

A Hierarchical Model of Approach and Avoidance Achievement Motivation

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A hierarchical model of approach and avoidance achievement motivation was proposed and tested in a college classroom. Mastery, performance-approach, and performance-avoidance goals were assessed and their antecedents and consequences examined. Results indicated that mastery goals were grounded in achievement motivation and high competence expectancies; performance-avoidance goals, in fear of failure and low competence expectancies; and performance-approach goals, in achievement motivation, fear of failure, and high competence expectancies. Mastery goals facilitated intrinsic motivation, performance-approach goals enhanced graded performance, and performance-avoidance goals proved inimical to both intrinsic motivation and graded performance. The proposed model represents an integration of classic and contemporary approaches to the study of achievement motivation.

Achievement motivation is a ubiquitous feature of daily life. In the classroom, at the workplace, and on the ballfield individuals strive to be competent in their effortful activities. In the past decade, many theorists have utilized a social-cognitive, achievement goal approach in accounting for individuals' competence-relevant strivings. "Achievement goal" is commonly defined as the purpose of task engagement (Maehr, 1989), and the specific type of goal adopted is posited to create a framework for how individuals interpret, experience, and act in their achievement pursuits (Dweck, 1986; Nicholls, 1989). Achievement goal theorists commonly identify two distinct orientations toward competence: a performance goal focused on the demonstration of competence relevant to others, and a mastery goal focused on the development of competence and task mastery (Ames & Archer, 1987; for similar conceptualizations with different nomenclature see Dweck, 1986; Nicholls, 1984). The adoption of a performance goal is hypothesized to produce susceptibility to a "helpless" pattern of responses in achievement settings (e.g., a preference for easy or difficult tasks, withdrawal of effort in the face of failure, and decreased task enjoyment), whereas the adoption of a mastery goal is presumed to lead to a "mastery" motivational pattern (e.g., a preference for moderately challenging tasks, persistence in the face of failure, and enhanced task enjoyment; Ames, 1992; Dweck & Leggett, 1988; Nicholls, 1989).

Most achievement goal theorists conceptualize both perfor-

mance and mastery goals as appetitive or "approach" forms of motivation (Ames, 1992; Meece, Blumenfeld, & Hoyle, 1988; Nicholls, Patashnick, Chung Cheung, Thorkildsen, & Lauer, 1989; Nolen & Haladyna, 1990). This unitary focus on approach motivation contrasts sharply with that of the classic achievement motivation theorists (McClelland, Atkinson, Clark, & Lowell, 1953; Murray, 1938; see also Lewin, Dembo, Festinger, & Sears, 1944), who emphasized that activity in achievement settings may be oriented toward the attainment of success or the avoidance of failure. Elliot and Harackiewicz (1996; Elliot, 1994) have recently proposed an integrative achievement goal conceptualization that incorporates both the contemporary performance/mastery and the classic approach/avoidance distinctions. In this framework, the conventional performance goal is partitioned into independent approach and avoidance components and three achievement orientations are posited: a mastery goal focused on the development of competence and task mastery, a performance-approach goal directed toward the attainment of favorable judgments of competence, and a performance-avoidance goal focused on avoiding unfavorable judgments of competence. Mastery and performance-approach goals are characterized as self-regulation according to potential positive outcomes (task mastery and normative competence, respectively), and these approach orientations are posited to promote processes (e.g., excitement and task absorption) that lead to the mastery pattern of achievement outcomes. Performance-avoidance goals, on the other hand, are characterized as self-regulation according to potential negative outcomes, and this avoidance orientation is posited to yield processes (e.g., anxiety and task distraction) that produce the helpless pattern of achievement outcomes.

Elliot and Harackiewicz (1996) conducted two experiments to investigate the predictive utility of this approach/avoidance achievement goal framework. In each experiment, performance-approach, performance-avoidance, and mastery goals were instantiated via experimental manipulation and the effects of these manipulations were observed on intrinsic motivation—the enjoyment of and interest in an activity for its own sake (Deci,

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1975; Lepper, 1981; Ryan, 1993). Results from the two experiments provided support for the proposed conceptualization. Performance-avoidance goals undermined intrinsic motivation relative to both mastery and performance-approach goals; the latter orientations manifested equivalent levels of intrinsic motivation.

In the present research, we emerged from the experimental laboratory and entered the college classroom to measure, rather than manipulate, the three achievement goal orientations. This methodological shift not only enabled us to explore the generalizability of the experimental findings to a naturalistic achievement setting, but also afforded us a direct test of the validity of the proposed trichotomous framework (particularly the partitioning of the performance goal into independent approach and avoidance components). Specifically, we created a series of items to assess students' goals for their personality psychology class and used factor analytic procedures to examine whether the items indeed separated into independent performance-approach, performance-avoidance, and mastery goal orientations. In addition, we sought to further extend the work of Elliot and Harackiewicz on a number of fronts. First, we investigated the personality and expectancy-based antecedents of achievement goal adoption. Second, we explored the consequences of achievement goal adoption for actual performance as well as intrinsic motivation. Third, we moved to differentiate the two approach forms of motivation by positing a divergent pattern of antecedents and a different set of consequences for the mastery and performance-approach goal orientations. We pursued each of these objectives in the process of proposing and testing a hierarchical model of approach and avoidance achievement motivation.

A Hierarchical Model of Approach and Avoidance Achievement Motivation

Since McDougal (1908, 1932) linked "desired goals" to "preferences" (initially "instincts"), personality theorists have proposed hierarchical models of motivation in which goals or goal concepts (Pervin, 1989) are portrayed as concrete representations of more abstract motivational dispositions (Cattell, 1957; Emmons, 1989; McClelland, 1951; Murray, 1938; Nuttin, 1984; Rotter, 1954). In this general tradition, goal concepts are conceptualized as midlevel constructs, structurally situated between global motivational dispositions and specific behaviors. Goal concepts are commonly perceived as the proximal regulators of behavior, and motivational dispositions are viewed as exerting a primarily distal, indirect influence via their more concrete manifestations (see also Carver & Scheier, 1981; Powers, 1973; and other cybernetic conceptualizations).

Our model fits nicely into this tradition, in that we view achievement goals as cognitive-dynamic manifestations of two underlying competence-relevant motives—the need for achievement and the need to avoid failure (Atkinson, 1957; Hoppe, 1930, cited in Lewin et al., 1944; McClelland, 1951; Murray, 1938). Whether construed as nonconscious (implicit) or conscious (self-attributed) needs, these motive dispositions are posited to energize, select, and direct achievement behavior (McClelland, Koestner, & Weinberger, 1989) through the channel of their concrete achievement goal representations. That is, the primary effect of achievement motivation and fear of failure on achievement outcomes is posited to be indirect; their midlevel motivational surrogates—achievement goals—are presumed to

be the direct regulators and proximal determinants of achievement behavior. Thus, we view achievement goals as "focused needs" (Nuttin, 1984), concretized "servants" (Ryan, Sheldon, Kasser, & Deci, 1995) of their higher order achievement-relevant motives.

Most achievement theorists also identify task-specific competence expectancies as an important variable in achievement settings (Atkinson, 1957; Bandura, 1982; Butler, 1992; Harter, 1989; Weiner, 1972). Some theorists in the classic achievement motivation tradition have even designated competence expectancies the "active ingredient" in achievement motivation and fear of failure and proposed that competence expectancies replace motive dispositions as an explanatory construct (Kukla, 1972; Meyer, 1987). Those working out of the contemporary achievement goal perspective have tended to conceptualize competence expectancies as a moderator variable, interacting with achievement goals to produce achievement-relevant outcomes (Nicholls, 1983, 1984). In contrast to both of these conceptualizations, we view competence expectancies as empirically related to but conceptually distinct from motive dispositions (Heckhausen, Schmalt, & Schneider, 1985; for an extended discussion of this issue, see Elliot, 1994), and we believe that competence expectancies are best portrayed as antecedents of achievement goals rather than as moderators of their effects. That is, we perceive the effect of competence expectancies on achievement-relevant outcomes to be relatively independent of motive dispositions, and we posit that competence expectancies, like motive dispositions, exert their primary influence on achievement behavior indirectly, via their effect on achievement goal adoption.

