A Motivational Analysis of Defensive Pessimism and Self-Handicapping

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ABSTRACT   Two studies examined motivational influences on and correlates of defensive pessimism and self-handicapping and investigated the relationship between these two cognitive strategies and performance attainment. The findings indicated that defensive pessimism and self-handicapping have similar motivational profiles, with the primary difference being that self-handicapping represents the absence of approach motivation in the achievement domain, as well as the presence of avoidance motivation. Self-handicapping, but not defensive pessimism, was shown to undermine performance-attainment, and performance-avoidance goals were validated as mediators of this negative relationship. Issues regarding the functional nature of the two cognitive strategies are discussed.

The cognitive strategies that individuals use in achievement pursuits have been the focus of much theoretical interest and attention in the social-cognitive literature. Research to date has helped to illuminate

important antecedents and consequences of different cognitive strategies. However, the motivational questions of *why* individuals adopt particular cognitive strategies, and how these strategies lead to achievement-relevant outcomes, have not yet received adequate empirical attention. The present research represents a motivational analysis of two cognitive strategies—defensive pessimism and self-handicapping—designed to shed light on these important questions.

Cognitive Strategies: Defensive Pessimism and Self-Handicapping

Cognitive strategies have been defined as coherent patterns of appraisal, planning, affect management, retrospection, and effort that characterize an individual's striving in a particular domain of life such as the achievement domain (Cantor, Norem, Nidenthal, Langston, & Brower, 1987; Norem & Illingsworth, 1993; Rhodewalt, Sanbonmatsu, Tschanz, Feick, & Walter, 1995; Sanna, 1996). *Defensive pessimism* is a cognitive strategy that involves setting unrealistically low expectations and thinking through worst-case outcomes of an upcoming achievement situation, even though success has been experienced in the past (Norem & Cantor, 1986b). It has been suggested that setting low expectations serves to prevent a loss of self-esteem should failure occur (Norem & Cantor, 1986a; Showers, 1992) and that the defensive pessimist uses his/her anxiety about potential failure to fuel efforts to do well (Norem & Cantor, 1986b; Showers, 1992).

Defensive pessimism is positively predicted by uncertain personal control over performance outcomes and negatively predicted by a general task-focused orientation (Martin, Marsh, & Debus, 2001). It has been speculated that other antecedents of defensive pessimism may include a strong desire for success and fear of failure (Norem & Cantor, 1986a), although these antecedents have not been tested empirically. Some research suggests that defensive pessimism does not undermine performance outcomes and that interfering with the strategy can result in performance decrements (Norem & Cantor, 1986b: Norem & Illingsworth, 1993). Defensive pessimists do not ruminate or experience excessive anxiety after performance (Showers & Rubin, 1990), nor do they deny responsibility for failure (Norem & Cantor, 1986b). However, it has been posited that defensive pessimism can produce fatigue and emotional variability

(Cantor & Norem, 1989), and some deleterious long-term consequences of this strategy have been identified, including decreased life satisfaction, an eventual drop in performance level, and feelings of hopelessness and worry (Cantor & Norem, 1989; Norem & Cantor, 1990).

Self-handicapping, as originally conceived by Jones and Berglas (1978), is a strategy with the primary aim of protecting one's self-esteem in the event of failure. The self-handicapper constructs obstacles to success (such as effort withdrawal), so that if failure occurs, it is attributed to the impediment rather than to important personal characteristics (such as ability or intelligence). Thus, by definition, self-handicapping occurs when guarding against the negative implications of failure is more important than actually attaining success.

Extant research has identified antecedents of self-handicapping, including prior noncontingent successes, performance uncertainty, an entity theory of ability, and public self-consciousness (Feick & Rhodewalt, 1997; Midgley & Urdan, 1996; Rhodewalt, 1994; Rhodewalt & Hill, 1995; Shepperd & Arkin, 1998; Tice & Baumeister, 1990; Urdan, Midgley, & Anderman, 1998). Consequences of self-handicapping include low performance attainment, the protection of self-esteem, academic dissatisfaction, and low subjective well-being (Jones & Berglas, 1978; Martin et al., 2001; McCrea & Hirt, 2001; Rhodewalt & Hill, 1995; Zuckerman, Kieffer, & Knee, 1998). The research that has attended to the motivational underpinnings of self-handicapping has focused on two motives: esteem and competency, with most empirical work focusing on the motivation to protect *self-* versus *public*-esteem (Arkin & Baumgardner 1985; Kolditz & Arkin, 1982; Mello-Goldner & Wurf, 1997; Newman & Wadas, 1997; Tice & Baumeister, 1990). Some theorists have speculated about the relevance of achievement-related motives, such as need for achievement and fear of failure (Jones & Berglas, 1978; Norem & Cantor, 1986a; Snyder, 1990), but these potential antecedents have not been examined empirically.

Motivation and Cognitive Strategies

The need for research that attends to the motivational aspects of cognitive strategies has been noted by several theorists (Emmons & King, 1989; Klinger, 1989; Pervin, 1989). These theorists contend that attention to motivational issues is necessary to better under-

stand individual differences in strategy choice and to address the issue of what energizes the cognitive processes involved in strategy use. Our research was designed to respond to this need. Specifically, a primary aim of our research was to illuminate important motivational influences on, and establish motivational correlates of, defensive pessimism and self-handicapping.

An individual's behavior in achievement situations can be viewed as a reflection of many different types and levels of motivational constructs. Elliot and colleagues (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Elliot & Sheldon, 1997; Elliot & Thrash, 2002) have identified three such constructs that play a central role in accounting for appetitive and aversive achievement behavior: achievement motives, general temperaments, and achievement goals.

