

Ego-Involved Persistence: When Free-Choice Behavior Is Not Intrinsically Motivated¹

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Experiments on factors affecting intrinsic motivation have generally inferred intrinsic motivation from subjects' engagement in a target activity during a "free-choice period" when external contingencies are no longer operative. However, internally controlling regulation is a form of internal motivation that is very different from intrinsic motivation and can underlie free-choice-period activity. This paper presents three experiments concerned with differentiating internally controlling from intrinsically motivated persistence in situations where ego-involved vs. task-involved subjects had received positive vs. nonconfirming (or no) performance feedback. The first experiment showed that ego-involved (relative to task-involved) subjects displayed less free-choice persistence when they received positive feedback, whereas the second experiment showed that ego-involved (relative to task-involved) subjects displayed more free-choice persistence when they received nonconfirming feedback. In both experiments, however, it was shown that ego-involved subjects did not report the expected affective correlates of intrinsic motivation—namely, interest/enjoyment and perceived choice—whereas

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task-involved subjects did. In the third experiment, as predicted, ego-involved subjects tended to show less free-choice persistence than task-involved subjects when they received positive performance feedback but greater free-choice persistence when they received no performance feedback. The problem of distinguishing intrinsically motivated activity from internally controlled behavior is discussed.

The concept of ego involvement has been prominent in social psychology for several decades (e.g., Sherif & Cantril, 1947). deCharms (1968) defined ego involvement as a state in which a person's self-esteem is hinged upon attaining a specified performance outcome, and Nicholls (1984) defined it as a self-evaluative state where a person's goal is to demonstrate high competence relative to others and where mastery of the task is only a means to that end. Both authors thus highlighted the difference between the pressured, self-evaluative state of ego involvement and the less self-evaluative state of task involvement in which the person's concern is to learn and mastery is an end in itself.

Greenwald (1982) pointed out that the term *ego involvement* has been used in three different ways: The first describes threats to esteem by others; the second describes threats to self-esteem; and the third describes personal importance. In other words, people's ego involvement in an activity can mean that others are evaluating them on the basis of the outcome, that their self-esteem is contingent on the outcome, or that the outcome has relevance to a central aspect of their value structure. Because it is quite possible that these types of ego involvement have different consequences, it is important that they be distinguished. The second type of ego involvement is the type to which deCharms and Nicholls, as well as Ryan (1982), were referring, and it is that type on which we will focus in this paper.³

Ego involvement entails a means-ends orientation toward an activity that serves, in the words of deCharms (1968), to put people "on trial" with themselves. This orientation induces pressure to perform in particular ways, which led Ryan (1982) to hypothesize that ego involvement could undermine intrinsic motivation. His reasoning represented an extension of cog-

³The concept of ego involvement, when used to describe people's pressuring themselves to behave, can refer to any dynamic in which a self-esteem-relevant contingency creates pressures to behave in a particular way. For example, a man could be ego-involved in being "macho" (i.e., in demonstrating his masculinity), or a person could be ego-involved in being "refined" (i.e., in behaving in a sophisticated, though understated, manner). In this article, we explore the issue of being ego-involved in seeing oneself as intelligent (i.e., in performing up to a high standard), not because that defines ego involvement but rather because it is a relatively easy type of ego involvement to elicit in undergraduate subjects at competitive universities in our highly achievement-oriented society.

nitive evaluation theory (Deci & Ryan, 1980), which had posited that external events can diminish intrinsic motivation by pressuring and controlling people and thus decreasing their feelings of self-determination (e.g., Deci, 1972; Lepper & Green, 1975). Ryan (1982) was proposing that intrapsychic events, like external events, can be *controlling*, and to the extent that they are they will undermine intrinsic motivation. The term "internally controlling" refers to internal events or regulatory processes that control people—in other words, to events or processes that pressure them to perform in specific ways. The contingent-self-esteem type of ego involvement is an example of an internally controlling state.

In Ryan's (1982) experiment, some subjects were introduced to an interesting hidden-figure puzzle in a manner that was designed to induce ego involvement (viz., they were told that the task was "a test of creative intelligence"), while others were introduced to it in a manner that fostered task involvement (specifically, there was no mention of the task's reflecting intelligence). All subjects received positive feedback about their performance, and in a subsequent free-choice period, subjects in the ego-involvement condition displayed less intrinsic motivation for the puzzles (i.e., less free-choice-period persistence) than did subjects in the task-involvement condition.