Figure 1 presents a pictorial summary of the proposed hierarchical model, in which motive dispositions (achievement motivation and fear of failure) represent higher order motivational constructs, achievement goals (performance-approach, performance-avoidance, and mastery) represent midlevel "motivational surrogates," and task-specific competence expectancies are conceptualized as an independent antecedent of achievement goal adoption. Motive dispositions and competence expectancies are posited to be direct antecedents of achievement goal adoption, and achievement goals are viewed as exerting a direct, proximal influence on achievement-relevant behavior.¹

¹ The proposed model does not preclude the possibility of direct effects of motive dispositions and competence expectancies on achievement-relevant behavior; such relationships are simply of peripheral interest. Of central interest are the relationships between (a) motive dispositions/competence expectancies and achievement goals, (b) achievement goals and achievement-relevant behavior with the variance accounted for by motive dispositions/competence expectancies controlled, and (c) motive dispositions/competence expectancies and achievement-relevant behavior with the variance accounted for by achievement goals controlled. The first two relationships are posited to be significant and the last null, thereby designating the relationship between motive dispositions/competence expectancies and achievement-relevant behavior to be indirect in nature regardless of the presence or absence of a direct effect between motive dispositions/competence expectancies and achievement-relevant behavior per se (see Darlington, 1990; Judd & Kenny, 1981; Pedhazur, 1982). In addition, the proposed model does not preclude the possibility of a reciprocal relationship between competence expectancies and achievement goals (Bandura, 1986). In the present research we focused on testing competence expectancies as an antecedent of achievement goal adoption; the effect of achievement goal pursuit on ongoing competence expectancies awaits future research attention.

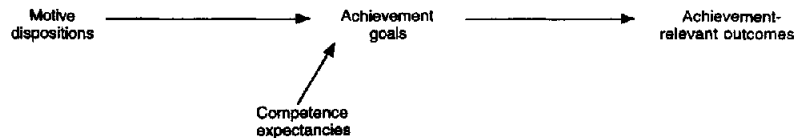


Figure 1. A hierarchical model of approach and avoidance achievement motivation.

The First Link in the Model: Antecedents of Achievement Goals

In the present research we assessed achievement motivation, fear of failure, and competence expectancies in addition to the three achievement goals in order to test the first link in our proposed model and to determine the distinct profiles underlying each goal type. Achievement motivation and fear of failure may be defined simply as the generalized desire to succeed and the generalized desire to avoid failure, respectively (Atkinson, 1957; for more elaborate definitions of these constructs, see Birney, Burdick, & Teevan, 1969; McClelland, 1985). Achievement motivation orients individuals toward the possibility of success (McClelland et al., 1953), and, consequently, it is likely that this motive disposition will prompt the adoption of self-regulatory forms focused on the attainment of positive outcomes—mastery and performance-approach goals. In reciprocal fashion, fear of failure orients individuals toward the possibility of failure (Birney et al., 1969) and therefore is likely to evoke performance-avoidance goals that focus on the avoidance of negative outcomes.

In addition to this straightforward outcome focus symmetry, we posit that approach achievement goals may also serve a failure avoidance function. A number of motivational theorists have observed that the desire for avoidance at the genotypic or functional level can often lead to approach at the level of phenotypic behavioral expression (e.g., Gray's, 1987, concept of active avoidance; see also Birney et al., 1969; Depreeuw, 1992; McClelland et al., 1953), and it seems reasonable to anticipate a corresponding relationship between underlying motive dispositions and their concretized goal representations. That is, the generalized desire to avoid failure at the genotypic level may prompt the adoption of a regulatory form focused on the attainment of positive outcomes (approach in order to avoid failure), as well as a regulatory form focused on the avoidance of negative outcomes. Although it is possible that either approach form of regulation could serve this failure-avoidance function, the performance-approach goal seems the most viable candidate. In most achievement settings, the demonstration of normative ability clearly and directly mitigates any concerns about failure, whereas the development of competence and task mastery often entails a protracted process inclusive of failure experiences (the very thing the person high in fear of failure is desperate to avoid). Therefore, in the proposed model, we view mastery and performance-avoidance goals as relatively "pure" forms of regulation in that they serve a single genotypic motivational function (achievement motivation and fear of failure, respectively), whereas the performance-approach orientation is conceptualized as a more complex form of regulation in that it can serve both approach (achievement motivation) and avoidance (fear of failure) motivational functions at the genotypic level.

Our predictions for competence expectancy were straightforward: Individuals who believed they could attain competence in an achievement situation would orient toward the possibility of success and adopt approach achievement goals (mastery and performance-approach), whereas individuals with low expectancies would orient toward the possibility of failure and adopt a performance-avoidance goal. We expected achievement motivation, fear of failure, and competence expectancy to account for unique variance in the selection of achievement goals when tested via simultaneous multiple regression, thus identifying motive dispositions and competence expectancies as independent antecedents of achievement goal adoption.

The Second Link in the Model: Consequences of Achievement Goals

The second link in our proposed path model represents the relationship between achievement goals and achievement-relevant outcomes. In the present study, we focused on two outcome variables commonly considered central components of the achievement goal nomological network, intrinsic motivation (assessed via questionnaire near the end of the semester) and (graded) performance (Ames, 1992; Dweck & Leggett, 1988; Nicholls, 1989). Our predictions for performance-approach, performance-avoidance, and mastery goals were derived from three primary sources: the extant literature on achievement goals in the classroom,² our aforementioned hypotheses regarding the motive dispositions and competence expectancies underlying each goal representation, and our beliefs about the processes likely to be elicited by each form of regulation.

One of the clearest, most consistent patterns to emerge from the achievement goal literature is the positive relationship between mastery goals and intrinsic motivation (Ames & Archer, 1988; Archer, 1994; Duda & Nicholls, 1992; Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Miller, Behrens, Greene, & Newman, 1993; Nicholls, Patashnick, & Nolen, 1985). Mastery goals seem optimal for the facilitation of intrinsic motivation in that they are presumably grounded in a fundamentally approach form of motivation (relatively "uncontaminated" by fear of failure; White, 1959) and are hypothesized to elicit processes, such as challenge appraisal, excitement, and task absorption, that foster interest and enjoyment (Elliot, 1994). The relationship between mastery goals and graded performance, on the other hand, is more difficult to discern from the extant literature.

² Some researchers have assessed achievement goals for a specific class, whereas others have focused more generally on goal adoption in classroom settings. The results have been similar in both instances, and therefore we considered both types of studies in our review of the literature.

Approximately half of the existing studies document a positive relationship, whereas the other half yield null effects (with null effects most frequent for university undergraduates; Harackiewicz et al., 1997; Kroll, 1988; Nicholls et al., 1985; Nolen & Haladyna, 1990; Pintrich, 1989; Pintrich & Garcia, 1991; Pintrich, Smith, Garcia, & McKeachie, 1993). Mastery goals have been linked to a number of cognitive and metacognitive study strategies presumed to enhance performance (Ames & Archer, 1988; Meece et al., 1988; Nolen, 1988; Pintrich & De Groot, 1990), but in the college classroom, where rigid multiple-choice examinations commonly prevail, the content of the material studied may be as important as the specific study strategy utilized. Mastery goals seem as likely to prompt the perusal of interesting but peripheral material as they are to induce intensive study of information central to course objectives; optimal processing of peripheral material is of little benefit at examination time. Thus, in the present study, we predicted that mastery goals would display a positive relationship with intrinsic motivation but would reveal no reliable pattern for graded performance.