Achievement motives are domain-specific motivational tendencies that energize competence-relevant behavior and orient individuals toward positive or negative possibilities (Atkinson, 1957; McClelland, Atkinson, Clark, & Lowell, 1953). Two primary achievement motives have been posited: need for achievement, which represents a desire to approach success, and fear of failure which represents a desire to avoid failure (Atkinson, 1957; Murray, 1938). At the core of achievement motives is an affective sensitivity: those high in need for achievement experience a great deal of pride upon success, whereas those high in fear of failure experience a great deal of shame upon failure. These achievement motives are not posited to have a direct effect on achievement-relevant outcomes; rather, need for achievement and fear of failure are viewed as important because they influence the specific types of self-regulatory tools that individuals adopt and employ in achievement settings (Elliot, 1999; Elliot & McGregor, 1999), most likely including cognitive strategies.

Elliot and Thrash (2002) recently introduced the concept of domain-general approach and avoidance *temperaments*, which represent broad neurobiological sensitivities to positive and negative stimuli (respectively) across the neuraxis. These temperaments are construed as heritable and relatively stable dispositions that produce a vigilance for, reactivity to, and behavioral predisposition toward valenced stimuli. Approach and avoidance temperaments are posited to be similar to Gray's (1990) behavioral activation system (BAS) and behavioral inhibition system (BIS) constructs (respectively), and, indeed, BAS and BIS are viewed as core components of the two temperaments (Elliot & Thrash, 2002). Like achievement

motives, general temperaments are not posited to have a direct effect on achievement-relevant outcomes; rather, approach and avoidance temperaments are construed as important because they predispose individuals toward particular types of self-regulation in achievement settings (Elliot, 1999; Elliot & Thrash, 2001), most likely including cognitive strategies. Thus, both motives and temperaments are presumed to contribute to cognitive strategies; motives represent the more socialization-based contribution, whereas temperaments represent the more "hard-wired" contribution.

Achievement goals are conceptualized as concrete cognitive representations that focus on a particular type of competence. Elliot and colleagues' (Elliot & Church, 1997; Elliot & Harackiewicz, 1996) trichotomous achievement goal framework posits two forms of approach goals: mastery goals directed toward the attainment of task mastery and improvement, and performance-approach goals directed toward the attainment of normative competence. Performance-avoidance goals are avoidance goals directed toward eluding normative incompetence. Mastery goals have been linked to a host of positive outcomes such as intrinsic motivation, taking subsequent courses in a subject area, persistence, and deep processing (Church, Elliot, & Gable, 2001; Elliot, McGregor, & Gable, 1999; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Rawsthorne & Elliot, 1999; see Ames, 1992, for a review). Performance-approach goals have been linked to a more truncated set of positive outcomes including effort, task absorption, and performance attainment (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Elliot, McGregor, & Gable, 1999; Harackiewicz et al., 2000; see Elliot & Moller, 2003, for a review). In contrast, performance-avoidance goals have been linked to a host of negative outcomes, including poor long-term retention, low intrinsic motivation, and poor performance (Elliot & Church, 1997; Elliot & McGregor, 1999; Elliot et al., 1999; see Elliot, 1999, for a review).[1] Achievement goals are presumed to represent an important motivational pathway through which cognitive strategies exert their influence on achievement-relevant outcomes.

1. Elliot (1999; see also Pintrich, 2000) have recently proposed a fourth type of achievement goal, mastery-avoidance. This type of goal was not examined in the present work, as a measure of mastery-avoidance goals had not been developed at the time this research was conducted.

In the present research, we use these three types of constructs—achievement motives, general temperaments, and achievement goals—to investigate the motivational tendencies (motives and temperaments) underlying defensive pessimism and self-handicapping and the motivational processes (achievement goal adoption) involved in the implementation of these cognitive strategies. That is, we examined achievement motives and general temperaments as antecedents of the cognitive strategies (Studies 1 and 2), and we examined the cognitive strategies as predictors of situation-specific achievement goals (Study 2). In addition, we sought to investigate the link between the cognitive strategies and performance outcomes, and to test achievement goals as possible mediators of this link (Study 2). Mediational work is extremely rare in the cognitive strategy literature, despite a call for such work (Snyder, 1990); attending to this call was another primary aim of the present research. Precise descriptions of and hypotheses for the two studies will be explicated immediately prior to the presentation of each study.

STUDY 1

In Study 1 we examined the relationship between achievement motives and the focal cognitive strategies, defensive pessimism and self-handicapping. Our hypotheses are in accord with earlier speculations (see Norem & Cantor, 1986a) that need for achievement would be a positive predictor of defensive pessimism and a negative predictor of self-handicapping, whereas fear of failure would be a positive predictor of both defensive pessimism and self-handicapping. These patterns would indicate that defensive pessimists indeed desire both to achieve success and avoid failure, whereas self-handicappers desire to avoid failure with little concern about success per se.

We also examined the relationship between general temperaments and the two cognitive strategies. We used Gray's (1990) BAS and BIS constructs as indicators of approach and avoidance temperaments, respectively (see Elliot & Thrash, 2002). BIS represents a neurophysiological sensitivity to negative stimuli that protects the individual from punishment. Given that defensive pessimism and self-handicapping are commonly construed as self-protective approaches to achievement situations, it seems likely that both strategies are grounded in (and will be positively predicted by) BIS

sensitivity. Hypotheses for BAS are not as straightforward to generate, and are not offered a priori.

METHOD

Participants and Procedure

One hundred and eighty-one (79 male, 102 female) University of Rochester undergraduates participated in return for extra credit. The mean age of participants was 20.45 with a range of 17–37. Need for achievement and fear of failure were assessed in a large group session with all participants, and BIS and BAS were assessed 1 week later in a similar large group session. Defensive pessimism and self-handicapping were assessed 8 weeks after the BIS/BAS assessment, also in a large group session with all participants.[2]

Measures

Achievement motives. Need for achievement was assessed with the Achievement Orientation subscale of Jackson 's (1974) Personality Research Form (PRF), a self-report measure conceptually based on Murray's (1938) theory of needs. The measure consists of 16 true-false items (e.g., "I enjoy difficult work"). A number of studies have established the reliability and validity of this measure (Fiske, 1973; Harper, 1975).