One presumes that in task-involvement as well as the ego-involvement condition of the Ryan experiment subjects were desirous of performing well; indeed, the need to feel competent is often implicated in descriptions of being intrinsically motivated or task-involved (e.g., Deci, 1975; Nicholls, 1984; White, 1959). The point, however, is that when a subject's orientation toward a task shifts from being interested in performing well to feeling that he or she *has to* perform well in order to preserve self-worth, the nature of the motivation to do well has changed. The Ryan (1982) experiment demonstrated that being more instrumentally oriented (i.e., being ego-involved) decreased subjects' intrinsic motivation for the activity relative to being more mastery-oriented (i.e., being task-involved).⁴

A number of studies using the free-choice paradigm have replicated and extended the Ryan (1982) finding that ego involvement (relative to task involvement) significantly undermines intrinsic motivation (e.g., Butler,

⁴Experiments on achievement motivation (McClelland, Atkinson, Clark, & Lowell, 1953) have typically elicited that motivational state by using "ego-involving inductions." As we have suggested elsewhere (e.g., Deci & Ryan, 1985b), however, achievement motivation can take the form either of intrinsic motivation or of internally controlling motivation. People can be strongly achievement-motivated (i.e., have a strong desire to match an internal standard of excellence) either because of the intrinsic satisfaction of performing the tasks well or because of a self-worth contingency. When intelligence cues are emphasized, as they often were in the achievement-motivation experiments, it is likely that the achievement motivation elicited was internally controlling.

1987; Koestner, Zuckerman, & Koestner, 1987; Koestner, Zuckerman, & Olsson, 1990; Plant & Ryan, 1985). Thus, it seems quite clear that when subjects become ego-involved in an activity they are likely to lose intrinsic motivation for the task, though of course they will be highly instrumentally motivated to preserve self-worth.

There is one set of studies that has related ego involvement to intrinsic motivation where the results appear to be different from those just reviewed. Harackiewicz and Manderlink (1984), Sansone (1986), and Harackiewicz, Abrahams, and Wageman (1987) have not found ego involvement to be detrimental to intrinsic motivation. However, these investigators conceived of ego involvement in terms similar to Greenwald's (1982) personal-valuing definition rather than the contingent self-esteem definition. Thus, as Sansone (1986) pointed out, they have used a less "threatening" manipulation of ego involvement, so the process of pressuring oneself, of being internally controlling, was less likely to have occurred.

Ego Involvement and Performance Feedback

As mentioned, in the Ryan (1982) study all subjects were given positive feedback about their performance. The reasoning was that if subjects are ego-involved in an activity they will be motivated to prove their competence (and thus their self-worth), so positive feedback will *confirm* their competence and thus provide the sought-after outcome. This will leave them with no motivation to engage the task further: Their intrinsic motivation will have been undermined by the pressure to perform and they will have no instrumental motivation because they will have achieved their goal.

This raises an interesting question, however, about what might happen if subjects were not given feedback or were given nonconfirming feedback such as, "Your performance was about average." They might persist at the activity in an attempt to observe improvement in their performance and thus get a kind of self-administered positive feedback that could help preserve self-esteem. Should this occur, however it would create a problem for the standard free-choice paradigm (Deci, 1972), because subjects would be persisting at the activity during the free-choice period without being intrinsically motivated. Their persistence would be ego-involved (i.e., internally controlled) rather than intrinsically motivated, but it would be coded as intrinsic motivation.

A recent study by Anderson and Rodin (1989) provides some indirect evidence for our conjecture that nonconfirming feedback (they called it "mild negative feedback") in ego-involving situations may lead to internally controlling persistence in a subsequent free-choice period. Those

investigators used a controlling induction for two groups of subjects. Specifically, the subjects were told that they would be evaluated so they should do their best. Later, one group of subjects was given positive feedback (they were told their performance was at the 95th percentile for Yale students) while the other group was given nonconfirming feedback (they were told their performance was at the 55th percentile for Yale students). Results indicated that subjects who got the nonconfirming feedback persisted more in a subsequent free-choice period than did subjects who got positive feedback, but the mood of the nonconfirming-feedback subjects was more negative than that of the positive-feedback subjects. This suggests that the free-choice-period persistence of the nonconfirming-feedback subjects may not have been intrinsically motivated, for one would expect intrinsically motivated persistence to be accompanied by a positive mood.

An example of free-choice persistence that probably does not reflect intrinsic motivation and that leads to implausible interpretations when viewed as such can be seen in a study by Baumeister and Tice (1985). In it, high- and low-self-esteem subjects were given either positive feedback or "humiliating" negative feedback about their performance on anagrams. The highest level of persistence during a subsequent free-choice period was for the low-self-esteem subjects who had received humiliating negative feedback. That group was said to be the most intrinsically motivated, yet it seems unlikely that these subjects were experiencing the genuine interest, enjoyment, and excitement that phenomenologically define intrinsic motivation. Instead, we suggest that their persistence more probably resulted from internal pressures to salvage some feelings of self-worth.

The three experiments presented in this paper have two aims. First, they explore the effects of positive feedback and nonconfirming (or no) feedback on the free-choice persistence of ego-involved vs. task-involved subjects. Second, they attempt to distinguish intrinsically motivated persistence from internally controlled persistence.

