

## When Trying To Win: Competition and Intrinsic Motivation

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*Males and females solved interesting puzzles in the presence of a same-sex confederate who posed as a second subject doing the same activity. Half the subjects were instructed to compete against each other (i.e., to try to solve the puzzles faster than the other person) while half were simply instructed to work as quickly as they could so as to finish in the allotted time. The results showed a significant main effect in which competition decreased intrinsic motivation. This was particularly true for females.*

Competition lies at the heart of many leisure and sporting events, it is present in much of our day-to-day work life, and it is often built into educational programs. It is widely believed to be an important motivation in play, work, and education. As such, one might immediately think of it as being integrally related to intrinsic motivation, for it seems to foster involvement and generate excitement.

Intrinsic motivation is generally distinguished from extrinsic motivation on the basis of the reward that is associated with the activity. The reward for intrinsically motivated behavior is the feeling of competence and self-determination that is associated with the behavior. The reward for extrinsically motivated behavior is something that is separate from and follows the behavior. With competitive activities, the reward is typically "winning" (that is, beating the other person or the other team), so the reward is actually extrinsic to the activity itself.

**AUTHORS' NOTE:** This research was supported by research grant MH 28600 from the National Institute of Mental Health to the first author. We would like to thank the following people who served as experimental accomplices: Peter Blanc, Richard Brown, Kurt Geisner, Paul Grzymkowski, Nina Hajda, Merrilee McMillen, and Randi Weizner. Joseph Porac is now at the University of Illinois at Urbana-Champaign. Requests for reprints should be sent to Edward L. Deci, Department of Psychology, University of Rochester, Rochester, NY 14627.

Competition is a special type of extrinsic activity, for it often necessitates being competent and effective, and one can measure one's competence by competing with another. Yet we suggest that when one focuses on the goal of winning rather than on the process of doing the activity well, the behavior is extrinsically motivated. This is so even for sporting activities where winning is said to be "endogenous" to the game.

As with all extrinsic rewards, controls, or structures, competition has both a controlling aspect and an informational aspect (Deci, 1975). Trying to win can be quite controlling and is often pursued "at all costs", on the other hand, competing also provides competence feedback and is therefore informational. Our hypothesis is that when people operate with the goal of trying to win, the controlling aspect of competition becomes more salient than the informational aspect and will, like other controlling extrinsic rewards and structures, tend to decrease people's intrinsic motivation.

The hypothesis has some indirect support from the work of Spence and Helmreich (1978), who distinguished "mastery" from "competitiveness" as separate components of achievement. It also seems consistent with the conclusions of other researchers who have reported that competition tends to cause mutual mistrust (Kelley & Thibaut, 1969), impair performance and heighten emotionality (Deusch, 1969), and produce aggression (Berkowitz, 1962).

Of course, competition can also improve performance and enhance motivation, but we assert that the motivation is extrinsic rather than intrinsic, and we hypothesize that in general the controlling aspect of competition will tend to undermine intrinsic motivation for the activity itself.

### METHOD

This experiment explored the effects of competition on the intrinsic motivation of males and females. Subjects solved the same puzzles. Subjects were instructed either to try to win—in other words, to try to complete the puzzles faster than the other person—or simply to try to work quickly so as to complete the puzzles as soon as possible. The former instructions requested explicit competition against the other "subject" (who was in fact an experimental accomplice), whereas the latter instructions simply requested that each subject do his or her best.

Subjects were 40 male and 40 female undergraduates. Each was run individually in the presence of an experimental accomplice, so subjects believed they were being run in pairs.

There were three parts to the experiment. During the first part, subjects worked on a mechanical, spatial relations puzzle called Soma, in which subjects attempted to construct with the puzzle pieces reproductions of drawings. The second part consisted of about 10 minutes in which the actual subject was alone in the room being surreptitiously observed. Finally, the subject completed a questionnaire and was debriefed.

TABLE 1  
Means for Intrinsic Motivation, Free-choice Scores for  
Male and Female Subjects in the Competition and  
No-competition Conditions<sup>a</sup>

	Competition	No-competition
Males	105.2	143.1
Females	55.9	170.8

a. There were 20 subjects per cell.