Fear of failure was assessed using Houston and Kelly's (1987) 9-item fear of failure scale. Each item is rated on a 1 (*not at all like me*) to 5 (*very much like me*) scale (e.g., "If I do poorly at something, I usually prefer to not let anyone else know or try to cover it up"). Houston and Kelly (1987) have provided reliability and validity information on this measure.

Temperaments. BAS and BIS were assessed using Carver and White's (1994) BAS and BIS scales, respectively. The 13-item BAS scale (e.g., "When I see an opportunity for something I like, I get excited right away") is comprised of three subscales (Fun Seeking, Reward-responsiveness, and Drive) that, when aggregated, comprise

2. The data for this study and for Study 2, were collected as part of larger projects (see Gable, Reis, & Elliot, 2002, Study 2, and Elliot & Sheldon, 1998, Study 3) designed to investigate conceptually distinct issues. None of the results reported in the text have been reported in any prior work.

a single BAS variable (Jorm et al., 1999); the BIS scale has seven items (e.g., "If I think something unpleasant is going to happen, I usually get pretty 'worked up'"). Items for both measures are rated on a 1 (*strongly disagree*) to 4 (*strongly agree*) scale. The BAS and BIS measures have been shown to be reliable and valid (Carver & White, 1994).

Cognitive Strategies. Self-handicapping was assessed using Jones and Rhodewalt's (1982) 25-item self-handicapping scale. Each item (e.g., "I would do a lot better if I tried harder") is rated on a 1 (*disagree very much*) to 6 (*agree very much*) scale. A number of studies have demonstrated that this measure is both reliable and valid (Rhodewalt, 1990; Rhodewalt, Saltzman, & Wittmer, 1984; Strube, 1986).

   Defensive Pessimism was assessed using Cantor and Norem's (1989) measures of the two criteria of defensive pessimism: pessimism and past success. Five items are rated on a 1 (*not at all true of me*) to 11 (*very true of me*) scale. The 4-item pessimism scale (e.g., "I go into academic situations expecting the worst, even though I know I will probably do OK") is calculated only for those participants who report past success (i.e., score > 8) on the past success item ("I have generally done pretty well in academic situations in the past"; Norem & Cantor, 1989).[3] The reliability and validity of this assessment technique has been demonstrated in prior research (Cantor & Norem, 1989; Eiser, Pahl, & Prins, 2001).

RESULTS AND DISCUSSION

Descriptive Statistics and Reliabilities

Table 1 displays the descriptive statistics and reliability estimates for the primary Study 1 variables. The intercorrelations within variable type are as follows: need for achievement and fear of failure ($r = -.14$, $p = .057$), BAS and BIS ($r = -.05$, ns), and defensive pessimism and self-handicapping ($r = .39$, $p < .001$).

3. In many defensive pessimism studies, four optimism items are subtracted from the four pessimism items in creating the defensive pessimism measure. This approach is not considered advisable, given recent research demonstrating that optimism and pessimism are conceptually and empirically separable constructs (see Eiser, Phal, & Prins, 2001; Robinson-Whelen, Kim, MacCallum, Kiecolt-Glaser, 1997).

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Table 1
Study 1: Descriptive Statistics and Reliabilities

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Variables	Mean	Standard deviation	Possible range	Observed range	Reliability
Defensive pessimism	24.25	9.12	4–44	4–42	.72
Self-handicapping	59.11	7.30	25–100	37–78	.62
Need for achievement	10.58	2.82	0–16	2–16	.60
Fear of failure	24.30	5.18	9–45	14–40	.62
BAS	41.58	5.42	13–52	20–52	.83
BIS	20.50	4.19	7–28	9–28	.82

Note. $n = 181$ (defensive pessimism $n = 129$); BAS = behavioral activation system; BIS = behavioral inhibition system

Achievement Motives and Temperaments As Predictors of Cognitive Strategies

Simultaneous regression analyses were conducted to assess the influence of need for achievement and fear of failure, BAS and BIS, and all of these variables together on defensive pessimism and self-handicapping. In both this study and Study 2, preliminary analyses included gender; gender was retained in the final analysis when it attained significance (Judd & Kenny, 1981).

Regressing defensive pessimism on need for achievement and fear of failure (overall model: $F[2,126] = 9.88$, Adjusted $R^2 = .12$, $p < .0005$) revealed that need for achievement was unrelated to defensive pessimism ($\beta = -.04$), whereas fear of failure was a positive predictor ($\beta = .36$, $p < .0001$). Regressing self-handicapping on need for achievement and fear of failure (overall model: $F[2,176] = 32.63$, Adjusted $R^2 = .26$, $p < .0001$) revealed that need for achievement was a negative predictor of self-handicapping ($\beta = -.27$, $p < .0005$), whereas fear of failure was a positive predictor ($\beta = .41$, $p < .0001$).

The regression of defensive pessimism on BAS and BIS (overall model: $F[2,126] = 10.95$, Adjusted $R^2 = .13$, $p < .0001$) revealed that BAS was unrelated to defensive pessimism ($\beta = -.02$), whereas BIS was a positive predictor ($\beta = .38$, $p < .0001$). Regressing self-handicapping on BAS and BIS (overall model: $F[2,178] = 8.09$, Adjusted $R^2 = .07$, $p < .0005$) revealed that BAS was unrelated to

self-handicapping ($\beta = .06$), whereas BIS was a positive predictor ($\beta = .28$, $p < .0001$).

