Approach and Avoidance Achievement Goals and Intrinsic Motivation: A Mediational Analysis

Andrew J. Elliot
University of Rochester

Judith M. Harackiewicz
University of Wisconsin—Madison

Most contemporary achievement goal conceptualizations consist of a performance goal versus mastery goal dichotomy. The present research offers an alternative framework by partitioning the performance goal orientation into independent approach and avoidance motivational orientations. Two experiments investigated the predictive utility of the proposed approach–avoidance achievement goal conceptualization in the intrinsic motivation domain. Results from both experiments supported the proposed framework; only performance goals grounded in the avoidance of failure undermined intrinsic motivation. Task involvement was validated as a mediator of the observed effects on intrinsic motivation. Ramifications for the achievement goal approach to achievement motivation and future research avenues are discussed.

Achievement motivation theorists focus their research attention on a particular class of behaviors, those involving competence. Individuals may aspire to attain competence or may strive to avoid incompetence, and this approach–avoidance distinction was explicitly incorporated into the earliest achievement motivation conceptualizations. Two independent motivational orientations, the desire for success and the desire to avoid failure, were identified by Lewin and colleagues as critical determinants of aspiration behavior (Hoppe, cited in Lewin, Dembo, Festinger, & Sears, 1944). In his nascent achievement motivation theory, McClelland (1951) proposed that "there are at least two kinds of achievement motivation, one of which appears to be oriented around avoiding failure and the other around the more positive goal of attaining success" (p. 202).

Atkinson (1957) drew heavily on the work of both McClelland and Lewin in formulating need achievement theory, a mathematical framework that designated the desire to attain success and the desire to avoid failure (construed as both motive dispositions and resultant achievement tendencies) as important determinants of achievement behavior.

In the late 1970s and early 1980s, Carol Dweck, John Nicholls, and others introduced an achievement goal approach to achievement motivation (Dweck & Bempechat, 1983; Maehr & Nicholls, 1980; Nicholls, 1979, 1984). These theorists defined *achievement goal* as the reason for or purpose of competence-relevant activity (cf. Maehr, 1989). Initially, achievement goal theorists followed the lead of Lewin, McClelland, and Atkinson in incorporating the distinction between approach and avoidance motivation into their frameworks. Three types of achievement goals were posited (Dweck & Elliott, 1983; Nicholls, 1984): a learning or task involvement goal focused on the development of competence and task mastery (an approach orientation), a performance or ego involvement goal directed toward attaining favorable judgments of competence (also an approach orientation), and a performance or ego involvement goal aimed at avoiding unfavorable judgments of competence (an avoidance orientation). Although these initial models utilized the approach–avoidance distinction, the concept of independent approach and avoidance goal orientations received little theoretical and no empirical attention and was soon overlooked. Dweck (1986), for instance, shifted to a performance-learning goal dichotomy with the approach and avoidance components of the performance goal collapsed together into a unitary orientation. Nicholls (Nicholls, Patashnick, Cheung, Thorkildsen, & Lauer, 1989) appeared to abandon the approach–avoidance distinction altogether, characterizing his ego and task orientations as "two forms of approach motivation" (p. 188).

Achievement goal theory is, at present, the predominant approach to the analysis of achievement motivation, and most contemporary achievement theorists proffer achievement goal frameworks that are similar to the revised models of Dweck and Nicholls in two important ways. First, most theorists posit two primary orientations toward competence. For instance, Ames

(1984) differentiated mastery and ability goals, Roberts (1992) distinguished between mastery and competitive goals, and Deci and Ryan (1985) contrasted task and ego involvement. Ames and Archer (1987) contended that these achievement goal frameworks are conceptually similar enough to justify convergence in the form of a mastery goal (learning, mastery, task involvement) versus performance goal (performance, ability, ego involvement, competitive) distinction (see also Ryan & Stiller, 1991). Second, all of the aforementioned theorists either explicitly or implicitly characterized both mastery and performance goals as approach forms of motivation (Ames, 1992; Meece, Blumenfeld, & Hoyle, 1988; Nicholls et al., 1989), or they failed to consider approach and avoidance as independent motivational tendencies within the performance goal orientation (Deci & Ryan, 1985; Dweck, 1986).

Achievement goal theorists posit that the type of orientation adopted at the outset of an activity creates a framework for how individuals interpret, evaluate, and act on achievement-relevant information and experience achievement settings (Ames & Archer, 1987; Dweck, 1986). The adoption of a mastery goal is hypothesized to produce a "mastery" motivational pattern characterized by a preference for moderately challenging tasks, persistence in the face of failure, a positive affective stance toward learning, and enhanced task enjoyment. A constellation of "helpless" motivational responses is posited to result from the adoption of a performance goal orientation, as evidenced by a preference for easy or difficult tasks, effort withdrawal in the face of failure, attribution of failure to lack of ability, and decreased task enjoyment. Some achievement goal theorists espouse a more complex hypothesis, designating perceived competence as a critical moderator of achievement goal effects (Elliott & Dweck, 1988). Mastery goals are expected to have a uniform effect across levels of perceived competence (they lead to the mastery motivational pattern); performance goals are posited to lead to the mastery pattern for individuals with high perceived competence, but this same orientation is expected to produce the helpless pattern for those low in perceived competence.

In the present article, we propose that the conventional achievement goal dichotomy be expanded to incorporate independent approach and avoidance components within the performance goal orientation. Specifically, we call for a reconsideration of the trichotomous variant of achievement goal framework initially proffered (in nascent form) by achievement goal theorists, composed of a mastery goal and two performance goals, one directed toward the demonstration of competence and the other aimed at avoiding the demonstration of incompetence. In the following, these three goal types are referred to as *mastery, performance-approach,* and *performance-avoidance,* respectively.

We posit that performance-approach and mastery goals both represent approach orientations grounded in self-regulation according to potential positive outcomes (the attainment of normative competence and task mastery, respectively). These approach forms of regulation commonly engender a host of affective and perceptual-cognitive processes that facilitate optimal task engagement (e.g., challenge construal, sensitivity to success-relevant information, cognitive and affective immersion in the activity; Depreeuw, 1992; Folkman & Lazarus, 1985; Wegner, 1994) and lead to the mastery set of motivational responses delineated by achievement goal theorists (see the General Discussion section for a con-

sideration of possible differences between the performance-approach and mastery goal orientations). The performance-avoidance goal is conceptualized as an avoidance orientation grounded in self-regulation according to potential negative outcomes. This form of regulation evokes self-protective processes that interfere with or preclude optimal task engagement (e.g., threat construal, sensitivity to failure-relevant information, anxiety-based preoccupation with self-presentational rather than task concerns) and lead to the helpless set of motivational responses. Thus, the framework we endorse is fundamentally process oriented in nature; approach and avoidance goals are viewed as exerting their differential effects on achievement behavior by activating divergent sets of motivational processes.

In essence, the approach-avoidance achievement goal conceptualization represents an integration of classic and contemporary approaches to achievement motivation: Approach motivation is partitioned into independent mastery and performance components (as in contemporary achievement goal frameworks), and avoidance is incorporated as an orthogonal motivational tendency (as in the classic formulations of Lewin, McClelland, and Atkinson). A comprehensive achievement goal model will undoubtedly necessitate the incorporation of additional elements of the classic formulations, such as the consideration of dispositional variables (hope for success and fear of failure) and the dynamic interplay between approach and avoidance motivational tendencies; the proposed framework represents an initial step in the integration process. In the present research, we sought to investigate the predictive utility of the proposed achievement goal conceptualization in the intrinsic motivation domain.

Achievement Goals and Intrinsic Motivation

Intrinsic motivation is manifest in the enjoyment of and interest in an activity for its own sake (Lepper, 1981; Ryan, 1992), and this fundamentally approach form of motivation (Berlyne, 1960; Deci, 1975; Harlow, 1953; White, 1959) is identified as an important component of the achievement goal nomological network (Ames, 1992; Dweck, 1985, 1986; Nicholls, 1989). Most achievement goal and intrinsic motivation theorists contend that mastery goals are facilitative of intrinsic motivation and constituent processes, whereas performance goals are posited to have negative effects (Deci & Ryan, 1990; Heyman & Dweck, 1992; Nicholls, 1989). That is, mastery goals are said to promote intrinsic motivation by fostering perceptions of challenge, encouraging task involvement, generating excitement, and supporting self-determination, whereas performance goals are portrayed as undermining intrinsic motivation by instilling perceptions of threat, disrupting task involvement, and eliciting anxiety and evaluative pressure. Other theorists, however, contend that the deleterious effects of performance goals on intrinsic motivation should be manifest only at low levels of perceived competence (cf. Butler, 1992).

An alternative set of predictions may be derived from the approach-avoidance achievement goal framework. Both performance-approach and mastery goals are focused on attaining competence, and these approach orientations commonly engender a functionally equivalent set of processes that facilitate optimal task engagement and foster intrinsic motivation. Specifically, in a performance-approach or mastery orienta-

tion, individuals perceive the achievement setting as a challenge, and this construal is likely to generate excitement, encourage affective and cognitive investment, facilitate concentration and task absorption, and orient the individual toward the presence of success-relevant and mastery-relevant information, processes hypothesized to facilitate intrinsic motivation. The performance–avoidance goal, on the other hand, is focused on avoiding incompetence, and this avoidance orientation is viewed as evoking processes that are antithetical to the very nature of the intrinsic motivation construct. Specifically, in a performance–avoidance orientation, individuals construe the achievement setting as a threat and may therefore try to escape the situation if such an option is readily available. Barring physical escape, the prospect of potential failure is likely to elicit anxiety, encourage self-protective withdrawal of affective and cognitive resources, disrupt concentration and task involvement, and orient the individual toward the presence of failure-relevant information, processes hypothesized to undermine intrinsic motivation. Thus, we posit that approach and avoidance forms of motivational regulation activate diametrically divergent sets of intrinsic motivation processes, and it is on this basis that we view the approach–avoidance distinction as a more powerful discriminator of intrinsic motivation effects than the performance–mastery distinction per se.

