Goal Setting, Achievement Orientation, and Intrinsic Motivation: A Mediational Analysis

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This study investigated the interactive effects of achievement orientation and evaluative focus of assigned, task-specific goals on intrinsic motivation for an enjoyable pinball game. Regression analyses revealed that the effect of performance or mastery-focused goals on intrinsic motivation varied as a function of achievement orientation. Specifically, the provision of task-specific standards with a performance focus enhanced intrinsic motivation for achievement-oriented individuals, whereas the assignment of such goals proved deleterious to the intrinsic motivation of those low in achievement orientation. Individuals low in achievement orientation displayed the highest levels of intrinsic motivation when provided with mastery-focused goals. A similar pattern of effects was obtained on competence valuation and task involvement, both of which were additionally validated as mediators of the direct effects on intrinsic motivation.

Educators, coaches, and executives commonly use goal setting as a strategy to motivate task performance. Beginning with the pioneering work of Mace (1935) and Bayton (1943), researchers have repeatedly demonstrated that the external provision of goals for performance (task-specific standards) improves performance (cf. Locke & Latham, 1990; Locke, Shaw, Saari, & Latham, 1981, for reviews). In contrast, research investigating the effects of goal setting on intrinsic motivation—the enjoyment of or interest in an activity for its own sake—has proceeded more slowly and generated a mixed pattern of results (cf. Harackiewicz & Sansone, 1991; Locke & Latham, 1990; Vallerand, Deci, & Ryan, 1985, for reviews). Perhaps the most reliable pattern that emerges from the extant literature is that the provision of specific standards enhances interest in previously uninteresting or routine tasks (Bandura & Schunk, 1981; Bryan & Locke, 1967; Hirst, 1988; Locke & Bryan, 1967; Mossholder, 1980), but the assignment of such goals undermines or, at best, maintains enjoyment of interesting activities (Amabile, DeJong, & Lepper, 1976; S. E. Jackson & Zedeck, 1982; Manderlink & Harackiewicz, 1984; Mossholder, 1980; Phillips & Freedman, 1988; Reader & Dollinger, 1982; Shalley & Oldham, 1985). Given the ubiquity of goal setting in educa-

tional, athletic, and management settings, the finding that this technique may have deleterious effects on continuing interest is of great importance and concern.

When specific goals for performance are suggested or assigned by another person, they represent (by their very nature) external directives or extrinsic impositions on task engagement that should reduce perceptions of autonomy and self-determination (Deci & Ryan, 1985). Goals may be perceived as an extrinsic intrusion, evoke performance anxiety, and interfere with task involvement—factors related to decreased task interest (deCharms, 1968; Deci & Ryan, 1985; Harackiewicz, 1989). However, goals also have the capacity to increase the salience and value of competent performance, instill challenge, promote task involvement, and provide immediate, ongoing competence feedback—factors known to enhance intrinsic motivation (Bandura, 1986; Csikszentmihalyi, 1990; Deci & Ryan, 1985; Harackiewicz, 1989; Sansone & Harackiewicz, in press). It is likely that the complex and potentially antagonistic processes that can be generated by goal setting have produced the mixed empirical yield (Locke & Latham, 1990). A clear understanding of the effects of goals on intrinsic motivation requires a careful consideration of the processes evoked by goal setting.

Potential Mediators of Goal Effects on Intrinsic Motivation

One process through which goals might enhance interest is perceived competence. Goals represent concrete standards for performance evaluation, and the successful attainment of such standards can enhance competence perceptions (Bandura, 1986; Bandura & Cervone, 1983). For example, Bandura and Schunk (1981) found that children attaining proximal goals on a math activity perceived themselves as more competent than children not pursuing goals, and they also demonstrated more interest in the previously unenjoyable task. These data suggest that the negative, controlling effects of goals can be countered and, in fact, overcome by the increased feelings of competence engendered by successful goal attainment.

Whereas perceived competence appears to play a central role in the development of interest, it does not appear to be as critical to the maintenance of established interest. Research by Harackiewicz, Sansone, and colleagues with enjoyable activities (Epstein & Harackiewicz, 1992; Harackiewicz, 1979; Harackiewicz, Sansone, & Manderlink, 1985; Manderlink & Harackiewicz, 1984; Sansone, 1986) has revealed that the successful negotiation of various evaluative constraints (e.g., earning rewards for competent performance) can elevate perceptions of competence without subsequently raising intrinsic motivation. This research suggests that motivational processes other than perceived competence may be more critical determinants of intrinsic motivation once threshold levels of interest have been attained. Specifically, the degree to which individuals value competence and become involved in a task may be more important in maintaining or enhancing interest than perceptions of competence per se (Harackiewicz & Sansone, 1991).

Competence valuation represents the degree to which individuals care about doing well at an activity and reflects an affective commitment to attaining competence. A number of experiments have demonstrated that challenging, external constraints (e.g., competition) can enhance subjects' valuation of competent performance (Epstein & Harackiewicz, 1992; Harackiewicz, Abrahams, & Wageman, 1987; Harackiewicz et al., 1985). Competence valuation, in turn, has been shown to enhance subsequent intrinsic interest, thereby mediating the direct effects of external constraints on intrinsic motivation (Epstein & Harackiewicz, 1992; Harackiewicz & Manderlink, 1984; Sansone, 1989). If goals lead individuals to care more about performing competently at an enjoyable activity, they could promote intrinsic motivation through this competence valuation process.

Task involvement represents the degree to which an individual concentrates on and becomes absorbed in an activity. Evaluative constraints often undermine involvement in enjoyable activities, presumably by distracting the individual from the task (Geen, 1980; Harackiewicz et al., 1987; Kuhl, 1985; Wine, 1971). However, the distracting effects of evaluation can be mitigated by the provision of specific performance standards (Harackiewicz, Manderlink, & Sansone, 1984), suggesting that task-specific goals may not be as detrimental to intrinsic motivation as other evaluative constraints. In fact, Locke and Latham (1990) proposed that goals may actually help individuals remain focused on a task, leading them to discover the pleasurable aspects of the activity. Task involvement has yet to be empirically validated as a mediator of intrinsic motivation, but some studies have found significant positive relationships between task involvement and task interest (Bryan & Locke, 1967; Harackiewicz et al., 1987; Sansone, Sachau, & Weir, 1989).

Competence valuation and task involvement represent two motivational processes through which individuals can become more involved in an activity. Once perceived competence and task interest have been established, it may be the individual's affective commitment to the pursuit of competence at the outset of task engagement (i.e., competence valuation) and absorption during task engagement (task involvement) that have the greatest potential to maintain or enhance subsequent intrinsic motivation. Assigned goals are task-specific challenges coupled with objective criteria for evaluation that enable individuals to concentrate on their performance and monitor progress throughout task engagement. As such, goals may be uniquely suited, relative to other external constraints, to engender both the competence valuation and task involvement processes.