Regressing defensive pessimism on the motive and temperament variables together (overall model: $F[4,124] = 7.41$, Adjusted $R^2 = .17$, $p < .0001$) produced the same results as the individual analyses: need for achievement and BAS were unrelated to defensive pessimism ($\beta's = -.08$ and $-.01$, respectively), whereas fear of failure and BIS were positive predictors ($\beta = .21$, $p < .05$ and $\beta = .28$, $p < .005$, respectively). The regression of self-handicapping on the motive and temperament variables together (overall model: $F[4,174] = 18.12$, Adjusted $R^2 = .28$, $p < .0001$) also produced the same results as the individual analyses: need for achievement was a negative predictor of self-handicapping ($\beta = -.30$, $p < .0001$), fear of failure and BIS were positive predictors ($\beta = .32$, $p < .0001$ and $\beta = .17$, $p < .05$, respectively), and BAS was unrelated ($\beta = .06$). Table 2 provides a summary of the primary results from these analyses.[4]

Thus, this study established a link between achievement motives, general temperaments, and the cognitive strategies of defensive pessimism and self-handicapping. Defensive pessimism was unrelated to need for achievement and BAS, and positively related to fear of failure and BIS. Self-handicapping was negatively related to need for achievement, positively related to fear of failure and BIS and unrelated to BAS. With the exception of the null relationship between need for achievement and defensive pessimism, these results are consistent with predictions.

STUDY 2

In Study 2, our aim was to replicate the Study 1 findings and to investigate the relationship between the two cognitive strategies and

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4. In the present research, we used Houston and Kelly's (1987) 9-item fear of failure measure in our primary analyses, but in ancillary analyses we used a short form of this measure that we developed in pilot research. We created a 7-item version of the measure by dropping the 2 original items that do not directly measure fear of failure and do not correlate strongly with the total scale score. In the present samples, the 7-item measure was highly correlated with the original measure (rs .94), exhibited internal consistency similar to the original measure (within .01) and produced essentially the same results as the original measure (the only difference being in Study 1, where the relationship between fear of failure and defensive pessimism was $p = .056$ rather than $p < .05$).

Table 2
Study 1: Summary of Results

	Defensive pessimism	Self-handicapping
Need for achievement	− .04	− .27**
Fear of failure	.36**	.41**
BAS	− .02	.06
BIS	.38**	.28**

Note. BAS = behavioral activation system; BIS = behavioral inhibition system;
*p < .05
**p < .01. The tabled coefficients are betas from the regression equations.

the adoption of situation-specific achievement goals (mastery, performance-approach, and performance-avoidance). Defensive pessimism appears to have both appetitive and aversive foci, in that the individual is anxious about the possibility of failure and yet puts forth rigorous effort (i.e., overprepares or cognitively "works through" the situation) in an attempt to do well. This appetitive focus seems directed toward meeting the evaluative standards imposed on the situation, rather than seeking task mastery per se. Thus, we anticipated that defensive pessimism would be a positive predictor of both performance-approach and performance-avoidance goals and would be unrelated to mastery goals.

Self-handicapping appears to be a highly avoidance-based strategy, and it is likely to be a strong positive predictor of performance-avoidance goals. Given that self-handicappers appear to have little concern about success per se (i.e., success for its own sake), this strategy is likely to be negatively related to mastery goals (see Midgley & Urdan, 2001). Predictions for performance-approach goals are more difficult to generate. Performance-approach goals per se represent appetitive competence strivings focused on normative success and, as such, may be negatively related to self-handicapping. However, performance-approach goals can also carry self-presentation concerns (Elliot & Thrash, 2001) and, to the extent that they do so, they may be positively related to self-handicapping (see Rhodewalt, 1994).

A second aim of Study 2 was to investigate the link between the cognitive strategies and performance outcomes and to test achievement goals as possible mediators of this link. Prior research indicates

that defensive pessimism tends not to undermine performance attainment (Norem & Illingsworth, 1993) but that self-handicapping has deleterious consequences for performance (Martin et al., 2001; Zuckerman et al., 1998). In the present research, we expected to replicate these findings, using both exam performance and grade point average (GPA) as indicators of performance. Regarding mediators that might account for the negative impact of self-handicapping on performance, performance-avoidance goals would seem a logical candidate. In the preceding paragraph we hypothesized that self-handicapping would be a positive predictor of performance-avoidance goals, and several studies have demonstrated that performance-avoidance goals are a negative predictor of performance outcomes (Elliot & Church, 1997; Elliot & McGregor, 1999; 2001). In the present study, we tested whether performance-avoidance goal adoption accounts for the link between self-handicapping and performance attainment. Importantly, we tested all of the aforementioned predictions, controlling for SAT scores and prior GPA. We did this to ensure that the obtained results represented motivational findings, not just actual ability.

METHOD

Participants and Procedure

One hundred and eighty-one (70 male, 111 female) University of Rochester undergraduates in an introductory-level psychology class participated in return for extra credit. The mean age of participants was 19.86 with a range of 17–35. BAS and BIS were assessed during the first week of the semester in a large group session. Need for achievement, fear of failure, defensive pessimism, and self-handicapping were assessed during the second week of the semester, also in a large group session. Participants' achievement goals for their exam in the course were assessed in a series of large group sessions approximately 1 week prior to each of the three exams (the 5th, 10th, and 15th weeks of the semester). Exam performance data were acquired from the course professor; GPA and SAT score information was acquired from the university registrar.

Measures

Achievement motives. The same measures used in Study 1 to assess need for achievement and fear of failure were used in this study.

General temperaments. The same measures used in Study 1 to assess BAS and BIS were used in this study.

Cognitive strategies. The same measures used in Study 1 to assess defensive pessimism and self-handicapping were used in this study.