In a recent meta-analytic review of the achievement goal–intrinsic motivation literature, Elliot (1994, 1995) obtained evidence supporting the predictive utility of the proposed trichotomous framework relative to the prevailing dichotomous framework. Elliot found that less than half of the published experiments investigating the achievement goal–intrinsic motivation relationship yielded data congruent with the prevailing hypothesis that performance goals are deleterious to intrinsic motivation. In contrast, when each of the performance goal manipulations was classified according to the approach–avoidance distinction, more than 90% of the experiments yielded data congruent with hypotheses generated from the approach–avoidance achievement goal framework. Experimental manipulations presumed to elicit a performance–approach orientation led to intrinsic motivation comparable to that of mastery goal or neutral control conditions, whereas manipulations classified as performance–avoidance undermined intrinsic motivation.

The Present Research

The approach–avoidance achievement goal conceptualization appears to fare quite nicely as a post hoc interpretive framework for the extant achievement goal–intrinsic motivation data, but none of the experiments in the existing corpus represent a direct test of the proposed model. We conducted two intrinsic motivation experiments with the aim of directly testing the predictive utility of the approach–avoidance achievement goal conceptualization. Performance–approach and performance–avoidance motivational orientations were manipulated in the two experiments by establishing a normative referent for performance evaluation and differentially highlighting potential achievement outcomes. In Experiment 1, the target task was described as diagnostic of success (performance–approach) or failure (performance–avoidance)

only; thus, participants could demonstrate high but not low ability in the former case and low but not high ability in the latter. In Experiment 2, a more subtle manipulation simply focused participants' attention on the possibility of performing well (performance–approach) or poorly (performance–avoidance) on an achievement task. Both experiments also included a mastery goal condition that focused participants' attention on the task itself and established task-based performance referents.

We predicted that a comparison of the omnibus performance goal (collapsed across approach and avoidance conditions) and the mastery goal would yield null results on intrinsic motivation; only the performance–avoidance goal was predicted to produce an undermining effect. Given the constraints of the experimental setting (e.g., participation norms and knowledge of imminent performance feedback), the possibility of "passive avoidance" in the form of physical or mental withdrawal from the session was greatly reduced in the present experiments. Thus, performance–avoidance participants were expected to exert as much effort as their counterparts in the other conditions and to perform equally well while trying to avoid failure (cf. Atkinson, 1957; Birney, Burdick, & Teevan, 1969; Geen, 1987). This "active" failure avoidance was predicted to exact its cost on intrinsic motivation, with performance–avoidance participants displaying less free-choice persistence and subsequent enjoyment of the target activity than those in either of the approach conditions. The approach forms of motivation were predicted to have an equivalent effect on intrinsic motivation. Experiment 1 also included a neutral performance goal manipulation in which neither success nor failure was highlighted. Participants in this condition were presumed to adopt an approach or avoidance orientation as a function of a multitude of (unmeasured) characteristic propensities (e.g., achievement orientation pessimism) and to therefore manifest intrinsic motivation midway between that evidenced in the approach and avoidance conditions. Perceived competence was not expected to moderate any of the predicted effects.

In addition to examining the utility of the approach–avoidance distinction, the present experiments sought to test task involvement—the degree to which an individual concentrates on or becomes cognitively immersed in an activity—as a mediator of the proposed direct effects. Of the numerous hypothesized mediators of the achievement goal–intrinsic motivation relationship, task involvement would seem an optimal candidate to account for the proposed inimical effect of the performance–avoidance orientation on intrinsic motivation. Test anxiety and fear of failure researchers alike have documented the propensity for test anxious and failure avoidant individuals to experience various forms of task distraction (cognitive interference, task-irrelevant thinking, mind wandering, self-preoccupation) in evaluative achievement settings (Jerusalem, Liepmann, & Hermann, 1985; Sarason, 1984; Wine, 1982). Intrinsic motivation theorists posit a strong positive relationship between task involvement and intrinsic motivation (Csikszentmihalyi, 1990; Harackiewicz & Sansone, 1991), and some have proceeded to validate task involvement as a mediator of the effects of external constraints on intrinsic motivation (Elliot & Harackiewicz, 1994). We predicted that the instantiation of a performance–

avoidance orientation would disrupt task involvement, which, in turn, would reduce intrinsic motivation. In contrast, the manipulation of either approach orientation was predicted to foster task involvement and subsequent intrinsic motivation.

Experiment 1

Method

Overview

Experiment 1 was designed to investigate the effects of performance goal diagnosticity on intrinsic motivation for hidden word puzzles called "Nina puzzles." The object of the activity is to find and circle the word *Nina*, which is hidden a number of times throughout a drawing. Nina puzzles have been used in previous intrinsic motivation research, and pilot testing has revealed that university undergraduates desire to perform competently at the activity and find it enjoyable (Harackiewicz & Elliot, 1993). Participants solved four Nina puzzles in one of four experimental contexts: a performance goal with success diagnostic (performance-approach), a performance goal with failure diagnostic (performance-avoidance), a performance goal with no diagnosticity information provided (performance neutral), or a mastery goal. On completion of the puzzles, participants in all four conditions received positive task-based and normative feedback. Process measures were collected before, at the midpoint of, and at the conclusion of the puzzle solving session. A behavioral indicator of intrinsic motivation was obtained during a free-choice period; a self-report measure of puzzle enjoyment was collected immediately thereafter.

Participants

Thirty male and 54 female university undergraduates were randomly assigned to one of the four experimental conditions. The participants received extra course credit for their participation.

Procedure

On arrival at the experimental laboratory, participants were introduced to the concept of Nina puzzle solving and were provided with a sample puzzle to familiarize themselves with the activity. When participants completed the sample puzzle, they were given a folder that contained the manipulation. The experimenter was unaware of experimental condition throughout the session and was not knowledgeable of the hypotheses being tested.

Participants in the three performance goal conditions read the following (see Harackiewicz & Elliot, 1993, for a similar performance goal manipulation):

> Our research group studies game playing and puzzle solving and the focus of today's session is on hidden figure puzzles. The purpose of this project is to compare college students to one another in their ability to solve hidden figure puzzles—specifically, our Nina puzzles.

The remaining information in the first paragraph of the manipulation varied as a function of performance goal condition. Performance-approach participants were informed:

> In our previous work, we have found that most UW [University of Wisconsin—Madison] students are fairly comparable in their ability to solve Nina puzzles, but some students stand out because they do quite well on the puzzles. This session will give you the opportunity to demonstrate that you are a good puzzle solver.

Participants in the performance-avoidance condition were informed:

> In our previous work, we have found that most UW students are fairly comparable in their ability to solve Nina puzzles, but some students stand out because they do quite poorly on the puzzles. This session will give you the opportunity to demonstrate that you are not a poor puzzle solver.

Thus, performance-approach participants were protected from the possibility of failure, whereas failure was the only diagnostic outcome possible for performance-avoidance participants. Performance-neutral participants were simply informed, "This session will give you the opportunity to demonstrate your level of puzzle solving." After the initial paragraph, participants in each of the three performance goal conditions received the following information:

> In today's session, you will be solving four different Nina puzzles. You will be given 90 seconds per puzzle to find the hidden Ninas. The number of hidden Ninas is different for each puzzle, but none of the puzzles has more than 15 Ninas hidden in it. When you have completed the four puzzles, you will be provided with information regarding how you did compared to other UW students.

Participants in the mastery condition read the following (see Koestner & Zuckerman, 1994, for a similar mastery goal manipulation):

> Our research group studies game playing and puzzle solving and the focus of today's session is on hidden figure puzzles. The purpose of this project is to collect data on college students' reactions to hidden figure puzzles—specifically, our Nina puzzles. In today's session, you will be solving four different Nina puzzles. You will be given 90 seconds per puzzle to find the hidden Ninas. The number of hidden Ninas is different for each puzzle, but none of the puzzles has more than 15 Ninas hidden in it. When you have completed the four puzzles, you will be provided with information regarding the percentage of the total hidden Ninas that you found in today's session.

On receipt of the manipulation, participants were asked to indicate the purpose of the experiment (as a manipulation check).[1] Participants also completed a question regarding their perception of the difficulty of the Nina task to assess their perceptions of competence relative to task demands, and they reported their affect as they anticipated the puzzle solving session. After completing these items, participants proceeded to solve the four Nina puzzles. As a means of minimizing participant-experimenter interaction, tape-recorded instructions guided participants through the puzzle solving period. Between Puzzles 2 and 3, the tape instructed participants to complete a questionnaire that contained items relevant to task involvement, as well as a question concerning participants' perceptions of competence at the midpoint of task engage-

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[1] Coding of these open-ended responses revealed that 94% of the participants correctly stated the purpose of the experiment (i.e., performance-approach and performance-avoidance goal participants made explicit mention of normative comparison, whereas mastery goal participants made reference to finding Ninas and puzzle solving without referring to normative comparison). At the end of the experiment, participants in the performance-approach and performance-avoidance conditions were also asked, "What were you told about our previous work?" as a further check on the diagnosticity element of the manipulation (participants indicated their response by checking "Some students stand out because they do quite poorly on Nina puzzles" or "Some students stand out because they do quite well on the puzzles"). All but 2 participants, both in the performance-avoidance condition, responded correctly to this query.

ment. On completion of the four puzzles, participants were given a filler task while the experimenter ostensibly scored their puzzles. All participants then received an "information form" indicating that they had found 80% of all the Ninas hidden in the puzzles and that this percentage represented "good puzzle solving compared to other UW students" (80 was the average percentage that 56 pilot participants designated as "good compared to other UW students").

After participants read the information form, the experimenter informed them that they were finished with the Nina puzzle activity. The experimenter then glanced at his or her watch and hurriedly announced that he or she would have to leave the room to check on another participant. Participants were also told that they could do whatever they wanted during the experimenter's absence, including solve extra puzzles, play with any of the toys in the room, or read magazines. During this free-choice period, participants' behavior was monitored, via a concealed video camera, by an observer situated in an adjoining room. The experimenter returned after 5 min and presented participants with a final questionnaire consisting of puzzle enjoyment, perceived competence, and effort expenditure items. On completion of the final questionnaire, participants were debriefed and dismissed.