Intrinsic Motivation and Internal Control

Intrinsically motivated activities are ones that people do out of interest when they feel free to do so (Deci & Ryan, 1985b). Accordingly, when intrinsically motivated, people should feel both interest/enjoyment and perceived choice. Internally controlled behaviors, in contrast, are ones people do because they feel internal pressure to achieve some standard or outcome (Ryan, 1982). As such, these behaviors are less likely to be accompanied by either interest/enjoyment or perceived choice. It would seem reasonable,

therefore, to differentiate between intrinsically motivated and internally controlled persistence by determining the strength of the positive correlation between free-choice behavior and self-reports of interest/enjoyment and perceived choice. The stronger the correlation, the more likely the behavior is intrinsically motivated, whereas the weaker (or more negative) the correlation, the more likely the behavior is internally controlled.

We hypothesized that in conditions of task involvement there would be significantly more positive correlations between free-choice behavior and self-reports of both interest/enjoyment and perceived choice, whereas in conditions of ego involvement there would be less positive or no correlations between free-choice behavior and reports of both interest/enjoyment and perceived choice. In all three experiments to be reported in this paper, subjects' interest/enjoyment and perceived choice were measured so this hypothesis could be tested.

Interest/enjoyment and perceived choice were also used as manipulation checks. Our expectation was that interest/enjoyment and perceived choice would be affected by the ego- vs. task-involvement manipulations in all three experiments. Finally, we measured perceived competence in Experiment 3 so it could be used as a manipulation check of the feedback manipulations.

EXPERIMENT 1

This study was conducted to replicate previous studies showing that ego-involved subjects who receive positive feedback display less subsequent free-choice persistence than task-involved subjects who receive positive feedback and also to explore the nature of the free-choice persistence of the two involvement groups by examining correlates of that persistence. In addition, we included an external control condition to demonstrate the parallels between external control (e.g., surveillance) and internal control (e.g., ego involvement). Thus, there were three conditions in the experiment: a task-involvement condition, an ego-involvement condition, and a condition in which subjects were given ego-involving instructions and also worked under the surveillance of a video camera (Carver & Scheier, 1981; Plant & Ryan, 1985).

Instructions were presented by a tape recorder so as to decrease interaction between the experimenter and subject, thus minimizing interpersonal (rather than intrapsychic) influences. Only the video-camera condition had a substantial interpersonal component. Insofar as the ego-involvement/no-video and the ego-involvement/video conditions both undermine intrinsic motivation and do not differ from each other, there would

be evidence that this type of ego involvement is an internally controlling process and can negatively affect intrinsic motivation just as interpersonal (i.e., external) control can.

Method

Subjects. Subjects were 48 introductory psychology students who participated in partial fulfillment of a course requirement. Equal numbers of each sex were randomly assigned to each experimental condition.

Procedure. Subjects were told that they would be working on several puzzles during the course of the experiment, and they were then given a practice hidden-figures puzzle to familiarize themselves with the task. The hidden-figure puzzles were cartoon-like drawings by Al Hirschfeld in which the name NINA was embedded several times, and subjects circled each NINA they found. Previous studies have employed these puzzles and have found subjects to have a high level of intrinsic interest for the activity (e.g., Harackiewicz, 1979; Koestner *et al.*, 1987, 1990; Plant & Ryan, 1985; Ryan, Mims, & Koestner, 1983).

Following the introductory period, the experimenter explained that the remainder of the puzzle-solving session would be conducted by a tape recorder, so the experimenter said that he would be leaving and that the subject could then turn on the tape recorder for instructions about how to proceed. In the video condition only, just before leaving the room the experimenter walked to the corner of the room, removed the lens cap, turned on the machine, and mentioned that the session would be recorded.

When the audiotape was activated, the instructions told the subjects that they would be working on three more puzzles and that they would be allowed 2 min for each. Following each puzzle they would compare the number of NINAs they found to the average found by other subjects. Subjects recorded the number they found on each puzzle next to the average for that puzzle. These reported "averages" were substantially lowered, so it was virtually certain that all subjects would perform well above average on all three puzzles.

Involvement Induction. After completing the practice puzzle and just prior to beginning the three actual puzzles, subjects received a description of the activity from the tape-recorded voice. One-third of the subjects received a task-involving induction and two-thirds (the internally controlling group and video-camera group) received an ego-involving induction. The ego-involving induction described the activity as a test of creative intelligence, often used as a component of IQ tests, which requires the capacity to break down and reorganize a perceptual field. Task involvement was

created simply by drawing attention to the activity without mentioning its relationship to creative intelligence. Each of the descriptions was of the same length but focused on different aspects of the activity. These inductions are described in more detail by Ryan (1982).

Free-Choice Period. When the subjects finished the third puzzle (and the self-administered positive feedback procedure) the tape told them that the puzzle solving was over and that they could go to the next room where they would find the experimenter. The reason they were sent to the other room was to ensure that all subjects would participate in the free-choice period under the same conditions (i.e., without the video camera). The second room was arranged to give the impression that it was being used as a storage room. Among the items being "stored" were some additional hidden-figure puzzles and several current magazines. When the subject entered the room, the experimenter stood up from the chair by the table and asked the subject to be seated. He said he would go set up the other room for the next subject and get the questionnaire materials that he wanted this subject to complete. Subjects were told that while they waited they were free to do whatever they wanted, including additional hidden-figure puzzles. They were then left alone for a period of 6 min. During this free-choice period the amount of time the subjects spent working on the target activity was surreptitiously recorded by a second experimenter who, unaware of subjects' experimental conditions, observed them through a small opening in the drapes covering a one-way window. This behavioral measure served as the primary dependent variable.