Defining Competence: The Distinction Between Performance and Mastery Goals

Goals possess many important attributes that may moderate their effects on intrinsic motivation through these motivational processes. One attribute that may have a particularly strong impact is the focus of performance evaluation—the manner in which competence is defined and judged. Achievement theorists have differentiated two types of general achievement goals that characterize an individual's purpose for task engagement: performance achievement goals, which focus on the demonstration of ability and define competence normatively, and mastery achievement goals, which focus on the development of skills and abilities and define competence self-referentially (Ames & Archer, 1988; Dweck, 1986). Although this distinction between performance and mastery goals was originally developed in reference to general achievement goals, it is clearly relevant at the level of task-specific goals as well. Task-specific goals can reflect normative standards for performance or they can be based on task characteristics and personal improvement, and these foci may engender different motivational processes. Both performance and mastery goals can make competence salient and desired, thereby facilitating the competence valuation process (Harackiewicz & Elliot, 1993). The effects of task-specific goals on task involvement, on the other hand, may vary as a function of focus. Performance goals can evoke evaluation anxiety and disrupt task involvement, whereas mastery goals may be better able to promote task involvement because they highlight self-referential evaluation and ongoing improvement (Butler, 1992; Dweck, 1985; Nicholls, 1984). Considering these effects together, mastery goals should have the most positive resultant effect on intrinsic motivation.

Examination of the goal-setting literature, however, reveals that nearly all of the task-specific goal manipulations used have been focused on the demonstration of competence relative to others (see Bandura & Schunk, 1981, for an exception). For instance, Manderlink and Harackiewicz's (1984) goal subjects were informed that the performance standards provided by the experimenter represented the 80th percentile score for students at their university. Goal subjects in Mossholder's (1980) experiment were informed that their performance would be compared with other students' results. Thus, the goal-setting literature has, to date, predominantly investigated the effects of performance-focused goals on intrinsic motivation, even though it is mastery goals that appear to hold the most promise for promoting intrinsic interest.

The Moderating Role of Achievement Orientation

To this point, we have discussed the influence of goals on intrinsic motivation as if these relationships constituted unmoderated effects. In accord with the interactionist perspective (Kihlstrom, 1987), however, it seems improbable that goal set-

ting would affect intrinsic motivation in a uniform manner across all classes of individuals. A number of personality variables have been postulated to moderate the effects of goals on performance (e.g., achievement orientation, locus of control, and self-esteem), but the empirical yield has been disappointing (Locke & Latham, 1990). Studies investigating personality variables as moderators of goal effects on intrinsic motivation have been scarce; in fact, we are only aware of a single published study—that conducted by Freedman and Phillips (1989).

On the basis of Strube's (1987) self-appraisal model of Type A behavior, Freedman and Phillips (1989) hypothesized that Type A and B individuals would display differential reactions to goals highlighting competency information, specifically, normative standards for performance. According to Strube, Type As possess a strong desire to acquire diagnostic ability information, whereas Type Bs dislike such competence feedback. Freedman and Phillips found that challenging, norm-based goals lowered task satisfaction for Type Bs relative to Type As.[1] It is interesting that the measure of Type A personality used by the researchers (House, McMichael, Wells, Kaplan, & Landerman, 1979) emphasizes the achievement strivings component of the multidimensional Type A personality construct (items assess the extent to which respondents "thrive on challenging situations" and "are driven to excellence"; see also Helmreich, Spence, & Pred, 1988). Consequently, the observed effect may also bear on the reaction of subjects low in achievement orientation to performance-focused goals.

The present research tested the hypothesis that the effect of performance and mastery-focused goals on intrinsic motivation would be moderated by individual differences in achievement orientation. Achievement-oriented individuals seek diagnostic ability assessment and feedback, place a high value on competent performance, and are motivated to attain high levels of skill in competition with a standard of excellence (Heckhausen, 1968; McClelland, Atkinson, Clark, & Lowell, 1953; Trope, 1975). In contrast, those low in achievement orientation are not characteristically oriented toward competence; rather, they attempt to avoid ability assessment and achievement settings and are more likely to experience performance anxiety in such contexts (Atkinson, 1974; Geen, 1980; Trope, 1975).

Previous research by Harackiewicz and colleagues has revealed that high- and low-achievement-oriented individuals manifest divergent patterns of intrinsic motivation when placed under evaluative constraints (cf. Harackiewicz, 1989). For example, Epstein and Harackiewicz (1992) found that interpersonal competition enhanced enjoyment of an interesting activity for achievement-oriented subjects but undermined enjoyment for those low in achievement orientation. Most relevant to the present research, Harackiewicz and Elliot (1993) recently manipulated performance and mastery achievement goals (by emphasizing performance or mastery in the context of a general communication about the purpose of task engagement) and found that the performance emphasis enhanced interest in an enjoyable activity for achievement-oriented individuals, whereas the mastery emphasis raised intrinsic motivation for subjects low in achievement orientation.

In the current study, we predicted that individuals low in achievement orientation would display the most negative reac-

tions to assigned, task-specific goals with a performance focus, because these goals would disrupt task involvement. In contrast, mastery goals may make competence issues salient in a less threatening context, generate less performance anxiety, and possibly even enhance intrinsic motivation for those low in achievement orientation. Achievement-oriented individuals, on the other hand, should find performance-focused goals less daunting and might even welcome the normative challenge they represent. The provision of an external standard of excellence may be particularly effective in enhancing the value of competent performance for these individuals who characteristically approach any achievement setting with the aim of attaining mastery at the activity (Harackiewicz & Elliot, 1993; Spence & Helmreich, 1983). In contrast, the provision of mastery-focused goals might not raise their competence valuation above characteristic levels, and, therefore, may have minimal impact on their continuing interest.

The Present Research

In summary, faced with the disquieting proposition that the frequently employed technique of goal setting may have deleterious consequences for interest in enjoyable activities, the present research explored the more optimistic, interactionist hypothesis that some types of goals may actually maintain or enhance interest in enjoyable activities for some types of individuals. Specifically, we measured achievement orientation and varied the evaluative focus of task-specific goals, anticipating that low- and high-achievement-oriented subjects would respond differently to the two types of goals, as discussed above.

An additional feature of the present study is our empirical testing of two hypothesized mediators of the effects of goals on intrinsic motivation: competence valuation and task involvement. Researchers often speculate about the processes responsible for observed goal effects (Cellar & Barrett, 1987; Phillips, Freedman, Ivancevich, & Matteson, 1990; Shalley, Oldham, & Porac, 1987), they sometimes measure process variables (e.g., perceived competence; Bandura & Schunk, 1981; Manderlink & Harackiewicz, 1984), and they occasionally call for systematic tests of mediation (e.g., Harackiewicz & Sansone, 1991; Locke & Latham, 1990). However, to our knowledge, no study to date has actually conducted the mediational analyses necessary to empirically validate the hypothesized mediational processes (Judd & Kenny, 1981).