Measures

Intrinsic motivation. Both behavioral and self-report indicators of intrinsic motivation were obtained in the experiment. An assortment of extra Nina puzzles and Highlights puzzles (hidden figure puzzles similar to Nina puzzles; see Koestner, Zuckerman, & Koestner, 1987) was available on the subject desk during the free-choice period, and the observer recorded the amount of time that participants chose to puzzle solve during the experimenter's absence (Time). Participants' ratings on three items on the final questionnaire ("I enjoy doing Nina puzzles very much," "I think that doing Nina puzzles is boring" [reversed], and "Nina puzzles are fun") were averaged to form the self-report index of enjoyment (Enjoy). Ratings were made on 7-point scales ranging from *strongly disagree* (1) to *strongly agree* (7). Similar indexes have been used in previous intrinsic motivation research (Elliot & Harackiewicz, 1994; Harackiewicz & Elliot, 1993).

Process and performance measures. Before the puzzle solving session, participants were provided an Anticipated Difficulty item: "I think that solving these Nina puzzles will be difficult." Participants responded to this item on a 7-point scale ranging from *strongly disagree* (1) to *strongly agree* (7). Anticipatory affect was assessed with a stem, "As I anticipate doing these Nina puzzles I feel . . . ," and the following items: eager, challenged, nervous, and worried. Participants' responses (1 = *strongly disagree,* 7 = *strongly agree*) on the first two items were averaged to form a Challenge Appraisal index; their responses to the last two items were averaged to form a Threat Appraisal index (see Folkman & Lazarus, 1985, for similar appraisal indexes). Between Puzzles 2 and 3, participants completed a questionnaire that contained a Mid-puzzles Perceived Competence (Mid PC) item—"How do you think you did on the first two Nina puzzles?" (1 = *very poorly,* 7 = *very well*)—and a Task Involvement index. The Task Involvement index began with the following stem: "While solving the first two Nina puzzles, I . . . ." Participants Task Involvement score consisted of the average of the following items: "was totally absorbed in the puzzles," "lost track of time," and "concentrated on finding the hidden Ninas." Participants indicated their responses on 7-point scales ranging from *strongly disagree* (1) to *strongly agree* (7). Similar task involvement indexes have been used in previous research on intrinsic motivation processes (Elliot & Harackiewicz, 1994; Harackiewicz & Elliot, 1993).

After the puzzle solving session, participants were presented with a Post-puzzles Perceived Competence (Post PC) item: "How do you think you did on the four Nina puzzles today?" They responded on a 7-point scale ranging from *very poorly* (1) to *very well* (7). An index of

Actual Performance was obtained by summing the number of hidden Ninas found in each of the four puzzles. Participants were also asked to rate their degree of Effort Expenditure ("I put a lot of effort into solving the Nina puzzles") on a 7-point scale ranging from *strongly disagree* (1) to *strongly agree* (7).

Results

Overview

Sequential simultaneous regression analyses were conducted to investigate the effect of the predictor variables on the behavioral (Time) and self-report (Enjoy) indicators of intrinsic motivation and to test Task Involvement as a mediator of the direct effects observed. Following the guidelines of Judd and Kenny (1981), each outcome measure was first regressed on the predictor variables to test for direct effects. Once direct effects had been documented, the mediator variable was regressed on the predictor variables to examine the first link in the proposed mediational sequence. Finally, the link between the mediator variable and each outcome measure was tested by regressing each outcome measure on the mediator variable with the predictor variables controlled.

A set of orthogonal contrasts (henceforth referred to as the Basic model) tested the primary hypotheses: The Performance Goal contrast tested whether the establishment of a performance goal context had a negative effect relative to a mastery orientation (performance goal conditions −1; mastery +3), and the Approach–avoidance contrast compared the performance–approach condition (+1) and the performance–avoidance condition (−1). When analyses with the Basic model revealed a significant Approach–avoidance effect, ancillary planned comparisons sought to anchor the performance–approach and performance–avoidance conditions to the mastery group: Approach–mastery compared the performance–approach condition (+1) and the mastery condition (−1), and Avoidance–mastery compared the performance–avoidance (−1) and mastery groups (+1). These supplementary contrasts are nonorthogonal to the Basic model but represent protected planned comparisons (conceptually analogous to Fisher's least significant difference tests; Howell, 1987).[2]

Preliminary Analyses

The regression of Challenge Appraisal on the Basic model revealed a significant Approach–avoidance effect, $F(1, 81) = 5.80, p < .05$ ($\beta = .25$). Participants in the performance–approach condition were more likely to appraise the puzzle solving session as a positive challenge ($M = 5.12$) than participants

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[2] In both experiments, gender and all possible Gender × Contrast interactions were included in preliminary analyses with all outcome measures. Gender significantly interacted with Performance Goal, Approach–mastery, and Avoidance–mastery in predicting Time in Experiment 1, and there were significant main effects of gender on Mid and Post PC. In Experiment 2, there was a main effect of gender on Enjoy. Inclusion of these gender variables into their respective regression equations did not change any of the effects reported (other than making them stronger). Readers interested in more detailed information on these gender effects are encouraged to contact Andrew J. Elliot.

in the Performance–avoidance condition (M = 4.38). Ancillary planned comparisons with Challenge Appraisal yielded a significant Avoidance–mastery effect, $F(1, 82)$ = 8.79, $p < .01$ (β = .31), indicating that performance–avoidance participants were less likely to appraise the puzzle solving session as a positive challenge than their mastery condition counterparts (M = 5.29). No other significant effects were obtained with the appraisal indexes. Regressing Actual Performance on the Basic model failed to yield any significant effects. These null results were expected (and desired) given that the puzzles selected for use in the present experiments were those that produced the least degree of performance variability in pilot testing (with 20 university undergraduates) with 11 different Nina puzzles. Effort Expenditure also failed to yield significant effects when regressed on the Basic model. The Pearson product–moment correlation between Time and Enjoy was .49 ($p < .001$), and this relationship did not significantly differ between experimental conditions.

Direct Effects From the Predictor Variables to the Outcome Measures

Table 1 displays the means for Time and Enjoy by experimental condition. Regressing Time on the Basic model revealed a significant effect for Approach–avoidance, $F(1, 81)$ = 4.24, $p < .05$ (β = .22). Participants in the performance–approach condition engaged in more puzzle solving during the free-choice period than their performance–avoidance counterparts. Ancillary planned comparisons with Time revealed a significant effect for Avoidance–mastery, $F(1, 82)$ = 5.52, $p < .05$ (β = .25), indicating that the provision of a performance–avoidance goal undermined intrinsic motivation relative to the mastery condition. No other effects were significant for Time. Consideration of the overall pattern of means in Table 1 suggests that the provision of a performance goal maintained intrinsic motivation for all participants, except when the performance goal was diagnostic of failure, in which case the performance goal undermined intrinsic motivation.

The regression of Enjoy on the Basic model yielded a significant effect of Approach–avoidance, $F(1, 81)$ = 10.77, $p < .005$ (β = .34), indicating that participants in the performance–ap-

proach condition reported greater enjoyment of the puzzles than participants in the performance–avoidance condition. Ancillary planned comparisons revealed a significant Avoidance–mastery effect for Enjoy, $F(1, 82)$ = 6.67, $p < .05$ (β = .27), indicating that participants in the performance–avoidance condition reported enjoying Nina puzzles less than those in the mastery condition. No other effects were significant for Enjoy. Similar to the results with the behavioral measure, the pattern of Enjoy means across experimental conditions (see Table 1) suggests that the provision of a performance goal undermined enjoyment of the puzzles only when the performance goal was diagnostic of failure.

Direct Effects From the Predictor Variables to the Mediator Variable

Regressing Task Involvement on the Basic model yielded a significant effect of Approach–avoidance, $F(1, 81)$ = 5.04, $p < .05$ (β = .24), indicating that performance–approach participants reported greater task involvement than their performance–avoidance counterparts. Ancillary planned comparisons with Task Involvement revealed a significant Avoidance–mastery effect, $F(1, 82)$ = 4.50, $p < .05$ (β = .23), such that performance–avoidance participants reported less Task Involvement than those in the mastery condition. No other effects were significant for Task Involvement. The pattern of means in Table 1 is highly comparable to that obtained for the two outcome measures and indicates that only when a performance goal was diagnostic of failure did it reduce task involvement.

Mediation Analyses: From the Mediator Variable to the Outcome Measures

Mediation was tested by regressing each intrinsic motivation measure on the Basic model with Task Involvement inserted into the equation (henceforth referred to as the Basic mediation model). Regressing Time on the Basic mediation model yielded a significant effect for Task Involvement, $F(1, 80)$ = 8.91, $p < .005$ (β = .32), indicating that greater task involvement led to more free-choice puzzle solving. The direct effect for Approach–avoidance no longer attained significance with Task In-

Table 1

Means for Time, Enjoy, and Task Involvement by Experimental Condition: Experiment 1

Outcome measure	Experimental condition			
	Performance–approach	Performance–avoidance	Performance–neutral	Mastery
Time	169.86a	89.86b	139.19ab	181.14a
Enjoy	5.83a	4.75b	5.17ab	5.62a
Task involvement	5.24a	4.63b	5.10ab	5.21a

Note. Within each dependent measure, means not sharing common subscripts are significantly different from each other ($p < .05$ at minimum; Fisher's least significant difference test). Time values ranged from 0 s (did not engage in any puzzle solving during the free-choice period) to 300 s (solved puzzles during the entire free-choice period). Scores on Enjoy had a possible range of 1 (low intrinsic motivation) to 7 (high intrinsic motivation). Task Involvement values had a possible range of 1 (low involvement) to 7 (high involvement). Standard deviations were 129.32, 1.13, and 0.89 for Time, Enjoy, and Task Involvement, respectively.
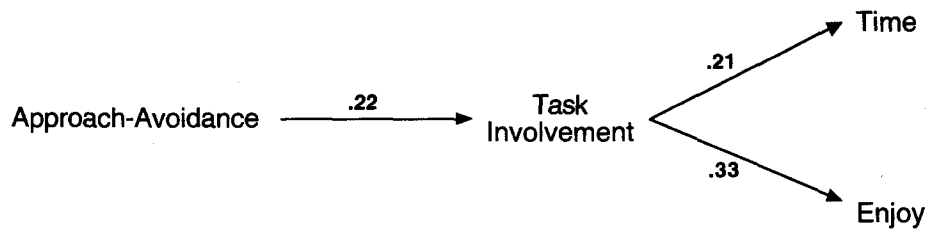
Figure 1. Path coefficients for mediation: Experiment 1. All paths indicate significant effects ($p < .05$ at minimum).

volvement in the equation, and the decrease in the beta coefficient for this effect (from .22 to .14) provides evidence that Task Involvement partially mediated the direct effect of Approach–avoidance on Time.