Achievement goals. Elliot and Church's (1997) 18-item question-naire was used to assess participants' mastery, performance-approach, and performance-avoidance goal adoption for each of the three exams in the course. Each goal measure consists of six items that are rated on a 1 (*not at all*) to 7 (*very*) scale (e.g., mastery: "I want to learn as much as possible from this section of the class;" performance-approach: "It is important to me to do better than the other students on this exam"; and performance-avoidance: "I just want to avoid doing poorly on this exam"). These measures have been shown to be reliable and valid (Elliot & Church, 1997). Participants' scores for each goal measure were summed across the three exams to form the achievement goal variables.

Exam performance. The exams consisted of both multiple choice and short answer-essay questions. An overall exam performance index was formed by summing participants' scores across the three exams.

GPA. Two GPA values were obtained for each participant: their cumulative GPA prior to the beginning of the semester (pre-GPA), and their cumulative GPA at the end of the semester (post-GPA).

SAT scores. Participants' scores on the verbal and math compo-nents of the SAT were summed to form a total SAT score index.

RESULTS AND DISCUSSION

Descriptive Statistics and Reliabilities

Table 3 displays the descriptive statistics and reliability estimates for the primary Study 2 variables. The intercorrelations within variable type are as follows: need for achievement and fear of failure

($r = -.08$, ns), BAS and BIS ($r = .17$, $p < .05$), defensive pessimism and self-handicapping ($r = .33$, $p < .001$), mastery and performance-approach goals ($r = .11$, *ns*), mastery and performance-avoidance goals ($r = -.06$, *ns*), performance-approach and performance-avoidance goals ($r = .25$, $p < .005$).

Achievement Motives and Temperaments As Predictors of Cognitive Strategies

Simultaneous regression analyses were conducted to assess the influence of need for achievement and fear of failure, BAS and BIS, and all of these variables together on defensive pessimism and self-

Table 3
Study 2: Descriptive Statistics and Reliabilities

Variables	Mean	Standard deviation	Possible range	Observed range	Reliability
Defensive pessimism	22.89	8.51	4–44	5–44	.78
Self-handicapping	60.21	8.24	25–100	39–85	.70
Need for achievement	9.92	3.26	0–16	1–16	.71
Fear of failure	25.81	5.65	9–45	10 40	.72
BAS	40.00	5.14	13–52	17–52	.81
BIS	21.07	3.72	7–28	12–28	.79
Mastery goals	95.68	15.83	18–126	33–126	.87
Performance-app. goals	77.18	25.32	18–126	20–124	.89
Performance-av. goals	69.59	23.00	18–126	20–124	.89
SAT scores	1197.90	151.84	0–1600	500–1530	–
Pre-GPA	3.03	.61	0–4.0	.56–3.93	–
Exam performance	195.10	49.29	0–300	61–281	.91
Post-GPA	3.03	.59	0–4.0	.67–3.95	–

$n = 181$ (defensive pessimism $n = 119$); BAS = behavioral activation system; BIS = behavioral inhibition system; app. = approach; av. = avoidance; SAT = Scholastic Aptitude Test; GPA = grade point average

handicapping. Pre-GPA and SAT scores were included as control variables in all analyses.

The analyses linking each cognitive strategy to need for achievement and fear of failure replicated the results of Study 1. Need for achievement was unrelated to defensive pessimism ($\beta = .02$), whereas fear of failure was a positive predictor ($\beta = .33$, $p < .0005$)(overall model: $F[4,116] = 6.03$, Adjusted $R^2 = .14$, $p < .0005$). Need for achievement was a negative predictor of self-handicapping ($\beta = -.24$, $p < .0005$), whereas fear of failure was a positive predictor ($\beta = .50$, $p < .0001$)(overall model: $F[5,175] = 24.59$, Adjusted $R^2 = .40$, $p < .0001$). Gender was also a significant predictor ($\beta = .15$, $p < .05$), indicating that females reported a stronger tendency to self-handicap than males; pre-GPA was negatively related to self-handicapping ($\beta = -.16$, $p < .05$).

The analyses linking each cognitive strategy to BAS and BIS also replicated the results of Study 1. BAS was unrelated to defensive pessimism ($\beta = .03$), whereas BIS was a positive predictor ($\beta = .29$, $p < .005$)(overall model: $F[4,116] = 5.12$, Adjusted $R^2 = .12$, $p < .001$). SAT scores were negatively related to defensive pessimism ($\beta = -.21$, $p < .05$). BAS was unrelated to self-handicapping ($\beta = -.01$), whereas BIS was a positive predictor ($\beta = .43$, $p < .005$). Pre-GPA was negatively related to self-handicapping ($\beta = -.27$, $p < .0005$).

As in Study 1, regressing defensive pessimism on the motive and temperament variables together (overall model: $F[6,114] = 4.86$, Adjusted $R^2 = .16$, $p < .005$) produced essentially the same results as those from the individual analyses: need for achievement and BAS were unrelated to defensive pessimism ($\beta's = -.03$ and .05, respectively), whereas fear of failure and BIS were positive predictors ($\beta = .25$, $p < .05$ and $\beta = .19$, $p = .057$, respectively). SAT scores were negatively related to defensive pessimism ($\beta = -.21$, $p < .05$). The regression of self-handicapping on the motive and temperament variables together (overall model: $F[6,174] = 24.10$, Adjusted $R^2 = .44$, $p < .0001$) also produced the same results as the individual analyses: need for achievement was a negative predictor of self-handicapping ($\beta = -.27$, $p < .0001$), fear of failure and BIS were positive predictors ($\beta = .41$, $p < .0001$ and $\beta = .27$, $p < .0005$, respectively), and BAS was unrelated ($\beta = .06$). Pre-GPA was negatively related to self-handicapping ($\beta = -.16$, $p < .05$).

Cognitive Strategies As Predictors of Achievement Goals and Performance Outcomes

Simultaneous regression analyses were conducted to assess the influence of each cognitive strategy on the achievement goal and performance outcome variables. Pre-GPA and SAT scores were included as control variables in all analyses.