Measures of the performance goal orientation in the prevailing performance/mastery goal tradition vary in composition; some consist entirely of positively framed items (thereby assessing a performance-approach goal), whereas others are an amalgam of positively and negatively framed items (thereby assessing a hybrid performance-approach/performance-avoidance goal). Studies in which negatively framed items are incorporated into performance goal assessments (the closest thing to a performance-avoidance goal in the extant literature) tend to yield negative or null relationships with intrinsic motivation and graded performance (Ames & Archer, 1988; Duda & Nicholls, 1992; Kroll, 1988; Miller et al., 1993; Nicholls et al., 1985; Nolen & Haladyna, 1990). Conceptually, performance-avoidance goals are presumed to be grounded in fear of failure and low competence expectancies. As such, these forms of regulation are likely to elicit threat appraisals, evaluative anxiety, and vigilant attention to failure-relevant information (Elliot, 1994; Higgins, 1995; Wegner, 1994), processes that exude self-protection concerns and avoidance tendencies antithetical to the very nature of intrinsic motivation (Deci, 1975; White, 1959). Academic performance is also likely to be undermined by these and other self-protective and avoidance-based processes emanating from fear of failure, such as strategic withdrawal of effort, self-handicapping, and procrastination (Covington & Omelich, 1979; Rhodewalt, 1990; Rothblum, 1990). Therefore, in the present study we expected performance-avoidance goals to have a uniformly negative effect, undermining both intrinsic motivation and graded performance.

Studies in which all of the items in the performance goal assessments are positively framed (i.e., performance-approach measures) tend to document null or positive relationships for intrinsic motivation and graded performance (Archer, 1994; Harackiewicz et al., 1997; Pintrich & Garcia, 1991; Pintrich et al., 1993). Performance-approach goals are presumably undergirded by both achievement motivation and fear of failure, and it is likely that intrinsic motivation would be facilitated by performance-approach goal processes emanating from achievement motivation (e.g., challenge appraisal), whereas processes emerging out of fear of failure (e.g., threat appraisal) would likely be deleterious to intrinsic motivation (Elliot, 1994). Given these antagonistic processes, in the present study we anticipated

the resultant effect of performance-approach goals on intrinsic motivation to be null.

A number of achievement theorists have portrayed fear of failure as an inhibitor of effort and performance when unaccompanied by achievement motivation but a facilitator of effort and performance when accompanied by achievement motivation (Birney et al., 1969; Covington & Roberts, 1995; Heckhausen et al., 1985). Given that performance-approach goals are presumably undergirded by fear of failure coupled with achievement motivation (as well as a high competence expectancy), it is likely that they would promote rigorous and persistent study behavior that eventuates in high levels of achievement (see research on defensive pessimism, Norem & Cantor, 1986). Furthermore, like mastery goals, performance-approach goals (i.e., those assessed with positively framed items) have been linked to study strategies presumed to facilitate performance (Archer, 1994; Meece et al., 1988; Pintrich & Garcia, 1991), and the focus on normative outcomes inherent in this form of regulation should keep study efforts channeled toward (testable) material that will yield performance dividends. Therefore, in the present study we expected performance-approach goals to have a positive influence on graded performance.

In sum, in the present research we proposed a hierarchical model of approach and avoidance achievement motivation and tested this framework by assessing the hypothesized antecedents (motive dispositions and competence expectancies) and consequences (intrinsic motivation and graded performance) of mastery, performance-approach, and performance-avoidance goal adoption in the college classroom. In the model, mastery goals are portrayed as grounded in achievement motivation and high competence expectancies, and are expected to facilitate intrinsic motivation but to have no reliable effect on graded performance. Performance-avoidance goals are construed as grounded in fear of failure and low competence expectancies, and are expected to undermine both intrinsic motivation and graded performance. Performance-approach goals are perceived as grounded in achievement motivation, fear of failure, and high competence expectancies and are predicted to have a null effect on intrinsic motivation but a positive effect on graded performance. Motive dispositions and competence expectancies are hypothesized to exert their influence on intrinsic motivation and graded performance indirectly, through their effect on achievement goals; null relationships are anticipated for these variables when the proximal effects of achievement goals are controlled.

Method

Participants and Achievement Context

A total of 204 (82 male and 122 female) undergraduates enrolled in a personality psychology course at the University of Rochester participated in the study in return for extra course credit. Most participants were sophomores or juniors at the university, with a mean age of 20.01 years for the sample. The class was conducted in an exclusively lecture format; evaluation was based entirely on multiple-choice examinations and a normative grading structure.

Procedure

Participants' achievement motivation, fear of failure, competence expectancies, achievement goals, competence perceptions, and intrinsic

motivation were assessed in a series of sessions conducted over the course of the semester. All assessments took place immediately before class, with the professor absent from the room. Participants were assured that their responses would remain confidential and would in no way influence their course grade.

The motive disposition and competence expectancy variables were measured during the first week of the semester. Achievement motivation and fear of failure were assessed in the first class session. Competence expectancies were assessed in the second session, conducted 3 days later. Achievement goals were assessed during the second week of the semester and competence perceptions were measured twice—upon receipt of feedback after the first midterm examination and again upon receipt of feedback after the second midterm examination. Intrinsic motivation was assessed near the end of the semester. Final grades were obtained from the professor at the end of the course; all participants consented to the release of their grade information.

Measures

Achievement motivation. We used the Achievement Motivation subscale of Jackson's (1974) Personality Research Form as the indicator of the achievement motive (sample items are "I enjoy difficult work" and "I often set goals that are difficult to reach"). Murray's (1938) conceptualization of the need for achievement as a broad, unitary construct was used as a guide in developing the measure. A number of empirical investigations have attested to the reliability and construct validity of the measure (Fineman, 1977; Fiske, 1973; Harper, 1975), and recent work has established its predictive validity in the college classroom (achievement motivation scores have been linked to challenge appraisal, reported excitement, task involvement, positive outcome focus, and adaptive attributional propensities; Elliot & Church, 1995). Participants' responses on the 16 true-false items were summed to form the achievement motivation index (Cronbach's $\alpha = .76$).

Fear of failure. Herman's (1990) 27-item fear of failure measure was used as the indicator of the fear of failure motive (sample items are "I try to avoid failure at all costs" and "I often avoid a task because I am afraid that I will make mistakes"). This scale was developed to represent the various components of fear of failure identified by Atkinson and Feather (1966) in their portrait of the "failure threatened personality." The newly revised version of the scale was used in the present study; recent research (Elliot & Church, 1995) attests to its reliability (e.g., Cronbach's $\alpha = .88$) and construct validity. Correlates of the measure include more general measures of avoidance (e.g., the Behavioral Inhibition subscale of the BIS/BAS questionnaire; Carver & White, 1994), more specific measures of fear of failure in the classroom (e.g., the avoidance subscale of the Approach Avoidance Achievement Questionnaire [AAAQ]; Covington & Roberts, 1995), as well as other assessment tools used as indicators of fear of failure (e.g., the Test Anxiety Inventory, Spielberger, Gonzalez, Taylor, Algaze, & Anton, 1978). Predictive validity in the college classroom has also been established: fear of failure scores have been linked to threat appraisal, reported anxiety, task distraction, negative outcome focus, and various self-protective attributional propensities (Elliot & Church, 1995). Participants' responses on the 5-point scale from *strongly disagree* (1) to *strongly agree* (5) were averaged to form the fear of failure index (Cronbach's $\alpha = .86$).

Competence expectancy. Two items assessed participants' expectations of competence: "I expect to do well in this class" and "I believe I will receive an excellent grade in this class." Participants used 1 (*strongly disagree*) to 7 (*strongly agree*) scales to indicate their responses, which were averaged to form the competence expectancy index (Cronbach's $\alpha = .82$).

Achievement goals. An achievement goal questionnaire was used to assess participants' adoption of mastery, performance-approach, and performance-avoidance achievement goals in their personality psychology class. A series of pilot studies were conducted in developing the questionnaire in which item pools for each goal orientation were gener-

ated, tested (via factor analysis and correlations with other relevant measures), and revised accordingly (see Carver & White, 1994, for a similar scale development procedure). Six items were finally selected to represent the content universe of each of the three achievement goal constructs. Table 1 contains a list of the items; participants indicated the extent to which they believed each item to be true of them on 1 (*not at all true of me*) to 7 (*very true of me*) scales.

