exist in which gender interacts with competitive outcome. While both males and females showed high levels of intrinsic motivation after winning, the females showed less intrinsic motivation after losing. However, this tendency for a gender interaction has not been found in three other studies that used a very similar methodology (Olson, 1985; Olson, Reeve, & Cole, 1985; Reeve, Olson, & Cole, 1985). In these studies, competitors who won have shown significantly more intrinsic motivation than competitors who lost, irrespective of gender. The conclusion of the present investigation is that in competition, the informational feedback from the outcome of the competition can have a potent effect on both task performance and intrinsic motivation.

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