Method

Overview

This experiment was designed to investigate the interactive effects of task-specific goals and achievement orientation on intrinsic motivation for pinball, an activity that university undergraduates find enjoyable. Previous research documented that college students view pinball as a skill game and that they value competence at pinball (Harackiewicz & Elliot, 1993). High- and low-achievement-oriented individuals were

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[1] Freedman and Phillips (1989) also manipulated task interest (boring task vs. interesting task), but the effects on intrinsic motivation were obtained across levels of this variable.

assigned either performance or mastery goals, or given no goals, before playing two games of pinball. Process measures were collected before, at the midpoint, and at the conclusion of task engagement. Experimental control of performance ensured that all subjects attained comparable scores. A behavioral indicator of intrinsic motivation was collected during a free-choice period; a self-report measure of task enjoyment was obtained immediately thereafter.

Subject Selection and Design

Several hundred university undergraduates completed an achievement orientation measure and a series of questions regarding their pinball experience and enjoyment as part of an introductory psychology class survey. Individuals who had never played pinball were deemed ineligible for recruitment. Subjects were randomly selected from the pool of eligible recruits, blocked on achievement orientation, and randomly assigned to one of three experimental conditions: performance goals, mastery goals, or a no-goal control group. The actual numerical goals were identical in the two goal conditions, but the goals were presented in terms of normative standards in the performance goal condition and in terms of skill development and improvement in the mastery goal condition.[2]

A total of 72 subjects, 44 men and 28 women, participated in the experiment 4–12 weeks after the introductory psychology class survey. Subjects received extra credit in return for their participation.

Procedure

The experimental laboratory was set up as a game room containing an assortment of puzzles, toys, and magazines, as well as the Jungle King pinball machine (Gottlieb #B-15163). The experimenter (blind to achievement-orientation level) explained that she or he was part of a research group studying game playing and leisure activities and that the session entailed playing two games of pinball and filling out a few questionnaires about the games. After completing a consent form and a question regarding prior pinball experience, subjects played two warm-up balls to "get a feel for the game."

On completion of the warm-up balls, the experimenter explained that the rest of the instructions for the session were tape recorded for standardization purposes. The experimenter proceeded to consult the prior pinball experience question and provided the subject with a tape and folder of forms that (ostensibly) corresponded to the subject's experience level. The experimenter started the tape recorder and exited the room (thereby remaining blind to experimental condition).

Goal manipulation. The first part of the tape contained the experimental manipulation of goals. Subjects in all three conditions heard the following: "In today's session you will play two games of pinball." Subjects in the two goal conditions were given specific scores to aim for during their two games of pinball. We gave all goal subjects the same absolute standards (29,750 and 31,430 points for Games 1 and 2, respectively), but varied whether the standards were defined in normative or self-referential terms. Subjects assigned performance goals were told the following:

> We'd like you to pursue a performance goal for each game. We have selected these goals on the basis of prior testing of students with your level of pinball experience. So, these goals can give you a good sense of your pinball playing ability. The goals represent the 65th percentile score for students with your level of pinball experience. For the first game, your goal is 29,750 points. Only 35% of students were able to attain this score on their first game of pinball on this machine. Your goal for the second game is 31,430 points.

Mastery goal subjects were instructed as follows:

> We'd like you to pursue a moderately challenging goal for each game. We have selected these goals on the basis of prior testing of this particular pinball machine. These goals have been selected for students with your level of pinball experience. So, these goals can help you develop your skills on this pinball machine and gauge your progress. For the first game, your goal is 29,750 points. For someone with your level of pinball experience, this score represents a moderately challenging goal for this machine. Your goal for the second game is 31,430 points.

All subjects were then instructed to take the "scoring record" from their folder and place it on a clipboard next to the pinball machine. For goal subjects, the point value of both goals was printed on this form to further instantiate the experimental manipulation. Subjects subsequently completed a questionnaire consisting of a manipulation check,[3] as well as items regarding the importance of doing well, their performance expectations, and, for subjects in goal conditions, questions about goal difficulty and attainment expectations. When finished, the subject opened the door to the hallway to inform the experimenter that she or he was done. The experimenter returned to the room and the subject began his or her first game of pinball. Between games, subjects responded to a series of questionnaire items concerning their thoughts during the first game and their current perceptions of competence.

To control performance, the pinball machine had been rewired to enable covert manipulation of the point values of various components of the game. A second experimenter, the "controller" (blind to achievement orientation level and experimental condition), sat in an adjoining room behind a concealed one-way mirror and monitored each ball, manipulating the point values as necessary. Controllers were trained to keep scores approximately 2,000 points above the target values for Game 1 (29,750) and Game 2 (31,430). On completion of each game, subjects recorded their game totals on their scoring record. No subject expressed suspicion about the scoring of the two games.

Feedback. Goal subjects were additionally provided with a feedback form corresponding to their condition. Performance goal subjects read the following:

> Now you can evaluate your ability on this pinball game. By comparing your scores to your goals, you can determine whether your performance matched or surpassed the 65th percentile scores for students at your level of pinball experience.

Mastery goal subjects read the following:

> Now, you can evaluate your level of mastery on this pinball game. By comparing your scores to your goals, you can learn whether you did well and made progress toward mastering this pinball game.

The experimenter then collected the subject's scoring record and feedback form, glanced at his or her watch, and hurriedly announced that she or he would have to leave for a few minutes to check on another subject. Subjects were informed that they could do whatever they desired until the experimenter returned. During this free-choice period, the amount of time subjects played pinball was recorded by the control-

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[2] Pilot testing with 50 undergraduates from the same population indicated that goals set at the 65th percentile were viewed as "moderately challenging," and we therefore defined the mastery goals as moderately challenging goals for our pinball machine and the performance goals as representing 65th percentile scores.

[3] As a check on the experimental manipulation, goal subjects were asked what their goals were (by indicating the point values for their two goals) and what these goals represented. Coding of subjects' open-ended responses revealed that all participants answered both questions correctly and suggest that subjects accepted these goals.

ler. The experimenter returned after 5 min and presented the subject with a final questionnaire consisting of items concerning perceived competence and task enjoyment.

Measures

Achievement orientation and pretest enjoyment. We measured individual differences in achievement orientation and pinball enjoyment 4–12 weeks before the experiment. The 16-item Achievement Orientation subscale of the Personality Research Form (PRF; D. N. Jackson, 1974) was used as a measure of achievement motivation. This scale was developed according to Murray's (1938) theory of needs and was constructed to represent a broad, unitary conceptualization of achievement motivation. For example, Harackiewicz and Elliot (1993) reported moderately strong correlations between the PRF scale and all three of Spence and Helmreich's (1983) achievement subscales (work, mastery, and competitiveness). Numerous empirical investigations have attested to the reliability and validity of this instrument (e.g., Fineman, 1977; Fiske, 1973; Harper, 1975). Subjects' responses to the pretest enjoyment question ("How much do you enjoy playing pinball?"), answered on a 1 (*not at all*) to 7 (*very much*) scale, constituted our baseline measure of pinball enjoyment.