Competence perceptions. After receiving feedback on each of their two midterm examinations, participants were queried as to their perceptions of competence: "I think that I did very well on the exam" and "I think that I got a very good grade on the exam." Participants indicated their level of agreement on 1 (*strongly disagree*) to 7 (*strongly agree*) scales and the two items across the two assessments were averaged to form the competence perceptions index (Cronbach's $\alpha = .89$).

Intrinsic motivation. Eight items were used to assess participants' intrinsic motivation toward their personality psychology class: "I think this class is interesting," "I am enjoying this class very much," "I think this class is a waste of my time" (reverse scored), "I think this class is fun," "I think this class is boring" (reverse scored), "I'm glad I took this class," "I don't like this class at all" (reverse scored), and "I intend to recommend this class to others" (for the use of similar intrinsic motivation items in the experimental laboratory, see Elliot & Harackiewicz, 1994; Harackiewicz & Elliot, 1993). Participants used 1 (*strongly disagree*) to 7 (*strongly agree*) scales to indicate their responses.

Graded performance. Final course grades were used as a measure of performance attainment. Grades were based on participants' total scores from the course examinations, and each possible grade was assigned a numerical value from 1 to 11 (F = 1, D = 2, D+ = 3, C- = 4, C = 5, C+ = 6, B- = 7, B = 8, B+ = 9, A- = 10, A = 11). Using total scores rather than course grades as the indicator of performance yielded results essentially identical to those reported in the text.

Results

Attrition Analyses

A total of 178 participants completed all assessments in the study; 6 additional participants began the study but dropped the course and 20 others missed one or more assessments, yielding an overall attrition rate of 12.7% (26 of 204 participants). *t* tests were conducted to determine whether there were any systematic differences between the final sample of 178 participants and the 6 "course drops" or the 20 "study drops" on any of the predictor variables (achievement motivation, fear of failure, competence expectancy, and the three achievement goal indices). No significant differences were found in any of these analyses.

Factor Analyses of the Achievement Goal and Intrinsic Motivation Items

A principal-components factor analysis with varimax rotation was conducted on the 18 achievement goal items to test the validity of partitioning the performance goal orientation into separate approach and avoidance components (data from all 204 students who completed the goals assessment were used in this analysis).³ The analysis yielded three factors with eigenval-

³ A principal-components factor analysis with oblimin rotation was also performed on the achievement goal items, and this analysis yielded results essentially identical to those obtained with varimax rotation.

Table 1
Achievement Goal Items and Their Primary and Secondary Factor Loadings

Achievement goal item	Factor		
	1 Performance- Approach Goal	2 Mastery Goal	3 Performance- Avoidance Goal
It is important to me to do better than the other students.	.90		[.03]
My goal in this class is to get a better grade than most of the students.	.88		[.10]
I am striving to demonstrate my ability relative to others in this class.	.83	[.26]	
I am motivated by the thought of outperforming my peers in this class.	.82		[.29]
It is important to me to do well compared to others in this class.	.81	[.19]	
I want to do well in this class to show my ability to my family, friends, advisors, or others.	.62		[.32]
I want to learn as much as possible from this class.		.86	[.12]
It is important for me to understand the content of this course as thoroughly as possible.	[.07]	.84	
I hope to have gained a broader and deeper knowledge of psychology when I am done with this class.	[.08]	.82	
I desire to completely master the material presented in this class.	[.28]	.80	
In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn.	[-.01]	.73	
In a class like this, I prefer course material that really challenges me so I can learn new things.	[.18]	.71	
I often think to myself, "What if I do badly in this class?"	[.27]		.82
I worry about the possibility of getting a bad grade in this class.	[.18]		.80
My fear of performing poorly in this class is often what motivates me.	[.22]		.71
I just want to avoid doing poorly in this class.		[.10]	.64
I'm afraid that if I ask my TA or instructor a "dumb" question, they might not think I'm very smart.	[.21]		.58
I wish this class was not graded.		[-.19]	.44

Note. $N = 204$. Primary factor loadings are in bold; secondary factor loadings are in brackets. TA = teaching assistant.

ues exceeding unity, and the factor solution accounted for 63.3% of the total variance. Table 1 displays the primary and secondary factor loadings for each of the three factors. Factor 1 accounted for 33.1% of the total variance and comprised the six performance-approach goal items (eigenvalue = 5.95). Factor 2 accounted for 18.2% of the total variance and consisted of the six mastery goal items (eigenvalue = 3.27). The third factor accounted for 12.0% of the total variance and comprised the six performance-avoidance goal items (eigenvalue = 2.16). All items loaded higher than .40 on their primary factor, and for the performance-approach and performance-avoidance items there was an average difference of .60 between each item's primary loading and its loading on the other factor. Performance-approach, mastery, and performance-avoidance goal measures were constructed by averaging the items on each factor, and all three resultant indices evidenced moderate to high levels of internal consistency (Cronbach's $\alpha = .91$, .89, and .77, respectively). Thus, the results from the factor analysis provided strong support for partitioning the performance goal orientation into separate approach and avoidance components.

A principal-components factor analysis was also conducted

on the eight intrinsic motivation items to determine whether they represented a single construct. This analysis indeed yielded a single factor with an eigenvalue exceeding 1, and the unifactorial solution accounted for 64.2% of the total variance. All items loaded higher than .40 on the factor. An intrinsic motivation measure was constructed by averaging the eight items, and the resultant index proved highly reliable (Cronbach's $\alpha = .92$).

Descriptive Statistics and Zero-Order Correlations

Table 2 displays the means, standard deviations, ranges (possible and observed), and reliabilities for all variables. Participants reported relatively high competence expectancies at the beginning of the class and tended to adopt mastery goals more than performance-approach goals and performance-avoidance goals more than performance-avoidance goals. Intrinsic motivation near the end of the class was well above the midpoint of the scale, and participants received an average grade of B to B-.

Table 3 presents the zero-order correlations for all variables used as predictors in the regression analyses. Achievement moti-

Table 2
Descriptive Statistics for All Variables

Variable	M	SD	Observed range	Possible range	Cronbach's alpha
Achievement motivation	9.45	3.58	1.00–16.00	0.00–16.00	.76
Fear of failure	2.67	0.49	1.52–4.00	1.00–5.00	.86
Competence expectancy	5.68	0.87	3.00–7.00	1.00–7.00	.82
Performance-approach goal	4.33	1.41	1.00–7.00	1.00–7.00	.91
Performance-avoidance goal	3.64	1.18	1.00–6.33	1.00–7.00	.77
Mastery goal	5.62	0.93	3.17–7.00	1.00–7.00	.89
Competence perceptions	3.10	1.76	1.00–7.00	1.00–7.00	.89
Intrinsic motivation	4.90	1.15	1.25–7.00	1.00–7.00	.92
Graded performance	7.56	2.68	2.00–11.00	1.00–11.00	—

Note. $N = 178$.

vation and fear of failure were inversely related, and each was associated with competence expectancy in the anticipated direction (achievement motivation positively and fear of failure negatively). Performance-approach goals were positively associated with both performance-avoidance goals and mastery goals; performance-avoidance goals and mastery goals were unrelated.