After the free-choice period, subjects completed a questionnaire that was designed to assess their feelings about the task. This questionnaire, which has been used in previous studies (e.g., Ryan, 1982; McCauley, Duncan, & Tammen, 1989), had seven items assessing interest/enjoyment ($\alpha = .86$) and eight items assessing perceived choice ($\alpha = .83$). All items were rated on 7-point scales. Following the completion of the questionnaire, subjects were debriefed and given experimental credit for their participation.

Results and Discussion

Preliminary analyses of variance indicated that there was no main effect or interaction for sex of subject, so all further analyses were collapsed across sex.

Cell means for free-choice behavior appear in Table I. A one-way analysis of variance of free-choice scores yielded a significant main effect, $F(2, 45) = 3.88, p < .03$. A contrast analysis revealed that the two ego-in-

Table I. Means and Standard Deviations (in Parentheses) for Dependent Variables in Experiment 1 by Condition ($n = 16$ per cell)

	Task involvement	Ego involvement	Ego involvement and video camera
Free-choice behavior (in seconds, from 0 to 360)	319 (57.8)	233 (134.8)	225 (110.9)
Interest/enjoyment (rating scale from 1 to 7)	5.5 (0.79)	4.6 (1.15)	5.2 (1.32)
Perceived choice (rating scale from 1 to 7)	6.0 (1.06)	4.4 (1.44)	4.7 (1.46)

volvement conditions led to significantly less free-choice behavior than the task-involvement condition, $F(1, 44) = 7.60, p < .01$, and one can see from Table I that the means for the ego-involving condition and the ego-involving/video-camera condition are virtually identical.

Table I also presents the means for perceived choice and interest/enjoyment. One-way analyses of variance yielded a significant main effect for involvement on perceived choice, $F(2, 45) = 5.17, p < .01$, and a marginal effect on interest/enjoyment, $F(2, 45) = 3.12, p < .06$. Contrast analyses indicated that subjects in the two ego-involved conditions reported significantly less perceived choice and interest/enjoyment than task-involved subjects, $F(1, 44) = 10.13, p < .01$, and $F(1, 44) = 3.89, p < .05$, respectively, thus indicating that the manipulation was successful.

To examine the nature of the free-choice-period persistence, two pairs of zero-order correlations were performed between free-choice behavior and self-reports of interest/enjoyment and perceived choice, one pair for task-involved subjects and one for ego-involved subjects. Subjects in the ego-involving conditions displayed significantly lower correlations between free-choice activity and perceived choice than did subjects in the task-involving condition, $r = -.21$ vs. $r = .59$, z of difference = 2.67, $p < .01$. Further, ego-involved subjects displayed somewhat lower correlations between free-choice behavior and interest/enjoyment than did task-involved subjects, $r = .45$ vs. $r = .70$, z of differences = 1.15, *n.s.*⁵

⁵To assure that the involvement manipulation did not differentially restrict the range of the dependent variables, thus affecting the within-condition correlations between free-choice behavior and self-reports, we also performed partial correlations with the effect of involvement removed. This did not change the results appreciably in any of the three studies. In Experiment 1, for example, the partial correlations between free-choice behavior and interest/enjoyment were $-.22$ and $.59$ for ego-involvement and task-involvement, respectively, and the partial correlations between free-choice behavior and perceived choice were $.38$ and $.70$, respectively. These are very close to the zero-order correlations reported in the text.

The results of Experiment 1 therefore suggest that, when subjects receive positive competence feedback, ego involvement (relative to task involvement) tends to lead to lower levels of perceived choice and interest/enjoyment and to diminish free-choice behavior. The fact that free-choice behavior tended to be less positively correlated with reports of perceived choice and interest/enjoyment for ego-involved subjects than for task-involved subjects further suggests that the free-choice behavior of ego-involved subjects was not fully intrinsically motivated and may have reflected internally controlling motivation.

EXPERIMENT 2

Experiment 2 was designed to further examine the affective correlates of free-choice behavior under conditions of ego involvement vs. task involvement for subjects who received nonconfirming feedback. A different activity was used, subjects were drawn from a different university, and the ego-involvement manipulation focused on social rather than creative intelligence. However, the study included similar dependent measures, namely, free-choice behavior as well as reports of interest/enjoyment and perceived choice. Although most previous studies showed ego-involved subjects to persist less than task-involved subjects, those studies typically included positive feedback. This study included nonconfirming feedback, and the results of the Anderson and Rodin (1989) study discussed earlier would suggest that the ego-involved subjects might persist more because of not having achieved their goal of competence affirmation. As in the first study, we expected that ego-involved subjects would report lower levels of interest/enjoyment and perceived choice than task-involved subjects, and that free-choice persistence would be significantly more correlated with interest/enjoyment and perceived choice in the task-involvement condition than in the ego-involvement condition.