In the analyses using defensive pessimism to predict goal adoption, defensive pessimism was a positive predictor of performance-approach goals ($\beta = .30$, $p < .001$)(overall model: $F[3,108] = 7.60$, Adjusted $R^2 = .15$, $p < .0005$), as well as performance-avoidance goals ($\beta = .55$, $p < .0001$)(overall model: $F[4,107] = 17.41$, Adjusted $R^2 = .37$, $p < .0001$), but was unrelated to mastery goals ($\beta = -.11$). Sex was significantly related to mastery ($\beta = .23$, $p < .05$) and performance-avoidance ($\beta = .19$, $p < .05$) goals, indicating that females were more likely to adopt both types of goals than males. Pre-GPA was positively related to performance-approach goals ($\beta = .31$, $p < .05$). In the analyses using defensive pessimism to predict performance outcomes, defensive pessimism was unrelated to both exam performance ($\beta = -.07$) and post-GPA ($\beta = .01$). Not surprisingly, pre-GPA was a strong positive predictor of exam performance ($\beta = .67$, $p < .0001$) and, in particular, post-GPA ($\beta = .97$, $p < .05$).

In the analyses using self-handicapping to predict goal adoption, self-handicapping was a positive predictor of performance-approach goals ($\beta = .32$, $p < .0001$)(overall model: $F[3,165] = 9.73$, Adjusted $R^2 = .14$, $p < .0001$), and performance-avoidance goals ($\beta = .44$, $p < .0001$) (overall model: $F[4,164] = 17.02$, $R^2 = .29$, $p < .0001$); self-handicapping was a negative predictor of mastery goals ($\beta = -.19$, $p < .05$)(overall model: $F[4,164] = 2.57$, Adjusted $R^2 = .04$, $p < .05$). Sex was significantly related to mastery goals ($\beta = .20$, $p < .05$), indicating that females were more likely to adopt mastery goals than males. Pre-GPA was positively related to performance-approach goals ($\beta = .30$, $p < .005$), and SAT scores were negatively related to performance-avoidance goals ($\beta = -.24$, $p < .005$). In the analyses using self-handicapping to predict performance outcomes, self-handicapping was a negative predictor of both exam performance ($\beta = -.15$, $p < .01$)(overall model: $F[3,176] = 56.29$, Adjusted $R^2 = .48$, $p < .0001$) and post-GPA ($\beta = -.04$, $p < .05$)(overall model: $F[3,177] = 913.20$, Adjusted

$R^2 = .95$, $p < .0001$). Pre-GPA ($\beta = .59$, $p < .0001$) and SAT scores ($\beta = .13$, $p < .05$) were positively related to exam performance, and both variables were also positively related to post-GPA ($\beta = .94$, $p < .0001$ and $\beta = .06$, $p < .05$), respectively. Table 4 provides a summary of the primary results from these analyses.

Mediation

In the preceding analyses, self-handicapping was shown to 1) negatively predict the performance outcome variables, and 2) positively predict performance-avoidance goals. These relationships satisfy the first two requirements needed to establish performance-avoidance goals as a mediator of the relationship between self-handicapping and the performance outcome variables. To test the final requirement (see Judd and Kenny [1981] for an overview of the requirements needed to establish mediation), we regressed each of the performance outcome variables on self-handicapping with the achievement goal variables included in the equation.

In the exam performance mediational analysis (overall model: $F(6,162) = 35.46$, $R^2 = .55$, $p < .0001$), performance-avoidance goals
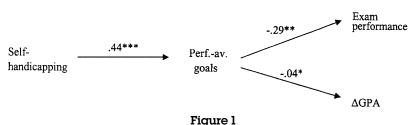
Table 4
Study 2: Summary of Results

	Defensive pessimism	Self-handicapping
Need for achievement	.02	− .24**
Fear of failure	.33**	.50**
BAS	.03	− .01
BIS	.29**	.43**
Mastery goals	− .11	.19*
Performance-app. goals	.30**	.32**
Performance-av. goals	.55**	.44**
Exam performance	− .07	.15**
Post-GPA	− .01	− .04*

Note. BAS = behavioral activation system; BIS = behavioral inhibition system; app. = approach; av. = avoidance; SAT = Scholastic Aptitude Test; GPA = grade point average;
*$p < .05$
**$p < .01$. The tabled coefficients are betas from the regression equations.

Figure 1
The meditational results from the regression analyses. Path coefficients are standardized regression. coefficients from the regression analyses. *p<.05 **p<.01.

were a negative predictor of exam performance ($\beta = -.29$, $p<.0001$), and the direct relationship between self-handicapping and exam performance was reduced from $-.15$ to $-.06$ (*ns*). Sobel's test indicated that the indirect relationship between self-handicapping and exam performance through performance-avoidance goals was significant ($z = 3.67$, $p<.0005$). Performance-approach goals and pre-GPA were positive predictors of exam performance in this analysis ($\beta = .12$, $p<.05$ and $\beta = .54$, $p<.0001$).