Overview of the Path Analyses

Sequential simultaneous regression analyses were conducted to identify the antecedents of performance-approach, performance-avoidance, and mastery goals and to investigate the effects of these goals on intrinsic motivation and graded performance. Two basic regression models were utilized in these path analyses: The Antecedents model comprised the main effects of achievement motivation, fear of failure, and competence expectancy; the Consequences model consisted of the main effects of performance-approach, performance-avoidance, and mastery goals, as well as all of the variables from the Antecedents model. Thus, the Antecedents model tested the influence of motive dispositions and competence expectancies on achievement goal adoption, whereas the Consequences model examined the effects of achievement goal adoption on intrinsic motivation and graded performance with the influence of motive dispositions and competence expectancies controlled (Darlington, 1990; Pedhazur, 1982).⁴

For each basic model, all possible interaction product terms were included in initial analyses but nonsignificant interactions were trimmed from the final model (Judd & Kenny, 1981). Likewise, initial analyses with each basic model incorporated the main effect of gender (men = -1, women = 1) and all possible interaction terms with gender, but only significant gender terms were retained in the final analyses. All results reported below are from the final, trimmed models. All interaction product terms were constructed using mean-deviated main effects (Aiken & West, 1991). Significant interaction effects were interpreted by generating predicted values from the regression equations using contrast codes for the discrete variable (gender) and representative high and low scores (1 standard deviation above and below the mean, respectively) for the continuous variables (Cohen & Cohen, 1983).⁵

Path Analyses: Antecedents of Achievement Goals

To test the first link in the hypothesized path model, each of the achievement goals was independently regressed on the Antecedents model.

Mastery goals. The regression of mastery goals on the Antecedents model yielded a significant effect for the overall model, $F(4, 173) = 13.87, p < .0001, R^2 = .24$. Significant main effects were obtained for both achievement motivation, $F(1, 173) = 8.95, p < .01, \beta = .22$, and competence expectancy, $F(1, 173) = 24.06, p < .0001, \beta = .34$. Participants high in achievement motivation were more likely to adopt a mastery goal

⁴ Of course, the Consequences model may alternatively be conceived of as a test of the effects of motive dispositions and competence expectancies on intrinsic motivation and graded performance with the influence of achievement goals controlled. Both of these conceptions are utilized in interpreting the results generated from the Consequences model.

⁵ In addition to the primary path analyses, preliminary analyses were conducted to investigate the effects of achievement motivation, fear of failure, and competence expectancies on the outcome measures separate from the proximal effects of achievement goals. These relationships were tested by independently regressing intrinsic motivation and graded performance on the Determinants model. Regressing intrinsic motivation on this model yielded no significant effects. The regression of graded performance on this model yielded a significant effect for the overall model, $F(8, 169) = 2.86, p < .01, R^2 = .12$. A significant main effect of achievement motivation indicated that achievement-motivated participants earned higher grades in the class, $F(1, 169) = 4.85, p < .05, \beta = .18$. The competence expectancy main effect was significant, indicating that participants with high competence expectancies attained higher grades, $F(1, 169) = 5.22, p < .05, \beta = .17$. A significant Achievement Motivation \times Fear of Failure \times Gender Interaction was also obtained, $F(1, 169) = 7.23, p < .01, \beta = .21$. The predicted values indicated that males received the highest grades when they had high achievement motivation and low fear of failure ($\hat{Y} = 8.67$) and the lowest grades when they were low in both motive dispositions ($\hat{Y} = 6.95$), whereas females with high achievement motivation and high fear of failure received the highest grades ($\hat{Y} = 8.95$) and those with low achievement motivation and high fear of failure received the lowest grades ($\hat{Y} = 6.35$). All of these (main) effects, both null and significant, are congruent with prior research. The extant literature has yielded few direct effects of motive dispositions or competence expectancies on intrinsic motivation (see Elliot & Harackiewicz, 1994, 1996; Harackiewicz & Elliot, 1993; Reeve, Olson, & Cole, 1987). A number of researchers have documented a positive relationship between competence expectancies and performance (Bandura, 1986; Pintrich & De Groot, 1990) and the cumulative evidence indicates a modest but significant positive relationship between achievement motivation and performance (Spanler, 1992); no reliable pattern has emerged for the relationship between fear of failure and performance (Birney et al., 1969; Heckhausen et al., 1985).

Table 3
Zero-Order Correlations for the Predictor Variables

Variable	1	2	3	4	5	6
1. Achievement motivation	—					
2. Fear of failure	-.32**	—				
3. Competence expectancy	.26**	-.17*	—			
4. Performance-approach goal	.16*	.30**	.20**	—		
5. Performance-avoidance goal	-.11	.45**	-.21**	.38**	—	
6. Mastery goal	.30**	-.07	.36**	.31**	.11	—

Note. $N = 178$.

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

as were those with high competence expectancies. A significant effect of gender also revealed that women were more likely than men to adopt mastery goals, $F(1, 173) = 14.15, p < .001, \beta = .25$.

Performance-avoidance goals. Regressing performance-avoidance goals on the Antecedents model revealed a significant effect for the overall model, $F(5, 172) = 11.79, p < .0001, R^2 = .26$. A significant main effect for fear of failure indicated that participants high in fear of failure were more likely to adopt a performance-avoidance goal, $F(1, 172) = 41.08, p < .0001, \beta = .45$. A significant main effect of competence expectancy revealed that participants with low expectations were more likely to endorse the performance-avoidance orientation, $F(1, 172) = 4.31, p < .05, \beta = -.14$. The interaction between achievement motivation and gender also attained significance, $F(1, 172) = 6.16, p < .05, \beta = .17$. Women high in achievement motivation ($\hat{Y} = 3.97$) were more likely to adopt a performance-avoidance goal than women low in achievement motivation ($\hat{Y} = 3.45$), whereas men evidenced a tendency in the opposite direction ($\hat{Y} = 3.40$ for achievement-motivated men and 3.65 for men low in achievement motivation).

Performance-approach goals. The regression of performance-approach goals on the Antecedents model yielded a significant effect for the overall model, $F(5, 172) = 10.89, p < .0001, R^2 = .24$. A significant main effect for achievement motivation indicated that achievement-oriented participants were more likely to adopt a performance-approach goal $F(1, 172) = 12.36, p < .001, \beta = .26$. Likewise a significant effect of fear of failure revealed that those high in fear of failure were more likely to endorse the performance-approach orientation $F(1, 172) = 34.61, p < .0001, \beta = .41$, as were participants who expected to do well in the class, $F(1, 172) = 9.35, p < .01, \beta = .21$. The Achievement Motivation \times Gender interaction also attained significance, $F(1, 172) = 7.90, p < .01, \beta = .19$. Women high in achievement motivation ($\hat{Y} = 4.94$) were more likely to adopt a performance-approach goal than their low achievement oriented counterparts ($\hat{Y} = 3.76$), whereas men displayed little variability as a function of achievement motivation ($\hat{Y} = 4.31$ for achievement-oriented men and 4.19 for men low in achievement motivation).

Figure 2 displays the theoretically central effects obtained with the Antecedents model. Achievement motivation and fear of failure predicted the adoption of mastery and performance-avoidance goals, respectively; performance-approach goals appeared to emerge from both motive dispositions. Competence expectancies also predicted achievement goals in the anticipated

direction, and, importantly, the effects of motive dispositions on achievement goal adoption were observed independent of competence expectancies. These results nicely supported our hypotheses and firmly established the first link in the proposed path model.

Path Analyses: Consequences of Achievement Goals

To test the second link in the hypothesized path model, each of the outcome measures was independently regressed on the Consequences model.

Intrinsic motivation. The regression of intrinsic motivation on the Consequences model yielded a significant effect for the overall model, $F(7, 170) = 5.15, p < .0001, R^2 = .18$. A significant main effect for mastery goals indicated that the adoption of a mastery goal led to greater intrinsic motivation in the class, $F(1, 170) = 14.30, p < .001, \beta = .31$. A significant main effect for performance-avoidance goals revealed that adoption of performance-avoidance goals led to less intrinsic motivation, $F(1, 170) = 9.40, p < .01, \beta = -.26$. The Performance-Approach Goal \times Mastery Goal interaction also attained significance, $F(1, 170) = 6.02, p < .05, \beta = -.19$. The predicted values (Table 4) indicate that participants low on both approach goals evidenced the least amount of intrinsic motivation ($\hat{Y} = 4.38$), whereas those high on the mastery and low on the performance-approach index reported the highest level of intrinsic motivation ($\hat{Y} = 5.53$). No significant effects were obtained for the achievement motivation, fear of failure, or competence expectancy variables.