The regression of Enjoyment on the Basic mediational model yielded a significant effect for Task Involvement, $F(1, 80) = 21.75, p < .0001$ ($\beta = .45$), indicating that greater task involvement led to greater enjoyment of the puzzles. The direct effect of Approach–avoidance on Enjoy remained significant with Task Involvement in the equation, $F(1, 80) = 5.95, p < .05$ ($\beta = .23$); however, the diminution in the beta coefficient for this effect (from .34 to .23) suggests that Task Involvement was a partial mediator of the Approach–avoidance direct effect.[3] Figure 1 illustrates the mediational processes validated in the preceding analyses.

Supplementary Analyses With the Perceived Competence Variables

No significant effects were obtained when each of the perceived competence measures was regressed on the Basic model. A series of regression analyses was conducted to test perceived competence as a moderator of the achievement goal–intrinsic motivation relationship. Each regression tested the effect of one of the three perceived competence variables and its corresponding interaction with performance goal, approach–avoidance, or Avoidance–mastery on each measure of intrinsic motivation. For instance, Mid PC was tested as a moderator of the effect of the Approach–avoidance contrast on free-choice puzzle solving by regressing Time on Approach–avoidance, Mid PC, and the Approach–Avoidance × Mid PC interaction product term. Of the 18 interactions tested, only the Avoidance–Mastery × Anticipated Difficulty interaction on Enjoy attained significance, $F(1, 80) = 4.68, p < .05$ ($\beta = -.23$). All of the significant effects reported in the preceding analyses remained significant when the perceived competence variables were inserted into the relevant regression equations. Thus, these supplementary analyses yielded little evidence in support of perceived competence as a moderator of the effects of performance goals on intrinsic motivation and demonstrate that the direct effects obtained in the present experiment are independent of perceived competence processes.

Discussion

Results from Experiment 1 clearly attest to the predictive utility of the approach–avoidance achievement goal conceptual-

ization. Performance goals in general did not undermine intrinsic motivation relative to the mastery goal; only the performance goal directed toward avoiding incompetence produced negative effects. Performance–avoidance participants tried as hard and performed as well as those in the other three conditions and were provided with the same positive feedback, but their experience of striving to avoid failure undermined their intrinsic motivation nonetheless. Performance goal participants attempting to achieve a successful outcome, on the other hand, displayed intrinsic motivation equivalent to that of participants in the mastery goal condition and significantly higher than that of participants in the performance–avoidance condition. The provision of a performance goal without diagnosticity information did not reduce intrinsic motivation; these partici-

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[3] Mediation of the Avoidance–mastery effects was also investigated by regressing each outcome measure on the Avoidance–mastery contrast with Task Involvement included in the equation (the Avoidance mediation model). The regression of Time on this model revealed a significant effect for Task Involvement, $F(1, 81) = 9.60, p < .005$ ($\beta = .32$), and the Avoidance–mastery direct effect no longer attained significance (the beta coefficient for this effect decreased from .27 to .16). Regressing Enjoy on this model also yielded a significant Task Involvement effect, $F(1, 81) = 24.20, p < .0001$ ($\beta = .47$), and the Avoidance–mastery direct effect no longer attained significance (the beta coefficient decreased from .27 to .16). These results validate Task Involvement as a partial mediator of the Avoidance–mastery effects on intrinsic motivation.

We also tested Challenge Appraisal as an additional mediator of the observed effects by regressing each outcome measure on both the Basic and Avoidance mediation models but substituting Challenge Appraisal in the equation for Task Involvement. The regression of Time on the Basic mediation model revealed a significant effect for Challenge Appraisal, $F(1, 80) = 6.59, p < .05$ ($\beta = .28$), and the Approach–avoidance effect no longer attained significance (the beta coefficient decreased from .22 to .15). Regressing Enjoy on this model also yielded a significant effect of Challenge Appraisal, $F(1, 80) = 9.97, p < .01$ ($\beta = .33$). The direct effect of Avoidance–mastery on Enjoy remained significant, but the beta coefficient for this effect decreased from .34 to .26. The regression of Time on the Avoidance mediation model yielded a significant effect of Challenge Appraisal, $F(1, 81) = 6.99, p < .01$ ($\beta = .29$), and the Avoidance–mastery effect no longer attained significance (the beta coefficient decreased from .25 to .16). Regressing Enjoy on this model revealed a significant Challenge Appraisal effect, $F(1, 81) = 11.41, p < .01$ ($\beta = .36$), and the direct effect of Avoidance–mastery on Enjoy no longer attained significance (the beta coefficient decreased from .27 to .16). These results clearly establish Challenge Appraisal as a partial mediator of the direct effects of Approach–avoidance and Avoidance–mastery on intrinsic motivation. *(footnote continues)*

pants displayed levels of interest midway between those of the performance–approach and performance–avoidance groups. Thus, these results countervail the prevailing position that performance goals per se are deleterious to intrinsic motivation; only performance–avoidance goals are so implicated by the present data.

Task involvement was validated as a mediator of the direct effects observed on intrinsic motivation. Performance–avoidance participants reported reduced task involvement relative to participants in the performance–approach condition, and this distraction resulted in less free-choice puzzle solving and reduced enjoyment of the activity. Participants in the performance–avoidance condition also reported less task involvement than those in the mastery condition, and this task disruption, in turn, led to a reduction in intrinsic motivation.

A series of analyses provided little support for perceived competence as a moderator of the observed effects; the goals instantiated apparently exerted their influence on intrinsic motivation in a uniform manner across levels of perceived competence. Optimistically, this suggests that some types of performance goals (approach) can facilitate intrinsic motivation even for individuals presumably most susceptible to their inimical effects (those with low perceived competence); pessimistically, it implies that avoidance strivings reduce intrinsic motivation for those with high as well as low perceptions of competence.

Performance–approach and performance–avoidance orientations were instantiated in Experiment 1 by delimiting the availability of success-relevant and failure-relevant information. The experimental control afforded by this diagnosticity manipulation resulted in a powerful test of our predictions, yet it simultaneously limited the generalizability of the observed effects. Motivational orientations are commonly elicited by subtle situational cues as well as strong evaluative constraints, and it remains to be seen whether the Experiment 1 results can be replicated with a more "minimalist"

We conducted a final set of mediational analyses to test the following sequential model: independent variables → Challenge Appraisal → Task Involvement → Intrinsic Motivation. These analyses were the same as those reported in the preceding paragraph, except that Task Involvement was included in each regression equation. Regressing Time on the Basic mediation model yielded a significant Task Involvement effect, $F(1, 79) = 5.03, p < .05$ ($\beta = .25$), and the effects of Approach–avoidance and Challenge Appraisal no longer attained significance (the beta coefficients decreased from .22 to .11 and from .28 to .19, respectively). The regression of Enjoy on this model revealed a significant Task Involvement effect, $F(1, 79) = 14.31, p < .01$ ($\beta = .38$). The Challenge Appraisal effect no longer attained significance (the beta coefficient decreased from .33 to .19); the Approach–mastery effect remained significant, but the beta coefficient decreased from .34 to .20. The regression of Time on the Avoidance mediation model revealed a significant effect for Task Involvement, $F(1, 80) = 5.37, p < .05$ ($\beta = .26$), and neither the Avoidance–mastery nor the Challenge Appraisal effects remained significant (the beta coefficients decreased from .25 to .13 and from .29 to .19, respectively). Regressing Enjoy on this model revealed a significant Task Involvement effect, $F(1, 80) = 15.69, p < .01$ ($\beta = .40$). The Avoidance–mastery effect no longer attained significance (the beta coefficient decreased from .27 to .12); the Challenge Appraisal effect remained significant, but the beta coefficient decreased from .36 to .21. These results represent strong evidence in support of the hypothesized sequential model.

form of goal manipulation (Prentice & Miller, 1992). Several investigators have demonstrated that motivational orientations can be manipulated by procedures that differentially focus participants' attention on potential success or failure outcomes. These procedures vary in complexity from the cognitive rehearsal of hypothetical success or failure scenarios (e.g., Goodhart, 1986) to the mere framing of a single question in terms of positive or negative possibilities (e.g., Higgins, Roney, Crowe, & Hymes, 1994; Tversky & Kahneman, 1981). The manipulation used in Experiment 2 resembled the latter more than the former: Performance–approach and performance–avoidance orientations were differentially instantiated simply through the provision of a brief sentence highlighting the possibility of a success or failure outcome, respectively.

Experiment 2

Method

Overview

Experiment 2 was designed to replicate the direct and mediational effects demonstrated in Experiment 1 using a more subtle manipulation of the performance–approach and performance–avoidance orientations. Participants solved Nina puzzles under one of three experimental contexts: a performance goal with a positive outcome focus (performance–approach), a performance goal with a negative outcome focus (performance–avoidance), or a mastery goal. Participants in all three conditions received positive task-based and normative feedback on completion of the puzzles, and process measures were collected three times over the course of the experimental session. Both behavioral and self-report indicators of intrinsic motivation were used.

Participants

Forty-seven male and 45 female university undergraduates were randomly assigned to one of the three experimental conditions. The participants received extra course credit for their participation.