Process and performance measures. Before playing their first game of pinball, all subjects reported their Competence Valuation ("How important is it to you to do well on these games today?") and Anticipated Performance ("How well do you think you will do today?") on 1 to 10 scales. Goal subjects also answered Goal Difficulty ("How challenging are these goals?") and Goal Attainment Expectations ("How likely do you think it is that you will meet these goals?") questions. Between Games 1 and 2, subjects completed a questionnaire that assessed the frequency with which certain thoughts occurred to them as they played their first game. The questionnaire included a Task Involvement index (the average of the items "I thought about keeping the ball in play" and "I thought about things unrelated to the experiment" [reversed]) and a Competence Thoughts index (the average of "I thought about how well I was doing," "I thought about how poorly I was playing" [reversed], and "I thought about how others had done"). Subjects responded on 1 (*never*) to 7 (*often*) scales. These indices have been successfully used in previous research on intrinsic motivation processes (Harackiewicz et al., 1987; Harackiewicz & Elliot, 1993). Subjects also answered a Midgame Perceived Competence item ("How well do you think you did on your first game?") on a 1 (*very poorly*) to 7 (*very well*) scale. A similar Postgame Perceived Competence measure was obtained after Game 2. Actual performance was represented by three separate measures: First Game Total, Second Game Total, and Final Total (the sum of the first two measures).[4]

Intrinsic motivation. Two indicators of intrinsic motivation were used. The behavioral measure consisted of the number of seconds subjects played pinball during the 5-min free-choice period (Time). Subjects' ratings of five items on the final questionnaire (very interesting game, thought it was a waste of time [reversed], enjoyed the game very much, thought it was a boring game [reversed], and fun to play) were combined to form the self-report measure of task enjoyment (Cronbach's α = .83; Enjoyment). Ratings were indicated on 1 (*strongly disagree*) to 7 (*strongly agree*) scales.[5]

Results

Overview

Multiple regression analyses were conducted to investigate the effects of the predictor variables on the behavioral (Time) and self-report (Enjoyment) measures of intrinsic motivation,

as well as the hypothesized mediator variables (Competence Valuation and Task Involvement). The Basic model used in these analyses comprised a pair of orthogonal contrasts (goal: performance or mastery goals 1, no-goal control −2; goal type: performance −1, no-goal control 0, mastery 1), achievement orientation (measured continuously), the interaction product terms involving achievement orientation, and two covariates: the main effect of gender (men −1, women 1) and pretest enjoyment (measured continuously). Thus, the basic model consisted of seven terms: five main effects (all mean deviated) and two interactions (Achievement Orientation × Goal, Achievement Orientation × Goal Type).[6]

We first analyzed the direct effects on intrinsic motivation and process measures and then examined whether these process measures mediated the direct effects on intrinsic motivation. Interpretation of significant interaction effects from the regression analyses was facilitated by the generation of predicted values from the regression equations (using the unstandardized b coefficients for the relevant groups). Contrast codes were used to obtain the predicted values for discrete variables; predicted values were obtained for continuous variables using representative high and low scores (one standard deviation above and below the mean, respectively; Cohen & Cohen, 1983).

Preliminary Analyses

Goal perceptions. To analyze perceptions of goal difficulty, we regressed goal difficulty and goal attainment expectations on a truncated five-term model that included goal type, achievement orientation, the Achievement Orientation × Goal Type interaction, and the two covariates. No effects were significant in either regression, suggesting that the two types of goals were perceived to be of comparable difficulty. We also regressed Anticipated Performance (which we collected from all subjects) on the full seven-term model. A main effect of gender, $F(1, 64)$ = 8.04, $p < .01$, indicated that men had higher performance expectations (M = 6.89) than women (M = 5.89).

Goal attainment and actual performance. Nearly all subjects met or exceeded their assigned goals (91.1% of the goals were successfully attained), indicating satisfactory experimental control of performance. Goal misses were equally distributed across the two goal conditions (four subjects in each of the performance and mastery conditions failed to attain one of their goals). To determine whether there were any systematic differences in actual performance, First Game Total, Second Game Total, and Final Total were regressed on the 7-term basic model, and all three regressions failed to yield significant effects for any variable.

Perceived performance. The Midgame and Postgame Perceived Competence measures were each regressed on the basic

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[4] Because controllers could only adjust the targets that subjects actually hit, there was some variability in the actual scores obtained.

[5] Tests for homogeneity of variance (Cochran's C and Bartlett–Box F) failed to yield any significant differences across Achievement Orientation (dichotomized) × Goal Type cells.

[6] Preliminary analyses failed to reveal any significant higher order interactions involving either of the covariates.

model. In spite of the comparable performance across goal and no-goal conditions, goal subjects reported higher perceptions of competence than no-goal controls at both Midgame, $F(1, 64)$ = 18.62, $p < .001$, and Postgame, $F(1, 64)$ = 3.72, $p < .06$, assessments. A significant Achievement Orientation × Goal interaction, $F(1, 64)$ = 7.68, $p < .01$, indicated that this latter effect was most pronounced for achievement-oriented individuals. Specifically, achievement-oriented subjects thought they had performed better in goal ($\hat{Y}$ = 4.90) than in no-goal conditions ($\hat{Y}$ = 3.21), but for those low in achievement orientation, postgame perceptions of competence did not vary by goal condition ($\hat{Y}$ for goal conditions = 3.87, $\hat{Y}$ for no-goal condition = 4.21).

Direct Effects: From the Predictor Variables to the Outcome Variables

The correlations between Enjoyment and Time did not differ significantly between experimental conditions, and the average within-cell correlation was low ($r = .06$) and nonsignificant. Regressing Enjoyment on the basic model yielded a significant effect for pretest enjoyment, $F(1, 64) = 3.87, p = .05$, such that subjects entering the experiment with a high level of pinball enjoyment reported higher levels of enjoyment at the end of the experiment. A main effect of achievement orientation, $F(1, 64)$ = 5.00, $p < .05$, indicated that achievement-oriented individuals reported greater enjoyment than subjects low in achievement orientation. An Achievement Orientation × Goal Type interaction, $F(1, 64) = 4.41, p < .05$, qualified this achievement orientation main effect. Table 1 displays the predicted values for the interaction. Post hoc probing (Aiken & West, 1991) revealed that individuals low in achievement orientation reported less enjoyment in the performance goal condition than in the mastery goal condition, whereas performance goals enhanced enjoyment relative to mastery goals for achievement-oriented subjects (see Table 1).