Graded performance. Regressing graded performance on the Consequences model revealed a significant effect for the

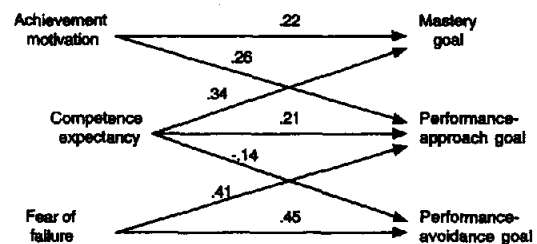


Figure 2. The first link in the path model—antecedents of achievement goals. Path coefficients are standardized regression coefficients, and all paths represent significant effects ($p < .05$ at minimum). Only theoretically central effects are included for presentation clarity.

Table 4
*Predicted Values for Intrinsic Motivation and
 Graded Performance by Performance-Approach
 Goal and Mastery Goal*

Performance- approach goal	Mastery goal	
	Low	High
Low		
Intrinsic motivation	4.38	5.53
Graded performance	6.36	7.16
High		
Intrinsic motivation	4.83	5.11
Graded performance	9.39	8.00

Note. $N = 178$. Predicted values were generated using representative high (1 standard deviation above the mean) and low (1 standard deviation below the mean) values for each of the predictor variables. Intrinsic motivation ranged from 1.25 (low intrinsic motivation) to 7 (high intrinsic motivation). Graded performance ranged from 2 (D) to 11 (A).

overall model, $F(7, 170) = 6.00, p < .0001, R^2 = .20$. A significant main effect of performance-approach goals revealed that performance-approach goal adoption led to higher course grades, $F(1, 170) = 16.67, p < .001, \beta = .36$. A significant main effect of performance-avoidance goals indicated that participants who adopted a performance-avoidance goal attained a lower course grade, $F(1, 170) = 15.94, p < .001, \beta = -.34$. The Performance-Approach Goal \times Mastery Goal interaction was also significant, $F(1, 170) = 7.14, p < .01, \beta = -.20$. The predicted values presented in Table 4 show that participants low on both the performance-approach and mastery goal indexes attained the lowest grades ($\bar{Y} = 6.36$), whereas those who scored high on the performance-approach index and low on the mastery goal index achieved the highest grades ($\bar{Y} = 9.39$). No significant effects were obtained for either of the motive dispositions or for the competence expectancy variable.

In summary, results obtained with the Consequences model provided strong support for our hypotheses and clearly documented the second link in the proposed path model. Adoption of a mastery goal led to higher intrinsic motivation, adoption of a performance-approach goal led to higher grades, and the performance-avoidance orientation proved inimical to intrinsic motivation and led to low grades. Achievement motivation, fear of failure, and competence expectancy had no effects on the outcome measures with the proximal effects of achievement goals controlled; only the achievement goals led to differential consequences for intrinsic motivation and graded performance. Figure 3 displays the final path model, including the effects documented in both the Antecedents and Consequences analyses.⁶

Supplementary Analyses

Structural equation analysis. Structural equation modeling was used to test the paths in the Antecedents and Consequences models simultaneously and to assess the fit of the hypothesized model to the observed data. The variance-covariance matrix served as input, and LISREL 8 (Jöreskog & Sörbom, 1993) generated standardized parameter estimates based on maximum-likelihood estimation. Each latent variable in the equations was

represented by a single observed indicator; to account for random measurement error, the unique variance of each indicator was fixed at 1 minus its reliability (adjusted for covariances; Bollen, 1989). Given the similar wording in several of the performance-approach and performance-avoidance goal items, we allowed for correlated errors of measurement between these two variables (see Meece, Wigfield, & Eccles, 1990). In accord with Hoyle and Panter's (1995) recommendation, both absolute fit indices— χ^2 , χ^2/df ratio, goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI)—and incremental fit indices—comparative fit index (CFI) and incremental fit index (IFI)—were used to evaluate the fit of the model to the data.

The model provided a satisfactory fit to the data: $\chi^2(21, N = 178) = 36.34, p > .01$; χ^2/df ratio < 2.0 ; GFI = .96; AGFI = .90; CFI = .95; and IFI = .95. Each of these values is in the range generally interpreted as representative of a well-fitting model (see Bentler & Bonett, 1980; Hogg & Hains, 1996; Tanaka, 1987). Furthermore, the standardized parameter estimates obtained in the structural equation analysis corresponded closely to those obtained in the regression analyses. Nearly all of the path coefficients from the structural equation analysis were slightly stronger than or within .02 standardized units of the path coefficients from the regression analyses. The two effects that did evidence some change remained significant (the beta for the performance-avoidance goal to intrinsic motivation link became $-.23 [p < .01]$, and the beta for the performance-approach goal to graded performance link became $.27 [p < .001]$). In sum, results from the structural equation analysis provided additional support for our hypothesized model.

Competence expectancies and competence perceptions as moderator variables. In testing the proposed model, competence expectancies have been conceptualized as an antecedent of achievement goals, but they may also be construed as a moderator of the effects of achievement goals on achievement outcomes. Nicholls (1983, 1984), for instance, hypothesized that performance goals have deleterious effects on achievement outcomes at low but not high levels of expectancy, whereas mastery goals have a uniformly positive influence across levels of competence expectancy. This moderator-variable hypothesis was examined by collapsing the performance-approach and performance-avoidance goal indices into a single omnibus construct (analogous to that utilized in the extant achievement goal literature) and regressing each of the outcome measures on a revised Consequences model that included the omnibus Perfor-

⁶ The Antecedents and Consequences analyses were also conducted while controlling for participants' intrinsic motivation at the beginning of the semester. Participants' 1 (*not at all true of me*) to 7 (*very true of me*) responses to four items (e.g., "I think I will enjoy this class very much") were averaged to form a beginning-of-semester intrinsic motivation index (Cronbach's $\alpha = .86$). Inclusion of this variable into the regression models yielded a single additional significant effect: Participants with high intrinsic motivation at the beginning of the semester were more likely to adopt a mastery goal, $F(1, 172) = 30.77, p < .0001, \beta = .36$. Most of the effects reported in the text remained virtually unchanged (i.e., they were slightly stronger than or within .02 standardized units of the original finding); those that did evidence some change remained significant (the beta for the competence expectancies to mastery goal link became $.25 [p < .01]$, the beta for the mastery goal to intrinsic motivation link became $.24 [p < .01]$, and the beta for the gender to mastery goal link became $.18 [p < .05]$).

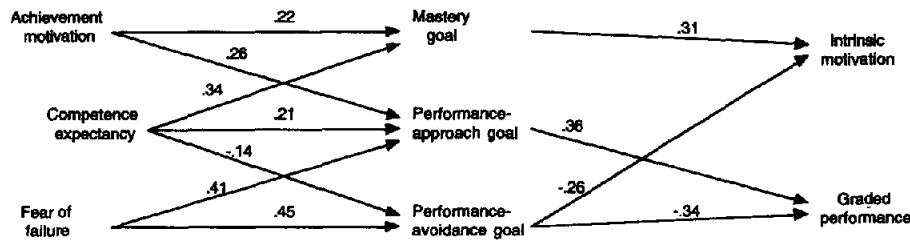


Figure 3. The full path model illustrating both antecedents and consequences of achievement goals. Path coefficients are standardized regression coefficients, and all paths represent significant effects ($p < .05$ at minimum). Only theoretically central effects are included for presentation clarity.

mance Goals \times Competence Expectancy and Mastery Goals \times Competence Expectancy interaction product terms. Neither of these interactions attained significance in the analyses. The effect of mastery goals on intrinsic motivation remained significant, $F(1, 170) = 18.37, p < .0001, \beta = .35$, and the omnibus performance goals variable yielded the results one would anticipate from the patterns observed for the individual approach and avoidance indices. A significant effect was obtained for intrinsic motivation, suggesting that the adoption of both performance-approach and performance-avoidance goals led to low intrinsic motivation $F(1, 170) = 8.86, p < .01, \beta = -.25$; a null effect was obtained in the graded-performance analysis.