In the post-GPA mediational analysis (overall model: $F(6,162) = 653.87$, Adjusted $R^2 = .95$, $p<.0001$), performance-avoidance goals were a negative predictor of post-GPA ($\beta = -.04$, $p<.05$), and the direct relationship between self-handicapping and exam performance was reduced from $-.04$ to $-.02$ (*ns*). Sobel's test indicated that the indirect relationship between self-handicapping and post-GPA through performance-avoidance goals was significant ($z = 2.15$, $p<.05$). Pre-GPA and SAT scores were positive predictors of post-GPA in this analysis ($\beta = .93$, $p<.0001$ and $\beta = .06$, $p<.005$). These results establish performance-avoidance goals as a partial mediator of the direct relationship between self-handicapping and both exam performance and post-GPA (see Figure 1 for a pictorial summary of the mediational results).[5]

5. Prompted by an anonymous reviewer, we conducted all analyses in both studies with the pessimism items for the portion of the sample that reported little past success (<8) on the past success item. These individuals may be characterized as (realistic) pessimists per se, rather than defensive, pessimists (Norem & Cantor, 1986a). In Study 1, the fear of failure, need for achievement, and BAS results for pessimism were the same as those for defensive pessimism; BIS was unrelated to pessimism, whereas it was positively related to defensive pessimism. In Study 2, the achievement motive and temperament results were the same for pessimism

In summary, this study replicated Study 1 and extended it in several ways. First, the cognitive strategies were linked to achievement goal adoption: Defensive pessimism was a positive predictor of performance-avoidance and performance-approach goals and was not significantly related to mastery goals; self-handicapping was a positive predictor of performance-avoidance and performance-approach goals and was negatively related to mastery goals. Second, the cognitive strategies were linked to performance outcomes: although defensive pessimism was found to be unrelated to exam performance and post-GPA, self-handicapping was negatively related to both performance indicators. Third, the adoption of performance-avoidance goals was shown to mediate the relationship between self-handicapping and performance attainment. Finally, all of the aforementioned findings were established while controlling for SAT and pre-GPA.

GENERAL DISCUSSION

The results from the present research yielded several insights into the motivational nature of defensive pessimism and self-handicapping. In the following, we summarize and discuss the results regarding the motivational influences on and motivational correlates of the two strategies, followed by a summary and discussion of the mediational findings.

Defensive pessimism was positively predicted by fear of failure and BIS sensitivity and was unrelated to need for achievement and BAS sensitivity. In terms of achievement goals, defensive pessimism positively predicted performance-approach and performance-avoidance goals and was not significantly related to mastery goals.

and defensive pessimism, except that fear of failure exhibited a positive trend in the joint analysis for pessimism and was signficant for defensive pessimism. The results for mastery and performance-avoidance goals were the same for pessimism and defensive pessimism; pessimism was unrelated to performance-approach goals, rather than positively related as for defensive pessimism. Although the results for post-GPA were the same for pessimism and defensive pessimism, pessimism was a negative predictor of exam performance, whereas defensive pessimism was unrelated to exam performance. Thus, pessimism and defensive pessimism exhibited similar profiles, but pessimism was less approach-oriented, and had a more inimical impact on exam performance, than defensive pessimism.

We, in accord with Norem and Cantor (1986a), had hypothesized that defensive pessimism would be positively predicted by need for achievement, as well as fear of failure, but across the two studies, this strategy was unrelated to need for achievement. Thus, at the level of achievement motives, as well as temperament, defensive pessimism appears to be grounded in avoidance motivation alone, rather than a combination of approach and avoidance motivation. Although the anticipated approach-avoidance combination was not observed at the motive level, it was observed at the goal level, in that defensive pessimists adopted both approach- and avoidance-focused performance goals. Thus, defensive pessimists cognitively focus on the possibility of success (as well as the possibility of failure), but this success focus is in the service of deeply ingrained avoidance dispositions, namely avoidance temperament and fear of failure. In this sense, defensive pessimism may be seen as a hierarchically based form of active avoidance (see Elliot & Church, 1997)—pursuing the goal of approaching success (as well as the goal of avoiding failure) as a strategic response to a biologically based orienting toward failure and a socialized desire to protect the self from failure.

It is important to note, however, that although defensive pessimism wasn't positively related to need for achievement, it wasn't negatively related either. This null relationship suggests that need for achievement may be a positive predictor of defensive pessimism for some, but a negative predictor for others. Interestingly, cognitive strategy theorists have speculated that there are different types of defensive pessimism: one that involves setting low expectations and simply preparing for failure, and the other that involves imagining the possibility of not doing well and putting forth rigorous effort to enhance the likelihood of success (Showers, 1992). It is possible that the former type of defensive pessimism, a form of passive avoidance, may be manifest by those with low need for achievement, whereas the latter type, a form of active avoidance, may be manifest by those with high need for achievement (see Elliot, 1997; Gray, 1990; for further discussion of the passive/active avoidance distinction). This possibility warrants future research attention, as it not only has implications for how defensive pessimism is conceptualized, but it also raises the interesting question of whether different processes and outcomes emerge out of the different types of defensive pessimism.

Self-handicapping was positively predicted by fear of failure and BIS sensitivity, was negatively predicted by need for achievement,

and was unrelated to BAS sensitivity. In terms of achievement goals, defensive pessimism positively predicted performance-approach and performance-avoidance goals and negatively predicted mastery goals.

At the level of achievement motives and temperament, the observed results were directly in accord with predictions. Like defensive pessimism, self-handicapping is fundamentally grounded in avoidance motivation, both in terms of socialization-based motives and hard-wired temperaments. Given that self-handicappers desire to avoid failure, it may seem contradictory that they would intentionally place obstacles in their path that undoubtedly enhance their likelihood of failure. However, it is important to distinguish between two types of failure: specific failure on a task in a given situation and global failure as an intellect or person. The self-handicapper's use of obstacles may enhance the likelihood of specific failure, but the attributional ambiguity created by the obstacles functionally eliminates the possibility of global failure. Thus, clearly, it is this global sense of failure that the self-handicapper most desires to evade (see also Urdan & Midgley, 2001).

Our findings indicate that self-handicapping is not only grounded in avoidance motivation but also in the absence of approach motivation, specifically, the motive to achieve. This lack of concern about achievement, presumably rooted in the incapacity to feel pride upon success, may account for why self-handicappers are willing to sacrifice success (in contradistinction to being willing to risk failure) in specific achievement situations. Success per se is of little value to them and can easily be sacrificed to accomplish the pressing concern of avoiding the global implications of failure.