Method

Subjects were 26 male and 28 female undergraduates participating in partial fulfillment of a course requirement. Subjects, run in mixed-sex groups of 3 to 5 people, were seated at desks that had panels attached to the sides so subjects could not see each other. This precaution was taken to ensure that subjects' free-choice behavior was not influenced by observation of others.

Subjects were introduced to a social perception task in either an ego-involving manner or a task-involving manner. The social perception task was designed by Sternberg (1986) and required subjects to examine photos of (a) a romantic couple and determine whether the couple was posed or genuine and (b) two people in a business setting and judge which person was the boss. Veridical feedback was provided on the back of each photo. Prior to performance, subjects in the *ego-involving* condition were told the following:

"This task is a test of social intelligence; it will show how well you are able to see through social situations. This particular form of social intelligence puts people in a better position to influence or manage others. In fact, preliminary research with this instrument suggests that effective leaders generally tend to do better at it."

Subjects in the *task-involving* condition were told:

"This task is a kind of game that you might find interesting. We are trying to get some idea of what people's reactions to it are and how well people can do. It is fairly typical of new types of social perception tasks being designed by psychologists."

Subjects in both conditions were also told they would receive normative performance feedback after completion of the 20 items. This so-called normative feedback was designed to make people believe they had performed about average and thus to be nonconfirming. On completion of the task, all subjects were told that the average performance of previous subjects was 50% and that 70% was very good, and they were then provided with the correct answers to the 20 items so they could score themselves. All subjects had scores below 70% and the average score for the subjects in the study was 57% correct, so on average subjects believed they were slightly above the mean. After receiving the norms and feedback, the *ego-involved* subjects were told, "That should give you some idea of how you stack up against others in terms of this particular form of social intelligence," whereas task-involved subjects were told, "That should give you some idea about your performance."

Dependent Measures. After the normative feedback was delivered, the experimenter explained that "We're running a little late, so that's all of these that I will ask you to do." He then stated he needed a couple of minutes to go and get the last questionnaire. Ten additional photo cards were available on the desk of each subject. There were also copies of recent editions of the student newspaper. The subjects were left alone for 2 min during which time they were observed by an experimental confederate who sat at the back of the group and who had been posing as a subject. The confederate was unaware of experimental hypotheses. Whether or not a subject continued to work on the social-perception task during this free-choice time served as the behavioral measure of intrinsic motivation.

Following the free-choice period, the experimenter returned and administered a brief questionnaire which included two items tapping feelings of interest/enjoyment ($r = .48$) and perceived choice ($r = .68$) while performing the social-intelligence task. Following completion of the postexperimental questionnaire, subjects were asked to comment on the experiment and were then debriefed.

Results and Discussion

All of the dependent measures were subjected to 2×2 analysis of variance, with sex and condition (ego-involving/task-involving) as between-subject factors. Since no main effects or interactions involving sex were found ($p > .20$ for both), subsequent analyses involved t -test comparisons between subjects in the ego-involving and task-involving condition.

Table II presents the results of the t -test comparisons for the three dependent variables. It can be seen that, as expected, subjects in the ego-involving condition reported experiencing significantly less choice while performing the puzzle task ($M = 5.2$) than did subjects in the task-involving condition ($M = 6.2$), $t(54) = 2.56$, $p < .01$, although there were no differences in the interest/enjoyment expressed by the two groups. Subjects in the ego-involving condition were marginally more likely to display free-choice behavior than were task-involved subjects (70% vs. 48%), $t(54) = -1.67$, $p < .10$.

We sought to clarify the meaning of the free-choice results by examining the relation between free-choice scores and the measures of interest/enjoyment and perceived choice. Subjects in the ego-involving condition displayed no agreement between free-choice behavior and reports of interest/enjoy-

Table II. Percentages of Subjects Who Displayed Free-Choice-Period Persistence, as Well as Means and Standard Deviations (in Parentheses) for Self-Report Dependent Variables in Experiment 2 by Condition ($n = 27$ Per Cell)

Variable	Condition	
	Task involvement	Ego involvement
Free choice (% played)	48%	70%
Interest/enjoyment	5.6 (0.85)	5.6 (1.08)
Perceived choice	6.2 (1.15)	5.2 (1.67)

ment, $r = .03$, whereas task-involved subjects showed significant correspondence between their free-choice behavior and expressed interest/enjoyment, $r = .49$. The difference between these two correlations was marginally significant, $z = 1.74$, $p < .10$. A similar, though weaker, pattern of correlations was found for perceived choice and free-choice behavior—ego-involving $r = .04$, task-involving $r = .24$; z of difference = 0.73, n.s.