The regression of Time on the basic model yielded a significant effect for gender, $F(1, 64) = 6.02, p < .05$, indicating that men played more pinball during the free-choice period (M = 173.93) than women (M = 97.82). The regression also revealed a significant goal type main effect, $F(1, 64)$ = 5.92, $p < .05$, indicating that mastery goal subjects played more pinball during the free-choice period (M = 167.38) than their performance goal counterparts (M = 75.38). The goal main effect was nearly significant, $F(1, 64) = 2.91, p = .09$, suggesting that, across goal type, goals tended to reduce interest (M = 124.47) relative to the no-goal control (M = 177.44). However, the means within goal type clearly suggest that this negative goal effect was due to the large decrement in interest in the performance goal condition.

Moreover, the goal type main effect was qualified by a significant Achievement Orientation × Goal Type interaction, $F(1, 64)$ = 4.03, $p < .05$, and the predicted values for this interaction are presented in Table 1. Post hoc probing of the interaction indicated that subjects low in achievement orientation played much less free-choice pinball in the performance goal condition than in the mastery goal condition. In contrast, the provision of performance goals did not reduce intrinsic moti-

Table 1

Predicted Values for Enjoyment and Time as a Function of Achievement Orientation and Goal Type

Achievement orientation	Goal type	
	Performance	Mastery
Low		
Enjoyment	4.48$_a$	4.91$_b$
Time	58.77$_a$	219.75$_b$
High		
Enjoyment	5.62$_A$	4.91$_B$
Time	127.33$_A$	146.75$_A$

Note. Predicted values for individuals high and low in achievement orientation were computed with achievement orientation scores one standard deviation above (high) or below (low) the mean. Scores on Enjoyment had a possible range of 1 (*low intrinsic motivation*) to 7 (*high intrinsic motivation*). Scores on Time ranged from 0 s (did not play at all during the free-choice period) to 300 s (played the entire free-choice period). Standard deviations are 1.00 and 131.78 for Enjoyment and Time, respectively. Post hoc probing of the goal type simple slopes was performed within achievement orientation level for each dependent measure. Goal type simple slopes for subjects low in achievement orientation that differ from 0 ($p < .05$) have different lowercase subscripts. Goal type simple slopes for achievement-oriented subjects that differ from 0 ($p < .05$) have different uppercase subscripts.

vation for those high in achievement orientation. No other effects were significant on Time or Enjoyment.

Effects on Process Variables

Table 2 presents the intercorrelations of the process and perceived competence variables. The regression of Competence Valuation on the basic model revealed a significant Achievement Orientation × Goal Type interaction, $F(1, 64) = 7.86, p < .01$. As displayed in Table 3, post hoc probing of this interaction revealed that subjects low in achievement orientation valued competence more under mastery goals than in the performance condition, whereas those high in achievement orientation reported higher levels of competence valuation in the performance goal condition than in the mastery goal condition.

Regressing Task Involvement on the basic model yielded a significant Achievement Orientation × Goal Type interaction, $F(1, 64) = 4.84, p < .05$. Post hoc probing of this interaction revealed (see Table 3) that performance goals reduced task involvement for individuals low in achievement orientation relative to mastery goals but had a minimal influence on task involvement for their achievement-oriented counterparts.

The regression of Competence Thoughts on the basic model revealed a main effect of goal type, $F(1, 64) = 4.51, p < .05$, showing that subjects had more thoughts about competence and performance in performance goal conditions (M = 4.89) than in mastery goal conditions (M = 4.21). No other effects were significant on any process measures.

Supplementary Analyses: Comparisons With the No-Goal Control

We conducted supplementary analyses to anchor the interactive goal effects found on Enjoyment, Time, Competence Valu-

Table 2
Intercorrelations Among the Process and Perceived Competence Variables

Variable	1	2	3	4	5	6
1. Competence Valuation	—					
2. Task Involvement	.12	—				
3. Competence Thoughts	.22*	.03	—			
4. Anticipated Performance	.30**	.12	.04	—		
5. Midgame Perceived Competence	.05	.06	−.10	.11	—	
6. Postgame Perceived Competence	.21*	−.02	−.23*	.08	.33**	—

* $p < .05$. ** $p < .01$.

ation, and Task Involvement to the no-goal control condition. A post hoc procedure similar to that presented in Aiken and West (1991; Aiken, personal communication, June 4, 1993) was used to probe for significant differences between the individual goal conditions and the no-goal control, within achievement-orientation level. Specifically, we tested whether the simple slope for each effect differed significantly from zero. Results from these analyses on Enjoyment revealed that achievement-oriented individuals in the performance goal condition reported significantly more enjoyment of the pinball game ($\hat{Y}$ = 5.62) than did no-goal control subjects ($\hat{Y}$ = 5.20).[7] The time analyses indicated that subjects low in achievement orientation in the performance goal condition played significantly less free-choice pinball ($\hat{Y}$ = 58.77) than their no-goal counterparts ($\hat{Y}$ = 174.89). Subjects low in achievement orientation in the mastery goal condition, on the other hand, tended to play more during the free-choice period ($\hat{Y}$ = 219.75) than controls, although this effect did not attain significance.

Table 3
Predicted Values for Competence Valuation and Task Involvement as a Function of Achievement Orientation and Goal Type

Achievement orientation	Goal type	
	Performance	Mastery
Low		
Competence Valuation	4.54ₐ	7.08ᵦ
Task Involvement	5.76ₐ	6.53ᵦ
High		
Competence Valuation	5.95ₐ	5.06ᵦ
Task Involvement	6.09ₐ	5.75ₐ

Note. Predicted values for individuals high and low in achievement orientation were computed with achievement orientation scores one standard deviation above (high) or below (low) the mean. Scores on Competence Valuation had a possible range of 1 (*low Competence Valuation*) to 10 (*high Competence Valuation*). Scores on Task Involvement had a possible range of 1 (*low Task Involvement*) to 7 (*high Task Involvement*). Standard deviations are 2.27 and 0.87 for Competence Valuation and Task Involvement, respectively. Post hoc probing of the goal type simple slopes was performed within achievement orientation level for each dependent measure. Goal type simple slopes for subjects low in achievement orientation that differ from 0 ($p < .05$) have different lowercase subscripts. Goal type simple slopes for achievement-orientated subjects that differ from 0 ($p < .05$) have different uppercase subscripts.

On Competence Valuation, the analyses revealed that subjects low in achievement orientation in the performance goal condition reported less competence valuation ($\hat{Y}$ = 4.54) than those in the control group ($\hat{Y}$ = 5.40), whereas subjects low in achievement orientation in the mastery goal condition evidenced greater competence valuation ($\hat{Y}$ = 7.08) than no-goal controls. Achievement-oriented subjects in the performance goal condition also reported elevated competence valuation ($\hat{Y}$ = 5.95) relative to the no-goal control group ($\hat{Y}$ = 5.03). Post hoc probing on Task Involvement failed to yield any significant differences. In sum, comparisons with the no-goal control, conducted within achievement orientation level, indicated that assigned goals had both positive and negative effects on intrinsic motivation and related processes.