Procedure and Measures

The procedure used in Experiment 2 was the same as that used in Experiment 1, excepting the new performance goal manipulations and some minor additions and revisions in the measures. Before the manipulation, pretest enjoyment (Preenjoy) was assessed with the question "At this time, how enjoyable do you think this Nina puzzle activity is?" and participants responded on a 7-point scale ranging from not at all enjoyable (1) to very enjoyable (7). Participants then proceeded to solve four Nina puzzles in one of three experimental conditions. Those in both performance goal conditions were informed:

> Our research group studies game playing and puzzle solving and the focus of today's session is on hidden figure puzzles. The purpose of this project is to compare college students to one another in their ability to solve hidden figure puzzles—specifically, our Nina puzzles. Your performance in today's session will show your level of puzzle solving ability.

In addition, performance–approach participants read the following: "For instance, if you find more Ninas than a majority of UW students, you will demonstrate that you have good puzzle solving ability." Participants in the performance–avoidance condition read: "For instance, if you find fewer Ninas than a majority of UW students, you will demonstrate that you have poor puzzle solving ability." Thus, the two perfor-

mance goal orientations focused participants' attention on a potential performance outcome, and two words distinguished the performance-approach (*more* and *good*) from the performance-avoidance (*fewer* and *poor*) condition. After the initial paragraph, participants in both performance goal groups were also informed:

> In today's session, you will be solving four different Nina puzzles. You will be given 90 seconds per puzzle to find the hidden Ninas. The number of hidden Ninas is different for each puzzle, but none of the puzzles has more than 15 Ninas hidden in it. When you have completed the four puzzles, you will be provided with information regarding how you did compared to other UW students.

The mastery goal condition was identical to that used in Experiment 1.

On receipt of the manipulation, all participants were asked to indicate the purpose of the experiment (as a manipulation check).[4] Immediately before task engagement, participants were asked, "How important to you is your performance on the Nina puzzles?" (1 = *not at all important*, 7 = *very important*). They also responded to the following item: "I care very much about how I do on these Nina puzzles" (1 = *strongly disagree*, 7 = *strongly agree*). The responses to these items were averaged to form a competence valuation index. As in Experiment 1, perceived competence was assessed before, at the midpoint of, and at the conclusion of task engagement. However, in addition to Anticipated Difficulty, participants' Anticipated Performance was also assessed by the question "How do you think you will do on the Nina puzzles today?" This item was designed to correspond more closely to the Mid and Post PC measures used in Experiment 1, and participants responded on a 7-point scale ranging from *very poorly* (1) to *very well* (7).

Task involvement is a construct that encompasses both absorption in the activity and a lack of distraction from the task. However, the Experiment 1 Task Involvement index assessed only the presence of absorption; thus, we added items that directly probed for the presence of task distraction as well. Accordingly, the Experiment 2 Task Involvement index comprised both absorption (e.g., "I concentrated on finding the hidden Ninas") and distraction ("I had trouble focusing my attention on the puzzles," "I felt self-conscious," and "I thought about things unrelated to the puzzles or the experiment") items. Participants responded on 7-point scales ranging from *strongly disagree* (1) to *strongly agree* (7).[5]

Pilot Study

We conducted a pilot study for Experiment 2 to ensure that the subtle outcome focus manipulations would indeed have their intended effects (the Experiment 1 appraisal items could not be used in this role because the directness of the questions would have compromised the subtle nature of the manipulations). Twenty-one male and 30 female participants underwent the Experiment 2 procedure to the point at which they received one of the three manipulations; then they completed a brief questionnaire and were dismissed. An Approach Orientation measure was created by averaging participants' responses (1 = *not at all true of me*, 7 = *very true of me*) on two items: "My goal for the puzzle solving session is to demonstrate that I have good puzzle solving ability" and "I view the puzzle solving session as a positive challenge." An avoidance orientation measure consisted of "My goal for the puzzle solving session is to avoid demonstrating that I have poor puzzle solving ability" and "I view the puzzle solving session as a threat."

Regression analyses revealed a significant Approach–avoidance effect for Avoidance Orientation, $F(1, 48) = 5.00, p < .05$ ($\beta = .30$), indicating that Performance–avoidance participants scored higher on the Avoidance Orientation measure ($M = 2.71$) than their performance–approach counterparts ($M = 1.94$). The Avoidance–mastery effect was also significant for Avoidance Orientation, $F(1, 49) = 4.20, p < .05$ ($\beta = .28$), such that performance–avoidance participants scored higher on

the Avoidance Orientation measure than those in the mastery condition ($M = 2.00$). No other effects were significant. These analyses suggest that the Experiment 2 manipulations do indeed prompt differential motivational orientations along the approach–avoidance dimension.

Results

Overview

The data-analytic approach used in Experiment 2 was the same as that used in Experiment 1, with two exceptions. First, the performance-neutral group was dropped from each of the contrasts because this goal orientation was not included in the Experiment 2 design. Second, Preenjoy (measured continuously) and the Preenjoy × Contrast interaction product terms were included in preliminary analyses with all outcome measures (these variables were retained in regression models only when they attained significance).

Preliminary Analyses

Regressing Actual Performance and Effort Expenditure on the Basic model failed to yield any significant effects. In addition, the regression with Competence Valuation revealed no sig-

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[4] Coding of these open-ended responses revealed that 95% of the participants correctly stated the purpose of the experiment. At the end of the experiment, participants were also asked, "Which example were you given at the beginning of the experiment?" Participants indicated their response by checking one of the following: "If you find more Ninas than a majority of UW students, you will demonstrate that you have good puzzle solving ability"; "If you find fewer Ninas than a majority of UW students, you will demonstrate that you have poor puzzle solving ability"; or "neither of the above." Reflecting the relative subtlety of the experimental manipulation, 73% of participants checked the correct response (in comparison with 98% in Experiment 1). Eight participants in the performance–approach condition checked "neither" rather than the "good" option; 7 participants in the performance–avoidance condition checked the "good" option, and 1 checked "neither" rather than the "poor" option; and 6 participants in the mastery goal condition checked the "good" option, and 3 checked the "poor" option rather than the "neither" option.

[5] Following the lead of Reeve and Deci (in press; see also Wild, Enzle, & Hawkins, 1992), we also partitioned the behavioral measure of intrinsic motivation into two distinct categories: persistence with the actual target activity used in the experimental session (Nina Puzzles) and persistence with a slight variant of the target activity (Highlights Puzzles). Nina and Highlights puzzles were placed in separate piles on the subject desk, and observers were trained to independently record extra Nina and Highlights puzzle solving. Reeve and Deci argued that time spent engaging in a slight variant of the target activity is a more pure indicator of intrinsic motivation because it is unlikely to be associated with internal pressure or frustration engendered by the experimental procedure. Both Nina and Highlights puzzles were significantly correlated with Enjoyment ($p < .05$), and these relationships were of approximately equal magnitude (.21 and .23, respectively). Neither correlation differed significantly between experimental conditions. This pattern of correlations suggests that both Nina and Highlights Puzzles assessed intrinsically motivated free-choice behavior. Highlights Puzzles did prove to be more sensitive to the experimental manipulations than Nina Puzzles: The results for Highlights Puzzles were virtually identical to those reported in the text for the omnibus measure (time); null results were obtained for Nina Puzzles.

nificant differences between experimental conditions. These null results suggest that participants in all conditions were equally committed to competent performance on the Nina puzzles. The correlation between Time and Enjoy was .30 ($p <$ .005), and this relationship did not significantly differ between experimental conditions.

Direct Effects From the Predictor Variables to the Outcome Measures

Table 2 displays the means for Time and Enjoy by experimental condition. The regression of Time on the Basic model revealed a significant effect for Approach–avoidance, $F(1, 89)$ = 4.57, $p < .05$ (β = .22). Participants in the performance–approach condition engaged in more puzzle solving during the free-choice period than participants in the performance–avoidance condition. Ancillary planned comparisons revealed a significant Avoidance–mastery effect, $F(1, 90)$ = 6.12, $p < .05$ (β = .25), indicating that performance–avoidance participants spent less time solving the extra puzzles than their mastery counterparts. No other significant effects were obtained for Time. Thus, it appears that the provision of a performance goal undermined intrinsic motivation when the possibility of failure was made salient, but intrinsic motivation was maintained when the performance goal focused on the possibility of success.

The regression of Enjoy on the basic model revealed a significant Preenjoy main effect, $F(1, 88)$ = 32.26, $p < .0001$ (β = .51), indicating that those who reported higher enjoyment of the puzzles before the experimental manipulation reported greater enjoyment at the conclusion of the experimental session. The Approach–avoidance effect was marginally significant, $F(1, 88)$ = 3.31, $p < .07$ (β = .17), suggesting that performance–approach participants enjoyed the puzzles more than those in the performance–avoidance condition. No other effects were significant for Enjoy.

Table 2
Means for Time, Enjoy, and Task Involvement by Experimental Condition: Experiment 2

| | Experimental condition | | |
Outcome measure	Performance–approach	Performance–avoidance	Mastery
Time	135.53ₐ	69.42_b	145.39ₐ
Enjoy	5.40ₐ	4.99_b	5.05_ab
Task involvement	5.43ₐ	5.03_b	5.50ₐ

Note. For Time and Task Involvement, means not sharing common subscripts are significantly different from each other ($p < .05$ at minimum; Fisher's least significant difference test). Scores for Time ranged from 0 s (did not engage in any puzzle solving during the free-choice period) to 300 s (solved puzzles during the entire free-choice period). Task Involvement values had a possible range of 1 (low involvement) to 7 (high involvement). For Enjoy, means not sharing common subscripts differ at $p < .07$. Enjoy values had a possible range of 1 (low intrinsic motivation) to 7 (high intrinsic motivation), although the values shown were adjusted for Preenjoy. Standard deviations were 124.24, 0.78, and 1.02 for Time, Task Involvement, and Enjoy, respectively.

Direct Effects From the Predictor Variables to the Mediator Variable

The regression of Task Involvement on the Basic model revealed a significant Approach–avoidance effect, $F(1, 89)$ = 4.14, $p < .05$ (β = .21). Participants reported greater task involvement in the performance–approach condition than in the performance–avoidance condition (see Table 2 for means). A significant effect for the Avoidance–mastery planned comparison, $F(1, 90)$ = 5.99, $p < .05$ (β = .25), indicated that performance–avoidance participants were less task involved during the puzzle solving session than those in the mastery group. No other significant effects were obtained for Task Involvement.