The results of Experiment 2 indicated that, relative to conditions fostering task involvement, those that promoted ego involvement tended to yield less perceived choice but more free-choice-period behavior. These results, therefore, are in line with those of Anderson and Rodin (1989) and suggest that nonconfirming feedback for ego-involved subjects, relative to task-involved subjects, led to internally controlling persistence.

Experiment 2 is the first of several experiments we have done comparing ego involvement and task involvement (e.g., Koestner *et al.*, 1987; Ryan, 1982) in which ego involvement tended to increase subsequent free-choice persistence, though it is also the first in which nonconfirming feedback was provided. Our interpretation is that persistence in the ego-involved condition was internally controlled and resulted from the nonconfirming feedback. In that condition, subjects who felt anxious about their competence, presumably because of its self-esteem implications, may have persisted to preserve their self-worth.

EXPERIMENT 3

Experiments 1 and 2 provided evidence that free-choice behavior does not always reflect intrinsic motivation among ego-involved subjects. Further, data from Experiment 2 indicated that receiving nonconfirming competence feedback may lead ego-involved subjects to feel internal pressure to continue with the activity during a free-choice period. Building on Experiments 1 and 2, Experiment 3 sought to elicit both intrinsically motivated persistence and internally controlled persistence within the same experiment.

The strategy in Experiment 3 was to cross task-involvement vs. ego-involvement with positive feedback vs. no feedback. In general, we expected the positive-feedback conditions to replicate the results of Experiment 1 and the no-feedback conditions to replicate the results of Experiment 2, thus yielding an interaction between involvement and feedback. Furthermore, within the task-involvement conditions, we expected free-choice persistence to be a reflection of intrinsic motivation (as demonstrated by positive correlations between free-choice behavior and both interest/enjoyment and perceived choice), whereas within the ego-involvement conditions

we expected free-choice behavior to be, at least in part, a reflection of internally controlling regulation (as demonstrated by a lack of positive correlations between free-choice behavior and both interest/enjoyment and perceived choice).

Method

Subjects. Subjects were 43 male introductory psychology students who participated to receive course credit. Subjects were assigned randomly to the four conditions.

Procedure. The experimenter explained the procedure for the target activity which involved subjects' copying geometric figures with their non-dominant hand beneath an apparatus that denied them visual input. This task was selected because, unlike puzzle-solving, subjects get no direct competence feedback from completion of the task. They can see improvement, but they cannot tell if they are doing well. Preliminary work indicated that subjects found the task interesting and challenging.

Subjects completed two practice designs, and then the involvement (ego or task) induction was administered. Prior to subjects' beginning the five actual experimental designs, the experimenter left the room, observed the subject through a one-way window, and communicated over an intercom as the subject completed the task.

Involvement Inductions. Approximately half the subjects were randomly assigned to ego-involvement and half to task-involvement inductions. Ego involvement was created by leading subjects to believe that performance on the task was reflective of their perceptual cognitive functioning and that this was directly related to intelligence and creativity. Task involvement was created by telling subjects that this was a new task that had not yet been used in research and was being piloted for possible future use. The two inductions were roughly equal in length.

Feedback. Upon completion of the third experimental design, subjects in the positive-feedback conditions were told by the experimenter, "You're doing very well on these designs." Then, when a subject had finished all five experimental designs, the experimenter went into the room and collected the designs, saying, "I need a few minutes to look over your designs, but it looks like you've done better than most subjects I've seen so far." Subjects in the no-feedback conditions were simply told, "I need a few minutes to look over your designs," so they did not get any confirming feedback.

Free-Choice Period. All subjects were told that the experimenter would be a few minutes in getting the remaining questionnaires and that they

could continue working on the designs or do whatever they liked until the experimenter returned. Extra designs and recent magazines were left in the room. Just before leaving the room, the experimenter closed a set of drapes over the one-way window. Then, a second experimenter, unaware of the experimental condition, observed the subject through a crack in the drapes of a second one-way window to the side of the subject. The observation period lasted 6 min, and the observer recorded the amount of time that was spent at the design-copying activity. The free-choice-period activity served as the primary dependent measure. After the 6-min, free-choice period, subjects completed a questionnaire containing the same interest/enjoyment and perceived-choice items used in Experiment 1, as well as four items to assess perceived competence ($\alpha = .78$). Following that they were debriefed.