Recent theorizing in the achievement goal tradition has focused more on (present) perceived ability than on competence expectancies per se as the operative moderator of achievement goal effects (Ames, 1992; Butler, 1992; Dweck, 1990). This variant of the moderator-variable hypothesis was examined by regressing intrinsic motivation and graded performance on a revised Consequences model that included the main effect of competence perceptions and the omnibus Performance Goals \times Competence Perceptions and Mastery Goals \times Competence Perceptions interaction product terms. Support was obtained for the moderator-variable hypothesis in the intrinsic motivation analysis in that the omnibus Performance Goals \times Competence Perceptions interaction attained significance, $F(1, 169) = 4.05, p < .05, \beta = .14$; whereas the Mastery Goals \times Competence Perceptions interaction was not significant. The predicted values suggest that participants who adopted both performance-approach and performance-avoidance goals and had low perceived competence reported lower intrinsic motivation ($\hat{Y} = 4.11$) than did those who adopted both performance goals and had high perceptions of competence ($\hat{Y} = 5.15$). Although the direction of the predicted values was the same for participants who scored low on the omnibus performance goals index, the spread between participants with low ($\hat{Y} = 4.97$) and high ($\hat{Y} = 5.37$) perceptions of competence was less marked. A significant main effect of competence perceptions was also obtained, indicating that participants with high perceptions of competence reported higher intrinsic motivation, $F(1, 169) = 20.57, p < .0001, \beta = .31$. The mastery goals effect remained significant in this analysis, $F(1, 169) = 19.75, p < .0001, \beta = .35$, and a significant omnibus performance goals effect was also obtained, suggesting that participants who adopted both performance-approach and performance-avoidance goals reported less intrinsic motivation, $F(1, 169) = 8.36, p < .01, \beta = -.24$.

None of the moderator-variable terms attained significance in

the graded-performance analyses, although a significant main effect of competence perceptions was obtained, indicating that participants with high levels of perceived competence earned higher grades in the class, $F(1, 169) = 247.71, p < .0001, \beta = .77$. A null effect was revealed for the omnibus performance goals variable. In sum, support was obtained for competence perceptions but not competence expectancies as a moderator of achievement goal effects, there was consistent evidence that the (hypothesized and) observed main effect of mastery goals on intrinsic motivation held across levels of expected and perceived competence, and the predictive utility of separating the approach and avoidance components of the performance goal orientation was clearly illustrated.⁷

Discussion

In the present research, a hierarchical model of approach and avoidance achievement motivation was proposed and tested in the context of the college classroom. Results from the study provide strong support for the hypothesized framework. Factor analysis of the achievement goal items yielded the three anticipated achievement goal factors: mastery, performance-approach, and performance-avoidance. Path analyses investigating the antecedents of each orientation revealed that mastery and performance-avoidance goals were linked to a single underlying motive disposition—achievement motivation and fear of failure, respectively—whereas the performance-approach goal was linked to both achievement motivation and fear of failure. Competence expectancies were validated as an independent antecedent of achievement goal adoption; mastery and performance-approach goals were linked to high competence expectancies, whereas the performance-avoidance orientation was linked to low competence expectancies. Thus, the predicted profile was manifested for each achievement goal: Mastery goals were shown to be grounded in achievement motivation and high com-

⁷ In addition to testing competence perceptions as a moderator variable, we examined the robustness of the Consequences results across perceptions of competence by regressing each of the dependent measures on a revised Consequences model that included the main effect of competence perceptions. Although the Performance-Approach Goals \times Mastery Goals interaction no longer attained significance in either the intrinsic motivation or graded-performance analysis, all other effects remained reliable. Thus, each of the theoretically central relationships documented in the text may be considered independently of perceived competence processes.

petence expectancies; performance-avoidance goals in fear of failure and low competence expectancies; and performance-approach goals in achievement motivation, fear of failure, and high competence expectancies.

Path analyses investigating the consequences of achievement goal adoption for intrinsic motivation and graded performance also yielded results in accord with predictions. Mastery goals facilitated intrinsic motivation but evidenced no reliable effect on graded performance. Performance-avoidance goals proved deleterious to both intrinsic motivation and graded performance. Performance-approach goals manifested a null relationship with intrinsic motivation but a positive relationship with graded performance. Motive dispositions and competence expectancies had no direct effects on intrinsic motivation or graded performance with the effects of achievement goals controlled, thereby validating motive dispositions and competence expectancies as distal and achievement goals as proximal determinants of these achievement-relevant outcomes. A structural equation analysis yielded results virtually identical to those obtained via regression analyses and, furthermore, indicated that our hypothesized model provided a satisfactory fit to the data.

The present results, in conjunction with those presented by Elliot and Harackiewicz (1996), clearly attest to the validity of the trichotomous approach/avoidance achievement goal conceptualization relative to the prevailing performance/mastery goal dichotomy. Performance goals do not appear to be unitary in nature as portrayed in the dichotomous conceptualization; the data indicate that performance-approach and performance-avoidance goals are independent orientations with distinct determinants and a divergent set of consequences. The present results also attest to the need for greater differentiation among the two approach goals than that delineated by Elliot and Harackiewicz in their initial statement of the trichotomous framework. Paralleling the performance goal bifurcation, factor analytic results indicated that mastery and performance-approach goals represent independent achievement goal orientations and path analyses revealed a differential pattern of antecedents and consequences for the two approach forms of regulation. Thus, the achievement goal conceptualization proffered in the present research consists of three independent and distinct achievement goal orientations with equal emphasis placed on the performance/mastery and approach/avoidance distinctions.

We view the three achievement goal orientations from a hierarchical perspective, as situation-specific regulators of achievement behavior that are energized or impelled by underlying motive dispositions. Achievement goals are construed as "focused needs," the "concretized" channels through which achievement motivation and fear of failure exert their influence on achievement-relevant behavior (Nuttin, 1984). Linking mid-level achievement goals to higher order motive dispositions in this fashion illuminates the motivational ontology of each achievement goal (the fundamental "why" that is the impetus for effortful action) and affords a more precise analysis of the nature of each form of regulation. The present data indicate that mastery and performance-avoidance goals are relatively straightforward, pure forms of regulation in that each is undergirded by a single motive disposition (achievement motivation and fear of failure, respectively) and the focus of each goal is congruent with the valence of its underlying motive disposition. That is, mastery goals focus on the attainment of competence

and task mastery and achievement motivation orients toward the possibility of success, so both levels of the hierarchy represent an approach tendency. Likewise, performance-avoidance goals focus on the avoidance of negative outcomes and fear of failure orients toward the possibility of failure, so both levels of the hierarchy represent an avoidance tendency.

Performance-approach goals appear to be more complex orientations than their mastery or performance-avoidance goal counterparts. In the present data, performance-approach goals represented an approach form of regulation undergirded by both approach (achievement motivation) and avoidance (fear of failure) motive dispositions. Generally stated, performance-approach goals are viewed as the channel through which achievement motivation and fear of failure flow, but the precise motivational nature of a performance-approach goal in a given situation is presumably determined by the relative strength or accessibility (Sorrentino & Higgins, 1986) of the two underlying motive dispositions. In achievement situations that present a challenge (e.g., the possibility of success with little chance of failure; see Elliot & Harackiewicz, 1996), only achievement motivation is activated and the performance-approach goal is likely to represent a relatively pure form of approach regulation analogous to the mastery goal orientation. In achievement situations that present a threat (e.g., the possibility of failure with little chance of success; see Elliot & Harackiewicz, 1996), only fear of failure is activated and performance-approach regulation undoubtedly represents active avoidance—approach in order to avoid failure. In achievement situations that present a challenge and also pose a threat, such as the classroom setting in the present research, both motive dispositions are activated and performance-approach goals are presumed to represent an amalgam of approach and (active) avoidance motivational tendencies. Thus, performance-approach goals can be quite deceptive in that the same phenotypic regulatory form can represent diverse genotypic motivational tendencies. The complexities presented by this orientation highlight the utility of the hierarchical approach to achievement motivation, specifically, the value of attending to the distinction between the regulation of achievement behavior and the motivational impetus underlying that regulation.