Mediation Analyses

Path analytic mediation analyses were used to test Competence Valuation and Task Involvement as mediators of the direct effects, using the guidelines developed by Judd and Kenny (1981). Empirical validation of a hypothesized process model entails satisfaction of two data analytic requirements beyond the demonstration of direct effects from the predictor variables to the outcome measures (already documented above). First, the predictor variables must significantly affect the hypothesized mediator(s), thereby establishing the first link in the mediational chain. The significant results on Competence Valuation and Task Involvement reported above satisfy this requirement. To complete the mediational chain, the mediator variable(s) must significantly affect the outcome variable with the predictor variables controlled. Judd and Kenny (1981) identified two types of mediational processes: simple mediation, in which the mediator has a main effect on the outcome variable, and interactional mediation, in which the mediator interacts with the predictor variables in affecting the outcome variable. We tested both simple and interactional mediation in the present analyses.

Simple mediation. Both Competence Valuation and Task Involvement were hypothesized to mediate intrinsic motivation; therefore, these variables were tested together in the mediation

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[7] All of the differences reported from these analyses were significant at the $p < .05$ level, except for the trend on time, which was $p < .20$.

analyses to determine their joint effects.[8] Simple mediation was tested by regressing each outcome measure on the basic model, with Competence Valuation and Task Involvement also included. The regression of Enjoyment on this nine-term simple mediation model failed to yield a significant effect for either hypothesized mediator. Likewise, regressing Time on this model did not yield a significant effect for either mediator. These analyses provide no support for simple mediation of the observed effects on intrinsic motivation.

Interactional mediation. An interactional mediation model was created by adding each of the Mediator × Predictor Variable interaction product terms to the simple mediational model. The resulting model comprised a total of 19 terms: 7 main effects (3 predictor variables, 2 covariates, and the 2 hypothesized mediators), 8 two-way interactions (2 from the predictor variable product terms and 6 from the Mediator × Predictor Variable product terms), and 4 three-way interactions (from the two-way Predictor Variable Interactions × Mediator product terms).[9]

The regression of Enjoyment on this interactional mediation model revealed a significant Competence Valuation × Achievement Orientation × Goal interaction, $F(1, 52) = 4.18, p < .05$. This effect indicates that competence valuation affected Enjoyment differentially as a function of achievement orientation and goal condition. For achievement-oriented subjects, competence valuation enhanced enjoyment in goal conditions ($\beta = .45$), but not in the no-goal condition ($\beta = .04$). Competence valuation did not affect enjoyment for individuals low in achievement orientation in goal ($\beta = .07$) or no-goal ($\beta = .02$) conditions. This effect suggests that competence valuation mediated enjoyment for achievement-oriented individuals, thereby replicating previous findings (Harackiewicz & Manderlink, 1984; Harackiewicz et al., 1985).

The Task Involvement × Achievement Orientation × Goal Type interaction also attained significance for Enjoyment, $F(1, 52) = 5.68, p < .05$. Task involvement enhanced interest for achievement-oriented individuals in the performance goal condition ($\beta = .27$) but not in the mastery goal condition ($\beta = -.01$), whereas task involvement raised enjoyment for subjects low in achievement orientation in the mastery ($\beta = .40$), but not the performance ($\beta = .05$) goal condition. This effect suggests that task involvement mediated enjoyment for both high- and low-achievement-oriented subjects and that its positive effects on enjoyment were strongest in the conditions that promoted higher levels of task involvement for low (mastery goals) and high (performance goals) achievement-oriented individuals, respectively.

The direct effect of achievement orientation remained significant in the interactional mediation model for Enjoyment, $F(1, 52) = 5.09, p < .05$. However, the Achievement Orientation × Goal Type direct effect was no longer significant in the interactional model. This diminution provides strong evidence that competence valuation, in interaction with achievement orientation and goals, and that task involvement, in interaction with achievement orientation and goal type, mediated the direct Achievement Orientation × Goal Type effect on Enjoyment.

The regression of Time on the interactional mediation model revealed no significant effects for Competence Valuation, and

all Competence Valuation terms were therefore trimmed from the final model.[10] The resulting 13-term model included 6 main effects, 5 two-way interactions, and 2 three-way interactions. Regressing Time on this interactional mediation model yielded a significant Task Involvement × Goal interaction, $F(1, 58) = 7.70, p < .01$, indicating that Task Involvement mediated free-choice play differently for goal and no-goal subjects. In goal conditions, higher levels of task involvement promoted higher levels of free-choice play ($\beta = .31$), but appeared to reduce free-choice play in the no-goal condition ($\beta = -.40$). Both the gender, $F(1, 58) = 8.11, p < .05$, and goal type, $F(1, 58) = 7.33, p < .01$, main effects remained significant in the interactional mediation model. However, the Achievement Orientation × Goal Type direct effect was not significant in the interactional model, providing evidence that task involvement mediated the interactive effect of Achievement Orientation × Goal Type on Time. In other words, performance goals raised task involvement for achievement-oriented subjects, mastery goals enhanced task involvement for subjects low in achievement orientation, and task involvement led to more free-choice play in both goal conditions.

Figure 1 represents the final path models for Enjoyment and Time. Separate figures were constructed for these models because a number of effects varied as a function of goal type. The top half of Figure 1 presents the paths for the performance goal condition; The bottom half of Figure 1 shows the paths for the mastery goal condition.[11]

Perceived Competence Analyses

A number of theorists have identified perceived competence as a critical mediator of goal effects on intrinsic motivation (cf. Bandura, 1986). Theoretical considerations led us to focus on competence valuation and task involvement as mediator variables in the primary analyses, but we also tested perceived competence as an alternative mediator of the direct effects observed.[12] As reported earlier, regressing each of the three perceived competence variables (Anticipated Performance, Midgame Perceived Competence, and Postgame Perceived Competence) separately on the basic model failed to yield any significant effects that corresponded to the direct effects on En-

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[8] Competence thoughts was also tested as a possible mediator of the goal type main effect on Time, but this variable failed to attain significance on Time in simple or interactional mediation models.

[9] We also tested the two-way interaction between the two mediator variables, but this term was not significant for either dependent measure.

[10] Trimming the nonsignificant competence valuation terms from the model did not influence the pattern of effects obtained in the analyses. The nonsignificant terms were trimmed to afford greater power in the mediational analyses.

[11] We did not construct a process model for the no-goal condition because there were no significant direct goal effects to be mediated. Moreover, none of our process measures revealed any goal effects.