Mediation Analyses: From the Mediator Variable to the Outcome Measures

Mediation was tested by regressing each intrinsic motivation measure on the Basic model with Task Involvement included in the regression equation (the Basic mediation model). The regression of Time on the Basic mediation model yielded a significant Task Involvement effect, $F(1, 88)$ = 4.02, $p < .05$ (β = .21), indicating that greater task involvement led to more free-choice puzzle solving. From the decrease in the beta coefficient for the Approach–avoidance direct effect (from .22 to .17 with Task Involvement in the equation) and the fact that this effect no longer attained significance, it may be concluded that Task Involvement partially mediated the direct effect of Approach–avoidance on Time.

Regressing Enjoy on the Basic mediation model yielded a significant effect for Task Involvement, $F(1, 87)$ = 16.15, $p <$ .0005 (β = .35). Participants reporting greater levels of Task Involvement also reported greater enjoyment of the puzzles. The Preenjoy effect remained significant with Task Involvement in the regression equation, $F(1, 87)$ = 37.59, $p < .0001$ (β = .51), but the Approach–avoidance direct effect no longer approached significance ($p > .25$). From the decrease in the beta coefficient for the Approach–avoidance effect (from .17 to .09 with Task Involvement in the equation), it is evident that Task Involvement served to partially mediate the direct effect of Approach–avoidance on Enjoyment.[6] Figure 2 illustrates the pattern of mediation demonstrated in the preceding analyses.

Supplementary Analyses With the Perceived Competence Variables

Regressing Post PC on the basic model revealed a significant Preenjoy main effect, $F(1, 88)$ = 7.81, $p < .01$ (β = .28), indicating that participants who enjoyed the puzzles before the experimental session reported greater perceived competence after task engagement. However, no significant experimental effects

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[6] Mediation of the Avoidance–mastery effect for Time also was investigated. Regressing Time on the Avoidance mediation model yielded a significant effect for Task Involvement, $F(1, 89)$ = 4.43, $p < .05$ (β = .22). The Avoidance–mastery contrast no longer attained significance, and the beta coefficient decreased from .25 to .20, thereby establishing Task Involvement as a partial mediator of the direct effect of Avoidance–mastery on Time.
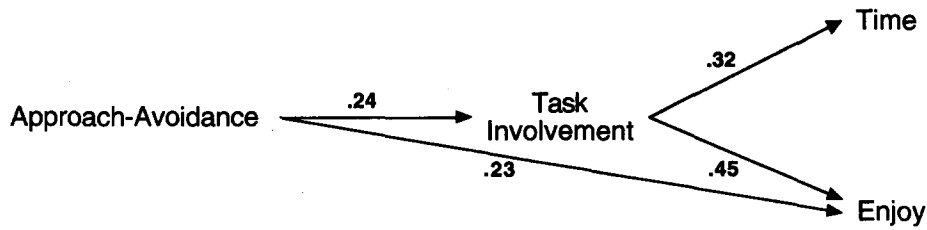
Figure 2. Path coefficients for mediation: Experiment 2. All paths indicate significant effects ($p < .05$ at minimum). The direct effect of Preenjoy ($\beta = .50$) was also significant on Enjoy ($p < .05$), but this effect was not included in the path model for the sake of presentation clarity.

were obtained when each of the perceived competence variables was regressed on the Basic model. As in the Experiment 1 analyses, a series of regression analyses was conducted to test perceived competence as a moderator of the performance goal–intrinsic motivation relationship. Each regression tested the effect of one of the four perceived competence variables and its corresponding interaction with Performance Goal, Approach–avoidance, or Avoidance–mastery on one measure of intrinsic motivation. No significant effects were obtained in any of the 24 analyses conducted. In addition, all of the significant effects reported in the preceding analyses remained significant, and the marginal effect for Enjoy remained marginally significant. Clearly, the effects documented in the present experiment are independent of perceived competence processes.

Meta-Analysis of Experiments 1 and 2

Given that Experiment 2 included a conceptual replication of Experiment 1, results from the two experiments were combined by means of the Stoufer method of adding Z scores (Rosenthal, 1978). Any effect that surpassed the conventional level of significance ($p < .05$) in either experiment was analyzed via this meta-analytic procedure. Both the Approach–avoidance and Avoidance–mastery effects on Time became highly significant when combined meta-analytically across experiments ($Z = 2.94$, $p < .005$, and $Z = 3.48$, $p < .0005$, respectively). Combining the Enjoy results revealed a highly significant effect for Approach–avoidance ($Z = 3.57$, $p < .0005$) and a marginally significant effect for Avoidance–mastery ($Z = 1.87$, $p = .06$). The meta-analytic effect of Approach–avoidance on Task Involvement was highly significant ($Z = 2.99$, $p < .005$), as was the effect for Avoidance–mastery ($Z = 3.18$, $p < .005$). Thus, the direct effects of Approach–avoidance and Avoidance–mastery proved highly robust across the two experiments. Likewise, the relationship between Task Involvement and intrinsic motivation (the final link in the mediational sequence) was highly reliable, as evidenced by the Z scores for the Time (3.53, $p < .0005$) and Enjoy (5.47, $p < .0001$) variables.

Discussion

Despite the use of a relatively subtle outcome focus manipulation, the results of Experiment 2 largely replicated those obtained in Experiment 1. These findings verify the generalizability of the Experiment 1 effects beyond the strong diagnosticity manipula-

tion and provide further substantiation of the predictive utility of the approach–avoidance achievement goal conceptualization. Analyses with the behavioral measure of intrinsic motivation yielded a pattern of effects virtually identical to that demonstrated in Experiment 1. Only performance–avoidance participants displayed decreased free-choice puzzle solving relative to those in the mastery condition; performance–approach participants' free-choice puzzle solving was equivalent to that of mastery participants and significantly greater than that of their performance–avoidance counterparts. Results for self-reported enjoyment partially replicated those obtained in Experiment 1. Performance–avoidance participants tended to report less enjoyment of the Nina puzzles than those in the performance–approach condition, but they did not report less enjoyment than mastery goal participants. However, when results from the two experiments were combined meta-analytically, this Avoidance–mastery effect did appear to be a reliable finding (at the $p = .06$ level), and meta-analyses of the other aforementioned effects attest to the robustness of the results across experiments (for all effects, $p < .005$ at minimum). Thus, the data from the two experiments strongly support the proposition that performance goals aimed at avoiding the demonstration of incompetence undermine intrinsic motivation, whereas performance goals directed toward the attainment of competence do not.

As in Experiment 1, task involvement was validated as a mediator of the observed effects on intrinsic motivation. Performance–avoidance participants reported a reduction in task involvement relative to those in the performance–approach condition, and this distraction subsequently resulted in less free-choice puzzle solving and reduced enjoyment of the activity. Performance–avoidance participants' reports of task involvement were also lower than those of participants in the mastery condition, and this reduction, in turn, led to less free-choice puzzle solving. These mediational processes correspond nicely to those documented in Experiment 1. Also congruent with Experiment 1, all of the observed effects were independent of perceived competence processes.

General Discussion

Most achievement goal and intrinsic motivation theorists posit the existence of two primary goal orientations—mastery and performance—and contend that mastery goals facilitate intrinsic motivation, whereas performance goals are inimical in their effects. In the present research, we proffered an alternative

achievement goal conceptualization by partitioning the performance goal into independent approach and avoidance orientations, and we proposed that the deleterious effect of performance goals on intrinsic motivation should be witnessed only for the performance–avoidance goal state. Results from two experiments attested to the predictive utility of the alternative relative to the prevailing achievement goal framework. Performance goals focused on avoiding incompetence undermined intrinsic motivation relative to both a mastery goal and a performance goal directed toward the attainment of competence. These latter, approach orientations manifested equivalent levels of intrinsic motivation. Results from the two experiments displayed an impressive degree of convergence, and meta-analyses attested to the robustness of the observed effects across variants of the approach–avoidance manipulation and indicators of intrinsic motivation.

Performance–avoidance participants in the present experiments valued competence as much, exerted as much effort, and performed as well as their performance–approach and mastery goal counterparts, but they evidenced a decrease in subsequent intrinsic motivation nonetheless. Striving to avoid failure and striving to attain success (be it task or normatively referenced) apparently engendered the same quantity of motivation; it was the qualitative nature of the motivation that differed, with important intrinsic motivation ramifications. Thus, an avoidance goal may be a "great motivator" in the sense that it can elicit affective investment and vigorous action resulting in successful accomplishments, but this process of "active avoidance" apparently exacts a phenomenological cost. The negative effects of avoidance motivation are not necessarily constrained to the phenomenological realm, however; deleterious consequences have also been documented on a variety of achievement behaviors such as persistence in the face of failure, task choice, and patterns of attributions for success and failure (Atkinson & Litwin, 1960; Feather, 1963; Heckhausen, Schmalt, & Schneider, 1985). Performance decrements as a function of failure avoidance are also sometimes witnessed, particularly in investigations that (unlike the present experiments) allow maximum performance variability (Anderson & Sauser, 1995; Hembree, 1988), use cognitively demanding tasks (Birney et al., 1969; Sieber, O'Neill, & Tobias, 1977), and utilize longitudinal designs (Norem & Cantor, 1990; O'Conner, Atkinson, & Horner, 1966).