In recent years, several theorists (Covington, 1992; McClelland, 1985; Heckhausen, 1991) have drawn attention to a pervasive discrepancy in the achievement motivation literature between the theoretical conceptualization of achievement motivation and fear of failure proposed and the operationalization of these constructs in empirical endeavors. Achievement motivation and fear of failure are theorized to be independent motive dispositions (Atkinson, 1957; McClelland et al., 1953), but in practice standardized fear-of-failure scores are subtracted from standardized achievement motivation scores to produce a unidimensional achievement motivation composite (Feather, 1963; Littig, 1963). In the present research, we both conceptualized and operationalized achievement motivation and fear of failure as independent constructs, and we believe the result is a cleaner test of our hypotheses and a more fine-grained analysis of the contribution of each motive disposition.

On a related note, in much of the research conducted out of the classic achievement motivation tradition, achievement motivation has been measured via projective assessment (the coding of achievement imagery in TAT-like protocols), whereas fear of failure has been assessed via self-report (a test anxiety question-

naire). This procedure has been criticized for the asymmetry in assessment techniques (a projective measure for one motive, a self-report measure for the other; Birney et al., 1969) and for the use of test anxiety as an indicator of fear of failure (Covington, 1985; Nicholls, 1984). In response to these concerns, we used self-report instruments to assess both motive dispositions, and we used a fear-of-failure measure, rather than a test anxiety measure, as our indicator of the generalized failure avoidance motive. It would be informative to additionally test the proposed model using projective measures of the two motive dispositions, although concerns may be raised about the conceptual "purity" of the need achievement (achievement motivation) and hostile press (fear of failure) scoring systems (Heckhausen, 1991; McClelland, 1985).

In addition to motive dispositions, the proposed model identifies competence expectancies as an antecedent of achievement goal adoption. Competence expectancies are portrayed as an independent determinant of achievement goals, and we believe that the incorporation of this cognitive variable into the model yields a richer, more comprehensive portrait of achievement goals than consideration of motive dispositions alone. In highlighting the role of motive dispositions and competence expectancies, we do not intend to preclude consideration of the other interesting and important antecedents of achievement goals that have been posited in the literature. An assortment of person-level and situational variables have been proffered, including implicit theories of intelligence (Dweck, 1990), general achievement goal orientations (Nicholls, 1989), socialization experiences at home and school (Ames & Archer, 1987), the orientation of authority figures in achievement settings (Duda, 1992), the method of competence evaluation and feedback (Blumenfeld, 1992), and task characteristics and definition (Ames, 1992). We view our model as complementary, not contradictory, to the aforementioned propositions. Future research is needed to explore possible opportunities for integration among the various conceptualizations, as well as potential points of contention, if any indeed exist.

Given the differential antecedents for mastery, performance-approach, and performance-avoidance goals, it is not surprising that our data revealed a distinct pattern of consequences for each achievement goal orientation. Mastery goal adoption led to enhanced intrinsic motivation but had no effect on graded performance, whereas adoption of a performance-approach goal led to better performance but had no influence on intrinsic motivation. Adoption of a performance-avoidance goal had deleterious consequences for both intrinsic motivation and graded performance. Thus, the approach forms of regulation had only positive and no negative effects on achievement-relevant outcomes, and the avoidance form of regulation was implicated as the sole impediment to intrinsic motivation and graded performance. Neither mastery nor performance-approach goals had a positive effect on both intrinsic motivation and graded performance; each was (positively) related to a single outcome variable. This pattern of data suggests that the optimal self-regulatory profile for participants in the present study may have been the simultaneous adoption (Wentzel, 1989) of mastery and performance-approach goals coupled with the absence of a performance-avoidance orientation. Additional empirical work is needed to ascertain the generalizability of these results to other achievement settings (with different evaluative structures and

indicators of performance attainment) and other age groups. The null effect of mastery goals on graded performance is noteworthy in this regard; we suspect that mastery goal adoption is beneficial to performance on *some* types of achievement activities (e.g., heuristic as opposed to algorithmic; McGraw, 1978) in *some* types of achievement settings (e.g., autonomy supportive as opposed to controlling; Grolnick & Ryan, 1987).

Achievement goal theorists are essentially of one mind in highlighting the salubrious nature of mastery goal adoption relative to performance goal adoption, and researchers have recently begun to investigate various intervention strategies designed to foster the development and maintenance of mastery goal regulation (see Ames, 1992). We enthusiastically add our voice to this chorus of praise for the mastery goal orientation, but our trichotomous achievement goal framework leads us to posit additionally that some types of performance goals—those focused on the attainment of positive outcomes—may also be worthy of support. Norm-based evaluative structures and productivity requirements pervade the achievement landscape (e.g., the classroom, the office, the ballfield), and an exclusive focus on mastery concerns in such settings may be nonoptimal, if not maladaptive (Heyman & Dweck, 1992). Successful negotiation of many achievement settings may entail the simultaneous adoption of a mastery goal (that would presumably facilitate intrinsic motivation) and a performance-approach orientation (that would presumably instill attentiveness to the evaluative constraints of the achievement situation and enhance performance and productivity accordingly). From this perspective, the research agenda for achievement theorists needs to expand beyond an interest in fostering mastery goals to include a consideration of how best to encourage the adoption and maintenance of a performance-approach orientation as opposed to a performance-avoidance orientation. Undoubtedly, issues pertaining to the reduction of fear of failure would be at the center of such an endeavor. The present research suggests that reducing fear of failure would not only drop the prevalence of performance-avoidance goal adoption, but also "purify" performance-approach regulation (performance-approach goals would then be undergirded by achievement motivation alone, "uncontaminated" by fear of failure).

Implicit throughout the present discourse is the assumption that motive dispositions (and competence expectancies) are causally related to achievement goal adoption and that achievement goals, in turn, exert a proximal causal influence on achievement-relevant outcomes. It is important to note that in the present research we did not directly test the causal nature of the hypothesized relationships. Despite the temporal sequencing of the assessments and the use of structural equation modeling, the data remain correlational, and therefore definitive conclusions regarding causality cannot be drawn.

Conclusion

Since the scientific analysis of achievement motivation began, two dominant theoretical traditions have emerged to account for competence-relevant behavior. The classic achievement motivation approach of McClelland and Atkinson (McClelland et al., 1953) identifies global motive dispositions as its central explanatory construct and draws a distinction between achievement motivation as an approach motive and fear of failure as an

avoidance motive. The contemporary achievement goal approach pioneered by Dweck (1986) and Nicholls (1984) utilizes midlevel achievement goals as its primary construct and distinguishes performance from mastery goal orientations. Theorists within these two traditions have characteristically worked in isolation from one another; the present research represents an attempt to integrate the central elements of these highly influential and informative approaches.

Elliot and Harackiewicz (1996) initiated this integrative process by importing the classic approach/avoidance distinction into the contemporary performance/mastery achievement goal framework. The result was a trichotomous achievement goal conceptualization consisting of mastery, performance-approach, and performance-avoidance orientations. In the present research, we maintained this trichotomous achievement goal framework as a theoretical centerpiece and expanded the integrative process by attending to the motive disposition construct and the different levels of analysis represented by the classic and contemporary approaches. The result was a hierarchical model of approach and avoidance achievement motivation in which mastery, performance-approach, and performance-avoidance forms of regulation are conceptualized as midlevel representations of their underlying motive dispositions—achievement motivation and fear of failure. It is our hope and intention that the proposed integrative model will simultaneously capture the conceptual richness of the classic achievement motivation tradition and the empirical precision of the achievement goal approach, and that the result of this theoretical marriage will be a more incisive and comprehensive account of competence-relevant affect, cognition, and behavior than that afforded by any single tradition in isolation.

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