[12] In spite of the experimental constraints placed on actual performance, there was considerable variance in all three measures of perceived competence. The means for each measure were close to the midpoint of the scale and distributions were normal.
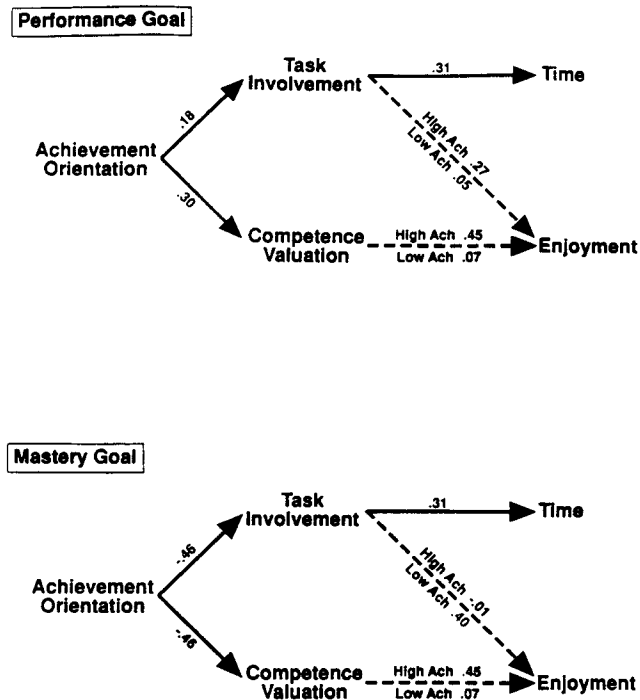
Figure 1. The top half displays path coefficients for the interactional mediation model in the performance goal condition. Solid paths represent significant effects; dashed paths differ significantly as a function of achievement orientation. The lower half displays path coefficients for the interactional mediation model in the mastery goal condition. Solid paths represent significant effects; dashed paths differ significantly as a function of achievement orientation.

joyment and Time. Therefore, perceived competence failed to satisfy the first requirement established by Judd and Kenny (1981) for the demonstration of mediation and cannot legitimately be tested further as a mediator of the direct effects observed in this study.

Nevertheless, to fully examine the effects of perceived competence, we proceeded to conduct simple and interactional process analyses testing the separate effects of each perceived competence variable and its corresponding interactions with the predictor variables on the outcome measures. Specifically, we regressed Enjoyment and Time on the basic model with a perceived competence variable included for the simple process analyses, whereas a perceived competence measure and its corresponding predictor variable interaction product terms were added to the basic model for the interactional process analyses. These analyses yielded no significant effects for any of the perceived competence variables or Perceived Competence × Predictor Variable product terms on either dependent measure.

Discussion

The results of this study reveal that the assignment of goals can both undermine and enhance intrinsic motivation for enjoyable activities. As anticipated, we found evidence that mas-

tery-focused goals have a more positive effect on intrinsic motivation than do performance-focused goals. However, the effect that emerged most clearly, on two indicators of intrinsic motivation and two hypothesized mediators, was an interaction between the focus of evaluation of the assigned goals and individual differences in achievement orientation. In general, individuals low in achievement orientation responded most positively to mastery goals, whereas performance goals proved optimal for achievement-oriented subjects. Thus, the results strongly support our Person × Situation hypothesis that the effects of goals on intrinsic motivation are moderated by the focus of evaluation implicit in the assigned goals and by individual differences in achievement orientation.

Our performance and mastery goal manipulations provided subjects with identical objective standards to aim for during their pinball games; the goals differed only in how competent performance was defined. In the performance goal condition, the numerical standards were presented as 65th percentile scores, thereby focusing on normative comparison, whereas in the mastery goal condition, the same standards were presented as moderately challenging goals to aid skill development on our machines. These manipulations were matched for perceived attainability and we controlled performance to ensure that subjects actually attained their goals at comparable rates in the two goal conditions. Thus, differential effects of these two goals cannot be attributed to differences in objective or perceived difficulty of attainment. Rather, individual differences in achievement orientation appear to predispose individuals to be more responsive to certain types of goals.

Mastery goals proved optimal for subjects low in achievement orientation. Although these individuals are not characteristically oriented toward competence, the specific, attainable standards and emphasis on skill development appeared to make the game more interesting for them. In contrast, the performance goal manipulation dramatically reduced their behavioral interest in the game and diminished their self-reported enjoyment as well. Left to their own predilections, individuals low in achievement orientation typically avoid normative ability assessments, and they may have found the normative emphasis anxiety provoking or stressful, despite the fact that they ultimately attained their assigned goals. Comparison with the no-goal control condition suggests that subjects low in achievement orientation responded quite negatively to performance goals and somewhat positively to mastery goals.

Both types of goals maintained interest for achievement-oriented individuals, but these individuals only showed positive reactions to performance-focused goals. The external assignment of mastery-focused standards did not affect continuing interest for achievement-oriented subjects, perhaps because they characteristically strive to surpass personal standards and master challenging activities independent of external cues or communications. Performance goals, on the other hand, added something to the situation for these individuals that they could not generate on their own, that is, norm-based standards of comparison. Achievement-oriented subjects appeared to welcome the challenge to attain and demonstrate competence relative to other students, and they enjoyed the game most under performance goal conditions. It is important to note, however, that we

only observed this enhancement effect on the self-report enjoyment scale; there was no evidence for enhancement on the behavioral measure of interest.

Although the same Achievement Orientation × Goal Type interaction was obtained on both indicators of intrinsic motivation, the specific effects were not entirely consistent across the two measures. The behavioral measure of interest appeared most sensitive to the negative effects of goals. Specifically, the provision of performance goals clearly reduced subjects' free-choice pinball play. This negative effect was qualified by achievement orientation, revealing the most dramatic negative effect, that is, the undermining of interest for those low in achievement orientation in the performance goal condition. The self-report enjoyment measure, on the other hand, appeared most sensitive to positive effects, specifically, the enhancement of achievement-oriented individuals' enjoyment in the performance goal condition. Despite this differential sensitivity, the overall pattern of results on the two outcome measures yields a theoretically consistent set of findings.

The present pattern of results is concordant with the Epstein and Harackiewicz (1992) finding that competition undermined interest for individuals low in achievement orientation but enhanced interest for achievement-oriented subjects. Importantly, our results are also comparable with the Harackiewicz and Elliot (1993) finding that performance, but not mastery, achievement goals raised interest for achievement-oriented individuals. The Harackiewicz and Elliot (1993) result, in conjunction with the present findings, suggests that achievement orientation moderates the effects of goals on intrinsic motivation at two levels of goal specificity: achievement goals that establish a general context for performance and task-specific goals that guide ongoing behavior and provide concrete performance feedback. It will be important for future research to instantiate both levels of goals in the same achievement setting and to examine the interactive influence of achievement orientation and various forms of goal hierarchies on intrinsic motivation (Harackiewicz & Sansone, 1991).