Process analyses validated task involvement as a mediator of the deleterious effects of performance–avoidance goals on intrinsic motivation. Specifically, performance–avoidance goals led to reduced task involvement relative to performance–approach and mastery goals, and this distraction, in turn, resulted in decreased intrinsic motivation. Performance–approach and mastery goal participants evidenced similar levels of task involvement and subsequent intrinsic motivation. In essence, this pattern of mediation suggests that the approach forms of motivation enabled individuals to "drop down" to the activity level and become absorbed in the process of task engagement, whereas the avoidance orientation disrupted task focus and promoted perseveration at the "higher" level of self-concerns (Kuhl, 1985; Vallacher & Wegner, 1987). In colloquial terminology, approach-motivated participants were able to "forget about themselves" and their reasons for task engagement and "dive into the activity"; avoidance-motivated individuals were

unable to "lose themselves" in the task in the same fashion. Immersion in the activity relatively unencumbered by higher order concerns facilitated enjoyment of the task; inability to become absorbed in the activity resulted in a less enjoyable experience (see Hembree, 1988, and Spielberger & Vagg, 1995, for discussions relevent to the more complex relationship between task involvement and performance). This mediation via task involvement was documented in both experiments, and these results represent the first within manuscript replication of mediational processes in the achievement and intrinsic motivation literatures (indeed, they represent one of the few existing demonstrations of either mediation with a behavioral measure of intrinsic motivation or mediation of an achievement goal effect; see also Elliot & Harackiewicz, 1994). It is likely that a number of processes in addition to task involvement are relevant to the relationship between approach–avoidance goal and intrinsic motivation (e.g., self-determination [Deci & Ryan, 1990] and perceptual–cognitive sensitivity to success- and failure-relevant information [Higgins et al., 1994; Wegner, 1994]); subsequent research efforts are needed to explore the role of these other potential mediational mechanisms.

Since the early 1970s, a number of achievement motivation theorists have displayed a tendency to use high–low perceived competence as a surrogate for approach–avoidance motivation (Kukla, 1972; Meyer, 1987), and those in the achievement motivation tradition have clearly followed this trend (cf. Nicholls, 1984). Given this context, the results of the present experiments are noteworthy because they demonstrate effects of approach and avoidance motivational orientations that are independent of perceived competence processes. An extensive series of analyses failed to validate perceived competence as a moderator of the observed effects, and the effects remained significant when the direct and interactive influence of perceived competence was statistically controlled. This is not to say that perceptions of competence never play a role in approach–avoidance motivational regulation. On the contrary, we believe that perceived competence effects are likely to be revealed in investigations that conceptualize and test perceived competence as an antecedent of goal adoption, manipulate success and failure, or explore the development, rather than the maintenance, of intrinsic interest (Elliot & Harackiewicz, 1994; Harackiewicz, Sansone, & Manderlink, 1985). Thus, results from the present experiments support the conclusion that approach–avoidance orientations can affect motivational processes independent of perceptions of competence; in no way do they call into question the general relevance or utility of the perceived competence construct.

One of the most important issues related to perceived competence that awaits empirical exploration is the stability of the performance–approach orientation on receipt of negative feedback. Feedback was held constant in the present experiments (all participants received positive task-based and normative feedback); variation in success and failure feedback would have been necessary to determine whether individuals can maintain a performance–approach goal in the face of failure or whether failure would inevitably elicit a performance–avoidance orientation (and, presumably, decrease intrinsic motivation). Although some types of failure experiences would undoubtedly elicit a performance–avoidance orientation (e.g., repeated fail-

ure that unequivocally signifies incompetence), the very adoption of a performance–approach goal evokes a set of "directional" or biased perceptual–cognitive processes (Dweck & Leggett, 1988; see Kunda, 1990) that may serve as bulwarks, protecting and consequently perpetuating the approach orientation. These goal-induced processes would probably be bolstered and expanded by myriad "normal" social information-processing biases (Brown, 1991; Taylor & Brown, 1988) and the host of post hoc self-protective strategies available to the individual (Snyder & Higgins, 1988; Wills, 1981). To the extent that these processes and strategies successfully evade, minimize the impact of, or reconstrue negative information, the performance–approach orientation is likely to remain intact.

In introducing the approach–avoidance achievement goal conceptualization, we have focused on the fundamental similarity of performance–approach and mastery goals, comparing these approach orientations with the performance–avoidance goal state. In so doing, we do not intend to infer that the two approach orientations always elicit the same motivational processes or that they always produce identical achievement outcomes. The external evaluation inherent in performance–approach goals may, in some contexts (e.g., when normative feedback is dispensed in a controlling manner), reduce feelings of self-determination and undermine subsequent intrinsic motivation (Deci & Ryan, 1985). In other contexts (e.g., performance of a monotonous or overlearned activity), however, the provision of a performance–approach goal may make competence more salient or valued and, consequently, may enhance intrinsic motivation through the competence valuation process (Harackiewicz, 1989). Thus, we believe that the effect of achievement goals varies as a function of achievement contexts, and it seems likely that performance–approach and mastery goals will reveal a comparable pattern of results in some contexts and disparate effects in others.

On a related note, consideration of the procedures used in the present experiments suggests that the performance goal contexts established were relatively benign in nature: Evaluative pressure was minimized (e.g., by limiting the amount of experimenter–participant interaction), positive competence processes were maximized (through the provision of positive task-based and normative feedback at task completion), and the performance goal manipulations made no reference to the testing of valued attributes (e.g., intelligence; see Ryan, 1982). The fact that the performance–avoidance orientation undermined intrinsic motivation even under such benign conditions seems to warrant the unequivocal conclusion that avoidance motivation is deleterious to intrinsic motivation. Conversely, the procedures used did not afford as stringent a test of the comparability of the two approach orientations; thus, the null effects obtained in the present experiments warrant less definitive interpretive statements. Further research is needed to probe the functional comparability of performance–approach and mastery goals and to delineate the effect that various achievement contexts have on this comparability; we suspect that these empirical efforts will reveal the need to incorporate a greater degree of differentiation between the two approach orientations.

Contemporary achievement goal research has yielded a wealth of knowledge regarding the qualitatively distinct motivational orientations that individuals adopt in achievement settings and the

effect of this goal adoption on competence-relevant affect, cognition, and behavior. These findings not only further the progress of basic psychological research on achievement motivation processes, they also have important applied ramifications for the classroom, the office, and the ball field. However, a limitation of the research conducted to date is the nearly exclusive consideration of only two distinct motivational orientations: performance and mastery goals. Dweck and colleagues (Bergen & Dweck, 1989; Henderson & Dweck, 1990) have argued that the prevailing performance–mastery distinction is a rudimentary, simplified representation of achievement motivation and that achievement goal frameworks will eventually need to evolve toward a greater degree of complexity. One evolutionary option was proffered in the present research: the partitioning of the performance goal orientation into independent approach and avoidance components. Two intrinsic motivation experiments clearly attested to the predictive utility of this approach–avoidance distinction, and a high priority for future research is to test the generalizability of this framework to other important variables in the achievement goal nomological network. Ironically, approach and avoidance were recognized as independent motivational tendencies in the classic need achievement theory (Atkinson, 1957), one of the primary theoretical frameworks that the contemporary achievement goal approach usurped in establishing its current sovereignty. It is our contention that incorporation of this approach–avoidance distinction would afford the achievement goal approach greater theoretical and empirical precision, thereby further solidifying its present reign.

References

Ames, C. (1984). Competitive, cooperative, and individualistic goal structures: A cognitive-motivational analysis. In C. Ames & R. Ames (Eds.), Research on motivation in education (Vol. 3, pp. 177–207). New York: Academic Press.

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. Journal of Educational Psychology, 84, 261–271.

Ames, C., & Archer, J. (1987). Mothers' beliefs about the role of ability and effort in school learning. Journal of Educational Psychology, 79, 409–414.

Anderson, S., & Sauser, W. (1995). Measurement of test anxiety: An overview. In C. Spielberger & P. Vagg (Eds.), Test anxiety: Theory, assessment, and treatment (pp. 15–34). Washington, DC: Taylor & Francis.

Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. Psychological Review, 6, 359–372.

Atkinson, J. W., & Litwin, G. H. (1960). Achievement motive and test anxiety conceived as motive to approach success and motive to avoid failure. In D. McClelland & R. Steele (Eds.), Human motivation: A book of readings (pp. 145–163). Morristown, NJ: General Learning Press.

Bergen, R. S., & Dweck, C. S. (1989). The functions of personality theories. In R. Wyer & T. Srull (Eds.), Advances in social cognition: Social intelligence and cognitive assessments of personality (pp. 81–92). Hillsdale, NJ: Erlbaum.

Berlyne, D. N. (1960). Conflict, arousal, and curiosity. New York: McGraw-Hill.

Birney, R., Burdick, H., & Teevan, R. (1969). Fear of failure. New York: Van Nostrand Reinhold.

Brown, J. (1991). Accuracy and bias in self-knowledge. In C. Snyder & D. Forsyth (Eds.), Handbook of social and clinical psychology: The health perspective (pp. 158–178). New York: Pergamon Press.

Butler, R. (1992). What young people want to know when: Effects of

mastery and ability goals on interest in different kinds of social comparisons. *Journal of Personality and Social Psychology, 62,* 934–943.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience.* New York: Harper & Row.

Deci, E. L. (1975). *Intrinsic motivation.* New York: Plenum.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior.* New York: Plenum.

Deci, E. L., & Ryan, R. M. (1990). A motivational approach to self: Integration in personality. In R. Dientsbier (Ed.), *Nebraska Symposium on Motivation* (Vol. 38, pp. 237–288). Lincoln: University of Nebraska Press.

Depreeuw, E. (1992). On the fear of failure construct: Active and passive test anxious students behave differently. In K. Hagtvet & T. Johnsen (Eds.), *Advances in test anxiety research* (Vol. 7, pp. 32–46). Amsterdam: Swets & Zeitlinger.

Dweck, C. S. (1985). Intrinsic motivation, perceived control, and self-evaluation maintenance: An achievement goal analysis. In C. Ames & R. Ames (Eds.), *Research on motivation in education: The classroom milieu* (pp. 289–305). New York: Academic Press.

Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41,* 1040–1048.

Dweck, C. S., & Bempechat, J. (1983). Children's theories of intelligence: Consequences for learning. In S. Paris, G. Olsen, & H. Stevenson (Eds.), *Learning and motivation in the classroom* (pp. 239–256). Hillsdale, NJ: Erlbaum.

Dweck, C. S., & Elliott, E. S. (1983). Achievement motivation. In E. M. Hetherington (Ed.), *Socialization, personality, and social development* (pp. 643–691). New York: Wiley.