In all four conditions (male versus female, crossed with competition versus no-competition), subjects (actually a subject and a confederate) were told that they would each have an identical set of materials. Each had puzzle pieces and two stacks of configuration drawings. One of the stacks in front of each contained the three configurations upon which it was said that subjects' puzzle-solving performance would be studied. The other stack in front of each subject contained two practice configurations and two impossible configurations, the latter being relevant for the dependent measure.

Subjects were told that they would work on two practice puzzles followed by three "actual" puzzles. Subjects were given four minutes to work on each practice puzzle, both of which were easier than the three actual puzzles. On the first of the two, the confederate always allowed the subject to finish the puzzle first. On the second, the confederate always finished first. This was possible because the confederates had overlearned the solutions so they could solve them in a few seconds when it seemed appropriate. This design of allowing each to finish first on one practice puzzle was used to create a sense of equality and involvement. Following the practice puzzles, subjects worked on the other three puzzles in turn. They were allowed 10 minutes for each, and on all three the confederate allowed the subject to finish first. If a subject was unable to complete a puzzle in the allotted time, the confederate failed as well.

### Dependent Measure

Following this puzzle solving, the experimenter told the subjects that they were finished with all the puzzle solving. He then said he would like each subject to complete a short questionnaire and that he would like to interview each of them separately. He said he would take the person closest to the door first (who, by design, was the confederate) and interview that subject in a different room. Then, he would return to interview the other. This created a circumstance in which the actual subject was alone in the experimental room for a period of eight minutes with no prescribed task, since that was crucial for obtaining the dependent measure.

The dependent measure of intrinsic motivation was the number of seconds, out of the 480 seconds of free-choice time, that the subjects spent working with

the puzzles. The two puzzles which were initially in the pile with the practice puzzles were available so the subjects would have new puzzles to work on if they chose to. These were, however, insoluble, thereby precluding the possibility that a subject would finish a puzzle and have that be a factor in whether he or she continued.

After the subject had been alone for eight minutes, the first experimenter returned to the room and asked the subject to complete a short questionnaire. It contained two target questions, "How interesting did you find this puzzle solving?" and "How skillful did you perceive yourself to be?" both to be answered on a Likert-type scale from 1 to 7. The reason for asking these questions was that past research utilizing this general paradigm (cf. Deci, 1975) has always yielded very large within-cell variances on the dependent measure, presumably reflecting large individual differences in people's motivation for this activity. These questions were designed as covariates in hopes of reducing the error variance. While it is true that the questions were answered after the experimental treatment and therefore might be influenced by it, one might reasonably expect the largest share of the variance in people's responses to the questions to be a reflection of their enduring interest and ability rather than the modification in each caused by the manipulation. Further, if they were affected by the treatment in the same way as the dependent measure, they would wash out rather than amplify a difference in the dependent measure caused by the experimental treatment. After the subjects completed the questionnaire, they were debriefed.

## RESULTS

The means for the free-choice measure of intrinsic motivation appear in Table 1. The data were subjected to an analysis of variance and two analyses of covariance, one with rated interest as the covariate and the other with perceived skill as the covariate. As can be seen from the table, subjects who were instructed to compete were less intrinsically motivated than subjects who worked in the presence of the confederate. The analysis of variance showed a significant main effect for competition ( $F = 5.056, p < .03$  for interest;  $F = 4.092, p < .05$  for skill). The detrimental effects of explicit competition on intrinsic motivation appear more pronounced for females than males; however, the interaction of sex and competition did not approach significance.

## DISCUSSION

The results of this experiment support the point of view that trying to win—trying to beat another party—is extrinsic in nature and tends to decrease people's intrinsic motivation for the target activity. It appears that when people are instructed to compete at an activity, they begin to see that activity as an instrument for winning rather than an activity which is mastery-oriented and rewarding in its own right. Thus, competition seems to work like many other

extrinsic rewards in that, under certain circumstances, it tends to be perceived as controlling and tends to decrease intrinsic motivation (cf. Deci & Ryan, 1980). This does not mean that competition does not motivate, and it does not discredit competition. It simply helps to clarify the nature of the motivational processes which are involved with competition.

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