Results and Discussion

The four dependent measures were subjected to 2×2 analyses of variance (Involvement \times Feedback). The free-choice ANOVA revealed a marginally significant Involvement \times Feedback interaction effect, $F(1, 42) = 3.02, p < .10$. As can be seen in Table III, ego-involved subjects who received no feedback displayed more free-choice persistence than those who received positive feedback, whereas task-involved subjects displayed the opposite pattern. The four cell means formed a clear cross-over interaction with fairly large differences between means, although the small cell sizes resulted in the interaction's being only marginally significant. No other results for free-choice persistence approached significance (all $p > .20$). The ANOVA for perceived choice revealed only one effect that even ap-

Table III. Means and Standard Deviations (in Parentheses) for Number of Seconds of Free-Choice Persistence (Range from 0 to 360) and Cell Sizes in Experiment 3 Conditions of Task vs. Ego Involvement Crossed with No Feedback vs. Positive Feedback

	No feedback	Positive feedback
Task involvement	128 (135.0) $n = 10$	201 (150.6) $n = 11$
Ego involvement	236 (111.4) $n = 10$	167 (136.2) $n = 12$

proached a statistical trend, an involvement main effect, $F(1, 42) = 2.02$, $p = .16$. This reflected that ego-involved subjects reported slightly less perceived choice than task-involved subjects ($M = 4.31$ and 4.09 , respectively). There were no effects on interest/enjoyment. For perceived competence, there was a significant main effect for feedback, indicating that those subjects who received positive feedback perceived themselves to be more competent ($M = 4.66$) than those who received no feedback ($M = 3.84$): $F(1, 41) = 8.47$, $p < .01$.

Correlational analyses revealed that ego-involved subjects displayed lower correspondence between free-choice behavior and reports of interest/enjoyment and perceived choice ($r = .22$ and $-.35$) than did task-involved subjects ($r = .76$ and $.29$). The differences in the correlations for the two groups were statistically significant, for free-choice persistence and interest/enjoyment, $z = 2.36$, $p < .01$, and for free-choice persistence and perceived choice, $z = 2.03$, $p < .05$.

The results of Experiment 3 do tend to support the hypothesis that competence feedback moderates the impact of involvement on free-choice persistence. The data also indicate that free-choice activity and reports of interest/enjoyment and perceived choice tend to be more strongly correlated when the free-choice behavior follows an induction that is likely to elicit intrinsic motivation rather than internal control.

GENERAL DISCUSSION

The experimental study of intrinsic motivation has demonstrated that people will engage in activities in the absence of external rewards or controls and that rewards and controls can undermine that engagement (Deci & Ryan, 1987). As this line of research progressed, different types of internal motivations became apparent and the studies presented in this paper were intended to disentangle intrinsically motivated persistence from internally controlling persistence within the standard "free-choice" paradigm (Deci, 1972).

The type of ego-involvement that entails inner pressure to maintain self-worth is a form of internally controlling motivation that is not only different from but even antagonistic to intrinsic motivation (Plant & Ryan, 1985). Its goal and function is to achieve something distinct from the inherent satisfaction of doing the activity, and the self-worth contingency creates substantial internal pressure to perform in a way specified by the standard.

In this research, we have viewed ego involvement vs. task involvement as an internal state that is elicited by contextual cues, although it can also

be viewed as an individual-difference variable. Dweck's (1986) individual-difference concept of performance goals vs. learning goals, for example, is very closely related to that of ego involvement vs. task involvement. The point, simply, is that the contingent-self-worth-type of ego involvement is an internally controlling state that can be evidenced either as a function of individual differences or of situational prompts, and in either case will decrease intrinsic motivation for the target activity. People who tend to be more ego-involved (as an individual difference) may, of course, have been more easily "hooked" by the manipulation whereas those who tend to be less ego-involved may have been resistant to being "hooked," but the significant effects for the ego-involving manipulations in this research suggest that on average the intelligence cues did elicit a significant amount of ego involvement.

In three experiments, employing varied activities and instructions, it was shown that the correlations between free-choice behavior and both interest/enjoyment and perceived choice were consistently lower (or more negative) in conditions eliciting ego involvement than in those eliciting task involvement. Table IV presents a summary of these correlations for the three studies and of the significance levels of differences between the r 's for task- vs. ego-involved subjects. It can be seen that the mean r across the three studies between free-choice persistence and perceived choice was $-.18$ for ego-involved subjects and $.39$ for task-involved subjects. Further, the mean r between free-choice persistence and interest/enjoyment was $.24$

Table IV. Summary of Correlations Between Free-Choice Persistence and Interest/Enjoyment, and Between Free-Choice Persistence and Perceived Choice, Across the Three Studies, and Also the Significance Levels of the Differences Between the Pairs of Correlations for Task- vs. Ego-Involved Subjects in Each Experiment^a

	Study 1	Study 2	Study 3	<i>M</i>
Task involvement	<i>n</i> = 16	<i>n</i> = 27	<i>n</i> = 21	<i>n</i> = 64
Persistence and interest/enjoyment	.70 ^b	.49 ^b	.76 ^b	.66 ^b
Persistence and perceived choice	.59 ^b	.24	.29	.39 ^b
Ego involvement	<i>n</i> = 32	<i>n</i> = 27	<i>n</i> = 22	<i>n</i> = 81
Persistence and interest/enjoyment	.45 ^c	.03	.22	.24 ^c
Persistence and perceived choice	-.21	.04	-.35	-.18 ^c
Significance levels for task vs. ego differences in <i>r</i>				
Persistence and interest/enjoyment	n.s.	.10	.01	.001
Persistence and perceived choice	.01	n.s.	.05	.001

^aNote: Mean correlations were calculated using Fisher *z* transformations. Significance tests for differences in mean correlations were based on the Stouffer method of combining samples.