Dweck, C. S., & Leggett, E. L. (1988). A social–cognitive approach to personality. *Psychological Review, 95,* 256–273.

Elliot, A. J. (1994). *Approach and avoidance achievement goals: An intrinsic motivation analysis.* Unpublished doctoral dissertation, University of Wisconsin–Madison.

Elliot, A. J. (1995). *Reconceptualizing the achievement goal-intrinsic motivation relationship: An approach/avoidance analysis.* Manuscript in preparation.

Elliot, A. J., & Harackiewicz, J. M. (1994). Goal setting, achievement orientation, and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology, 66,* 968–980.

Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology, 54,* 5–12.

Feather, N. T. (1963). Persistence at a difficult task with alternative task of intermediate difficulty. *Journal of Abnormal and Social Psychology, 66,* 604–609.

Folkman, S., & Lazarus, R. (1985). If it changes it must be process: A study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology, 48,* 150–170.

Geen, R. G. (1987). Test anxiety and behavioral avoidance. *Journal of Research in Personality, 21,* 481–488.

Goodhart, D. E. (1986). The effects of positive and negative thinking on performance in an achievement situation. *Journal of Personality and Social Psychology, 51,* 117–124.

Harackiewicz, J. M. (1989). Performance evaluation and intrinsic motivation processes: The effects of achievement orientation and rewards. In D. Buss & N. Cantor (Eds.), *Personality psychology: Recent trends and emerging directions* (pp. 128–137). New York: Springer-Verlag.

Harackiewicz, J. M., & Elliot, A. J. (1993). Achievement goals and intrinsic motivation. *Journal of Personality and Social Psychology, 65,* 904–915.

Harackiewicz, J. M., & Sansone, C. (1991). Goals and intrinsic motivation: You *can* get there from here. In M. L. Maehr & P. R. Pintrich

(Eds.), *Advances in motivation and achievement* (Vol. 7, pp. 21–49). Greenwich, CT: JAI Press.

Harackiewicz, J., Sansone, C., & Manderlink, G. (1985). Competence, achievement orientation, and intrinsic motivation: A process analysis. *Journal of Personality and Social Psychology, 48,* 493–508.

Harlow, H. F. (1953). Motivation as a factor in the acquisition of new responses. In *Current theory and research in motivation: A symposium* (pp. 24–49). Lincoln: University of Nebraska Press.

Heckhausen, H., Schmalt, H., & Schneider, K. (1985). *Achievement motivation in perspective* (M. Woodruff & R. Wicklund, Trans.). New York: Academic Press.

Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. *Review of Educational Research, 58,* 47–77.

Henderson, V. L., & Dweck, C. S. (1990). Motivation and achievement. In S. Feldman & G. Elliot (Eds.), *At the threshold: The developing adolescent* (pp. 308–329). Cambridge, MA: Harvard University Press.

Heyman, G. D., & Dweck, C. S. (1992). Achievement goals and intrinsic motivation: Their relation and their role in adaptive motivation. *Motivation and Emotion, 16,* 231–247.

Higgins, E. T., Roney, C., Crowe, E., & Hymes, C. (1994). Ideal versus ought predilections for approach and avoidance: Distinct self-regulatory systems. *Journal of Personality and Social Psychology, 66,* 276–286.

Howell, D. C. (1987). *Statistical methods for psychology.* Boston: Duxbury Press.

Jerusalem, M., Liepmann, D., & Hermann, C. (1985). Test anxiety and achievement motivation: An analysis of causal relationships. In H. Van der Ploeg, R. Schwarzer, & C. Spielberger (Eds.), *Advances in test anxiety* (Vol. 4, pp. 135–138). Lisse, The Netherlands: Swets & Zeitlinger.

Judd, C. M., & Kenny, D. A. (1981). Process analysis: Estimating mediation in treatment evaluations. *Evaluation Review, 5,* 602–619.

Koestner, R., & Zuckerman, M. (1994). Causality orientations, failure and achievement. *Journal of Personality, 62,* 321–346.

Koestner, R., Zuckerman, M., & Koestner, J. (1987). Praise, involvement, and intrinsic motivation. *Journal of Personality and Social Psychology, 53,* 383–390.

Kuhl, J. (1985). Volitional mediators of cognition-behavior consistency: Self-regulatory processes and action versus state orientation. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behavior* (pp. 101–128). New York: Springer-Verlag.

Kukla, A. (1972). Attributional determinants of achievement-related behavior. *Journal of Personality and Social Psychology, 21,* 166–174.

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin, 108,* 480–498.

Lepper, M. R. (1981). Intrinsic and extrinsic motivation in children: Detrimental effects of superfluous social controls. In W. A. Collins (Ed.), *Aspects of the development of competence: The Minnesota Symposium on Child Psychology* (Vol. 14, pp. 155–214). Hillsdale, NJ: Erlbaum.

Lewin, K., Dembo, T., Festinger, L., & Sears, P. S. (1944). Level of aspiration. In J. McHunt (Ed.), *Personality and the behavior disorders* (Vol. 1, pp. 333–378). New York: Ronald Press.

Maehr, M. L. (1989). Thoughts about motivation. In C. Ames & R. Ames (Eds.), *Research on motivation in education: Goals and cognitions* (Vol. 3, pp. 299–315). New York: Academic Press.

Maehr, M. L., & Nicholls, J. G. (1980). Culture and achievement motivation: A second look. In N. Warren (Ed.), *Studies in cross-cultural psychology* (Vol. 2, pp. 221–267). New York: Academic Press.

McClelland, D. C. (1951). Measuring motivation in phantasy: The achievement motive. In H. Guetzkow (Ed.), *Groups, leadership, and men* (pp. 191–205). Pittsburgh, PA: Carnegie Press.

Meece, J. L., Blumenfeld, P. C., & Hoyle, R. H. (1988). Students' goal

orientations and cognitive engagement in classroom activities. *Journal of Educational Psychology, 80,* 514–523.

Meyer, W. (1987). Perceived ability and achievement-related behavior. In F. Halisch & J. Kuhl (Eds.), *Motivation, intention, and volition* (pp. 73–86). New York: Springer-Verlag.

Nicholls, J. G. (1979). Quality and equality in intellectual development. *American Psychologist, 34,* 1071–1084.

Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91,* 328–346.

Nicholls, J. G. (1989). *The competitive ethos and democratic education.* Cambridge, MA: Harvard University Press.

Nicholls, J. G., Patashnick, M., Cheung, P., Thorkildsen, T. A., & Lauer, J. M. (1989). Can achievement motivation theory succeed with only one conception of success? In F. Halisch & J. Van den Beroken (Eds.), *International perspective on achievement motivation* (pp. 187–208). Lisse, The Netherlands: Swets & Zeitlinger.

Norem, J. K., & Cantor, N. (1990). Cognitive strategies, coping, and perceptions of competence. In R. Sternberg & J. Kolligian, Jr. (Eds.), *Competence considered* (pp. 190–204). New Haven, CT: Yale University Press.

O'Conner, P., Atkinson, J. W., & Horner, M. S. (1966). Motivational implications of ability grouping in schools. In J. W. Atkinson & N. T. Feather (Eds.), *A theory of achievement motivation* (pp. 231–248). New York: Wiley.

Prentice, D. A., & Miller, D. T. (1992). When small effects are impressive. *Psychological Bulletin, 112,* 160–164.

Reeve, J., & Deci, E. (in press). Elements of the competitive situation that affect intrinsic motivation. *Personality and Social Psychology Bulletin.*

Roberts, G. C. (1992). Motivation in sport and exercise: Conceptual constraints and convergence. In G. Roberts (Ed.), *Motivation in sports and exercise* (pp. 3–29). Champaign, IL: Human Kinetics.

Rosenthal, R. (1978). Combining the results of independent studies. *Psychological Bulletin, 85,* 185–193.

Ryan, R. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology, 43,* 450–461.

Ryan, R. M. (1992). Agency and organization: Intrinsic motivation, autonomy, and the self in psychological development. In J. Jacobs

(Ed.), *Nebraska Symposium on Motivation* (pp. 1–56). Lincoln: University of Nebraska Press.

Ryan, R. M., & Stiller, J. (1991). The social contexts of internalization: Parent and teacher influences on autonomy, motivation, and learning. In M. L. Maehr & P. R. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 7, pp. 115–149). Greenwich, CT: JAI Press.

Sarason, I. G. (1984). Stress, anxiety, and cognitive interference: Reactions to tests. *Journal of Personality and Social Psychology, 46,* 929–938.

Sieber, J. E., O'Neill, H. F., & Tobias, S. (1977). *Anxiety, learning and instruction.* Hillsdale, NJ: Erlbaum.

Snyder, C., & Higgins, C. (1988). Excuses: Their effective role in the negotiation of reality. *Psychological Bulletin, 104,* 23–35.

Spielberger, C., & Vagg, P. (1995). Test anxiety: A transactional process model. In C. Spielberger & P. Vagg (Eds.), *Test anxiety: Theory, assessment, and treatment* (pp. 3–14). Washington, DC: Taylor & Francis.

Taylor, S. E., & Brown, J. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin, 103,* 193–210.

Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science, 211,* 453–458.

Vallacher, R. R., & Wegner, D. M. (1987). What do people think they're doing? Action identification and human behavior. *Psychological Review, 94,* 3–15.

Wegner, D. M. (1994). Ironic process of mental control. *Psychological Review, 101,* 34–52.

White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66,* 297–333.

Wild, T. C., Enzle, M. E., & Hawkins, W. L. (1992). Effects of perceived extrinsic versus intrinsic teacher motivation on student reactions to skill acquisition. *Personality and Social Psychology Bulletin, 18,* 245–251.

Wills, T. (1981). Downward comparison principles in social psychology. *Psychological Bulletin, 90,* 245–271.

Wine, J. D. (1982). Evaluation anxiety: A cognitive–attentional construct. In H. W. Krohne & L. Laux (Eds.), *Achievement, stress, and anxiety* (pp. 207–219). New York: Hemisphere.