At the goal level, self-handicapping, like defensive pessimism, represents an approach-avoidance combination, in that self-handicappers adopted both approach- and avoidance-focused performance goals. For self-handicappers, it is likely that performance-approach goals primarily represent the aim of impressing or appearing competent to others, rather than the aim of attaining normative competence (Rhodewalt, 1994; Urdan & Midgley, 2001). It is also possible that these performance-approach strivings represent an attempt to augment self-esteem by succeeding in spite of the self-imposed obstacles placed in one's path. However, the empirical evidence at present is mixed as to whether self-handicapping indeed serves this type of augmenting function, in addition to the well-documented protective function (McCrea & Hirt, 2001).

Our goal results also revealed that self-handicappers are less inclined to adopt mastery goals, which are a rather pure form of competence striving. This disinclination toward mastery goals is undoubtedly a direct result of the self-handicapper's low achievement motivation and further suggests that in achievement situations, self-handicappers are more concerned about self-presentation concerns than competence concerns per se.

The striking thing about the aforementioned findings for defensive pessimism and self-handicapping is their similarity. Although the two strategies are quite distinct in terms of manifest tactics, at the underlying level these tactics are grounded in the same avoidance-based motivational dynamics (see also Oleson, Poehlmann, Yost, Lynch, & Arkin, 2000). Interestingly, the primary characteristic that differentiates defensive pessimism and self-handicapping is the absence of achievement-based approach motivation. Whereas defensive pessimism appears to be unrelated to need for achievement and mastery goals, self-handicapping is negatively related to these constructs.

In accord with prior work (Martin et al., 2001; Norem & Cantor, 1986b; Zuckerman et al., 1998), defensive pessimism was unrelated to performance attainment in Study 2, whereas self-handicapping was a negative predictor.[6] Importantly, these findings, as well as those discussed above for motives, temperaments, and goals, were observed while controlling for objective indicators of ability, specifically, SAT scores and pre-GPA (i.e., GPA prior to the focal semester). The use of pre-GPA as a control variable makes the post-GPA finding particularly impressiveas it means that this relationship is not only prospective in nature,but represents longitudinal change in GPA as a function of self-handicapping.

We not only demonstrated that self-handicapping predicts performance attainment but also that the pursuit of performance-avoidance goals mediates this relationship. Self- handicapping was a positive predictor of performance-avoidance goals, performance-

6. It should be noted that our finding that self-handicapping was a negative predictor of performance during the semester does not necessarily indicate that self-handicapping is always detrimental for performance. Indeed, in some situations, implementation of the self-handicapping strategy may relieve the individual of performance pressure, thereby facilitating performance (Sanna & Mark, 1995). However, it is likely that over time, self-handicapping will have an undermining influence on performance in most, if not all, achievement settings.

avoidance goals were a negative predictor of exam performance and change in GPA, and performance-avoidance goals accounted for a large portion of the direct relationship between self-handicapping and performance attainment. We did not assess the actual implementation of self-handicapping tactics in the present research, but it is likely that these tactics are predicted by performance-avoidance goals and are themselves the proximal predictors of performance decrements. That is, such self-protective tactics as procrastination, effort withdrawal, and ineffective or inadequate preparation may mediate the deleterious impact of performance-avoidance goals on performance outcomes for the self-handicapper. Future research would do well to explore this possibility (see Elliot et al., 1999; McGregor & Elliot, 2002; for data consistent with this proposal).

The mediational results for self-handicapping provide a more intricate analysis of the strategy than is yielded by the mere documentation of direct relationships with outcome variables. A question that remains unanswered regarding mediation is why defensive pessimism exhibits the same indirect paths to performance as self-handicapping (i.e., it predicts performance-avoidance goals, and performance-avoidance goals predict performance attainment), yet it does not have a negative influence on performance. It is possible that performance-avoidance goals are more inimical in the context of low need for achievement than they are otherwise (that is, the negative focus of performance-avoidance regulation, unchecked by appetitive desires, may be particularly detrimental; see Thrash & Elliot [2001] on "goal complexes"). Alternatively, the precise tactics that defensive pessimists employ in the service of their strategy may serve as a prophylactic against performance impairment. It should also be added that some have found that defensive pessimism does impair performance, but that it primarily does so in the long run (Norem & Cantor, 1986b). Although failure avoidance may not produce negative results in the short-term, the vigilance, anxiety, and internal pressure that undoubtedly accompanies such avoidance regulation is likely to exact a toll eventually (Covington, 1992; 2000).

Indeed, one could argue that our motivational profiles of defensive pessimism and self-handicapping suggest that neither of these strategies fosters an optimal approach to regulation in achievement settings. Clearly, each of the strategies has some functional value (Deppe & Harackiewicz, 1998; Norem & Illingsworth, 1993; Spencer & Norem, 1996); if not, it is unlikely that they

would be observed with any frequency in achievement contexts. However, we suspect that most, if not all, of the benefits enjoyed by the use of these strategies is experienced in the short term only, given their aversive motivational base. Thus, rather than embrace these strategies as functional, we prefer to highlight the need to consider ways in which these strategies could be changed, or replaced with more holistically and enduringly effective approaches. Such change/ replacement efforts would need to be targeted at the motivation underlying and associated with the strategies and are likely to entail protracted time and effort. Although avoidance temperaments are likely to be less amenable to change, fear of failure may be somewhat malleable (see McClelland, 1985), and performance-avoidance goals would certainly seem open to reframing.

In closing, the present research illustrates the utility of attending to motivation in general, and approach-avoidance motivation in particular, in the study of cognitive strategies. We believe that a deep understanding of cognitive strategies necessitates a thorough examination of the motivational dynamics involved in strategy selection and use, and we hope that the present work serves as a catalyst for future research in this important area of inquiry.

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