^b $p < .01$.

^c $p < .05$.

for ego-involved subjects and .66 for task-involved subjects. When the differences in these correlations were combined meta-analytically across studies, using the Stouffer method (Rosenthal, 1978), the results were significant. Combined z for behavior and interest/enjoyment was 3.03 ($p < .001$) and for behavior and perceived choice was 3.14 ($p < .001$). We believe that this supports the view that, although free-choice behavior is a reflection of intrinsic motivation in conditions of task involvement, it is more a reflection of internally controlling regulation in conditions of ego involvement.

The use of behavior/self-report correlations in this way provides continuous variables that, we suggest, reflect the degree of autonomous motivation (e.g., intrinsic motivation) underlying free-choice persistence. Thus, for example, the correlation of .66 between persistence and interest/enjoyment for the task-involved subjects in Experiment 3 suggests that their persistence was more intrinsically motivated than that of the ego-involved subjects for whom the comparable correlation was .22. Similarly, the correlation of .70 between persistence and interest/enjoyment for task-involved subjects in Experiment 1 suggests that they were more intrinsically motivated than the ego-involved subjects, even though the comparable correlation in the ego-involved condition was .45, suggesting that these subjects were somewhat intrinsically motivated. In each case, the fact that the correlations between behavior and perceived choice were also comparably different in the task-involvement vs. ego-involvement conditions further supports this interpretation.

Experiments 2 and 3 help us understand the conditions under which ego-involved subjects will display a high level of internally controlled free-choice persistence. This pattern is likely to occur only when they are relatively uncertain about their level of competence for an activity. When ego-involved, if people are certain that they are competent, they are less likely to engage in the activity during a free-choice period.

We do not claim that the current studies offer a *definitive* empirical means for distinguishing whether free-choice behavior represents intrinsic motivation or internally controlling regulation. However, the use of correlations between behavior and internal states combined with a careful theoretical analysis of the situation may help to distinguish types of internal motivation. Furthermore, these results are consistent with and complement the results of three other recent research projects showing that when people are relatively autonomous (i.e., self-determined) there tends to be a higher level of congruence between free-choice behavior and self-reports of perceived choice and interest/enjoyment than when they are controlled. In a study of internalization, Deci, Eghrari, Patrick, and Leone (1991) found that subjects who internalized regulations under conditions that supported

self-determination showed strong positive correlations between behavior and both perceived choice and interest/enjoyment, whereas these correlations tended to be negative when internalization occurred under conditions that were pressuring and controlling.

Koestner, Bernieri, and Zuckerman (1992) took a different tack on this problem by focusing on individual differences. They separated people into those who tended to be autonomy oriented and those who tended to be control oriented, using the Deci and Ryan (1985a) causality orientations scale. The researchers then found, using the intrinsic-motivation free-choice paradigm, that autonomy-oriented subjects displayed higher consistency between free-choice persistence and self-reported interest/enjoyment than did control-oriented subjects.

Finally, Pelletier (1989) did a study using the free-choice persistence measure in which some subjects worked in an autonomy-supportive context and some in a controlling context. Subsequent to the free-choice period, Pelletier gave subjects a questionnaire asking why they had worked on the task activity during the free-choice period (if they had). Subjects who had been in the autonomy-supportive context responded with significantly higher scores on items related to doing it for pleasure and fun and significantly lower scores on items related to being frustrated and trying to prove something than did subjects who had been in the controlling context. These results, like those that focus on the strength of correlations between persistence and expressed interest/enjoyment, suggest that when people are self-determined (or task-involved) they will persist out of interest in or personal importance of the activity whereas when they are controlled (or ego-involved) they will tend to persist for other reasons, such as proving their self-worth.

For the past two decades, the free-choice persistence measure has been widely used as the primary operationalization of intrinsic motivation. This research, as well as serendipitous findings from previous studies (e.g., Anderson & Rodin, 1989; Baumeister & Tice, 1985), indicates quite clearly that at times free-choice persistence reflects types of internal motivation other than intrinsic motivation. The implication of this for the use of the free-choice paradigm is simply that free-choice persistence should be viewed as a measure of the general construct of *internal* motivation rather than of the specific construct of *intrinsic* motivation. Then, by correlating free-choice persistence with self-reports of perceived choice and interest/enjoyment, one can get an indication of the extent to which the behavior reflects autonomous forms of motivation such as intrinsic motivation vs. internally controlling forms of motivation such as ego involvement. Because any behavior can be a mix of internal motivations, the more strongly the behavior correlates with perceived choice and with interest/enjoyment, the

more it can be said to reflect autonomous forms of motivation. This, then, represents one means of distinguishing among types of internally motivated persistence. Further work that specifies additional means for empirically distinguishing these constructs is nonetheless warranted.

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