Another important issue to explore is the different processes associated with self-selected versus assigned goals. Although subjects in the present experiment appeared to accept the goals assigned to them and to become committed to some types of goals (in interaction with achievement orientation), it remains to be seen whether these commitment processes are comparable to those engendered by self-selected goals. Future research is also needed to test the generalizability of the present results. In this study, we investigated the effects of goal setting on intrinsic motivation in a highly favorable context: nearly all subjects attained their goals, the target activity was enjoyable and one commonly associated with leisure activities, and the performance focus instantiated was less ego threatening than some used in the achievement goal literature (cf. Harackiewicz & Elliot, 1993; Ryan, 1982).

Mediational Results

The direct effects on behavioral and self-reported interest are consistent with our theoretically based predictions, as well as with previous findings. Results from our mediational analyses

provide an additional level of analysis and afford a more comprehensive understanding of the effects observed in this study. We predicted that competence valuation and task involvement would mediate continuing interest in an enjoyable task and found effects on each process that corresponded to the direct effects observed on both measures of task interest. Specifically, achievement-oriented subjects valued competence most highly when assigned performance goals, whereas subjects low in achievement orientation valued competence most and became more task involved when assigned mastery goals.

Once we documented the Achievement Orientation × Goal Type interactions on the two process measures, we tested the effects of these measures on the outcome measures as mediators of the direct, interactive effects on enjoyment and free-time play. Interactional mediation was documented for competence valuation and task involvement on enjoyment and for task involvement on free-choice play. That is, the mediational effects of competence valuation and task involvement varied as a function of goal condition and individual differences in achievement orientation. The interactional results on the enjoyment measure suggest that competence valuation was an important mediator of interest for achievement-oriented individuals, but only in goal conditions. Competence valuation had little impact on enjoyment for individuals low in achievement orientation in any condition. Because achievement-oriented individuals valued competence most highly in the performance goal condition, our results indicate that performance goals enhanced their enjoyment through the competence valuation process.

Task involvement proved to be an important mediator of enjoyment for both low- and high-achievement-oriented individuals. The mediational impact of task involvement on the enjoyment measure was strongest in the goal conditions that also promoted task involvement. Specifically, task involvement mediated enjoyment for subjects low in achievement orientation in the mastery goal condition, thereby identifying a mechanism through which mastery-oriented goals may facilitate enjoyment for these individuals. Although individuals low in achievement orientation are not characteristically oriented toward competence, the mastery goal may have helped them stay focused on their performance in a relatively nonthreatening context and enabled them to discover the enjoyable aspects of the game. Task involvement mediated enjoyment for achievement-oriented subjects in the performance goal condition, thereby identifying a second mechanism, in addition to competence valuation, through which performance goals may raise interest for these individuals. Providing additional support for our mediational arguments is the fact that the Achievement Orientation × Goal Type effect was no longer significant in the mediation model, suggesting that competence valuation and task involvement explained this direct effect.

Task involvement mediated the behavioral indicator of intrinsic motivation as well as the self-report enjoyment measure. Once again, the mediation was interactional, indicating that task involvement only facilitated intrinsic motivation in goal conditions, and again the direct Achievement Orientation × Goal Type effect became nonsignificant, supporting the mediational conclusion. Considered across both dependent measures, the task involvement results indicate the processes through

which goals might both enhance and undermine interest. If assigned goals are distracting and interfere with task involvement, interest may be reduced (as in the case of subjects low in achievement orientation who were assigned performance goals), but if the provision of goals facilitates concentration and attention to the task, they may actually enhance intrinsic motivation (as in the case of achievement-oriented individuals assigned performance goals).

Our competence valuation findings add to a growing body of research that documents its importance as a mediator of evaluative constraints on self-report measures of task enjoyment (Epstein & Harackiewicz, 1992; Harackiewicz, 1989; Harackiewicz et al., 1987; Harackiewicz & Manderlink, 1984; Harackiewicz et al., 1985; Sansone, 1989). In goal-setting contexts, this process seems similar to goal commitment (Hollenbeck & Williams, 1987), because competence is evaluated in terms of goal attainment. Competence valuation appears to be a process sensitive to the positive, competence-relevant aspects of task engagement and can promote interest in situations where individuals ultimately receive positive feedback about their performance. The finding that task involvement also mediates intrinsic motivation represents, to our knowledge, the first demonstration of this mediational process on any measure of intrinsic motivation. Task-specific goals appear well-suited to foster concentration and absorption in task engagement (or in Kuhl's, 1985, terminology, they enable "efficient volitional control"), with positive consequences for ongoing task interest.

We argued at the outset that perceived competence would not be a critical mediator of intrinsic motivation when individuals pursued goals on interesting tasks. Nevertheless, we did measure and test perceived competence variables as potential alternative mediators of our direct effects. Although goals did not facilitate performance in this study (because of our experimental control of performance), both types of goals did enhance perceptions of competence measured at the midpoint and conclusion of task engagement. However, there was no evidence that any perceived competence variable mediated either measure of intrinsic motivation. These null results, in conjunction with our documentation of competence valuation and task involvement as mediator variables, support our contention that competence valuation and task involvement are more critical to the sustenance of intrinsic motivation for enjoyable activities.

Although it is clear that perceived competence did not mediate the observed effects, it is possible that other variables, in addition to competence valuation and task involvement, may have served a mediating role. For example, performance or evaluative anxiety may have been evoked by the assignment of certain goals to some individuals, and this anxiety may have affected interest directly, or perhaps indirectly by disrupting task involvement. Future work is needed to explore other potential mediating variables and to replicate the present results, which are based on a relatively small set of cases.

Conclusion

The present set of results clearly identify the evaluative focus of goals and achievement orientation as two critical moderators of the effects of goal setting on intrinsic motivation. Consider-

ation of the distinction between performance and mastery goals led us to discover that performance goals tend to undermine intrinsic motivation, whereas mastery goals effectively maintain interest. Given that previous research has nearly exclusively examined the effects of performance goals on intrinsic motivation, summary statements based on the present state of the literature may be overly pessimistic. Investigation of the interactive influence of achievement orientation and goal type additionally showed that performance and mastery goals do not uniformly influence all individuals and provided optimistic evidence that goal setting can actually enhance interest in enjoyable activities—at least for some people, some of the time.

Moreover, we were able to document some of the motivational processes responsible for these effects. Through a series of regression analyses, we were able to validate competence valuation and task involvement as mediators of the direct effects observed on intrinsic motivation. This empirical validation is noteworthy for three reasons: (a) It is the first time that mediation of goal effects on intrinsic motivation has been empirically documented, (b) it is the first demonstration that task involvement mediates intrinsic motivation in any context, and (c) it is the only demonstration of mediation involving a behavioral measure of intrinsic motivation. Our path models display a complex pattern of mediation that represent a first step toward unraveling the intricate processes evoked by goal manipulations. It would appear that a clear, comprehensive understanding of the effects of goal setting on intrinsic motivation not only demands careful consideration of situational and individual difference moderators, but it also requires exploration of the mediational mechanisms responsible for these effects.

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