

Implicit and Self-Attributed Achievement Motives: Concordance and Predictive Validity

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ABSTRACT As a complement to the literature on the discriminant validity of implicit and self-attributed motives, this study explored two issues that point to convergences: moderation of concordance between implicit and self-attributed achievement motives, and the role of the two types of motive as antecedents of achievement goals. Significant positive correlations were found between implicit and self-attributed need for achievement and between implicit and self-attributed fear of failure. Individuals higher in self-determination were more concordant in implicit and self-attributed need for achievement. Implicit and self-attributed achievement motives predicted achievement goals in a similar manner, and structural equation modeling yielded good fit for a conceptually parsimonious latent motive model. It is suggested that implicit and self-attributed motives converge in some respects (yet diverge in others), and implications for theory are discussed.

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The distinction between implicit and self-attributed motives has a venerable history in psychology (Freud, 1900/1955; McClelland, Atkinson, Clark, & Lowell, 1953; Murray, 1938) and continues to be important in contemporary theory and research in personality psychology (McClelland, Koestner, & Weinberger, 1989; for related distinctions in this and other disciplines, see Bargh, 1996; Chaiken & Trope, 1999; Epstein, 1994; Greenwald & Banaji, 1995). Although both implicit and self-attributed motives function to energize and direct behavior, thus warranting the “motive” label, McClelland and his colleagues have argued that the two types of motive are independent constructs and differ in a number of ways (Koestner, Weinberger, & McClelland, 1991; McClelland et al., 1989; Weinberger & McClelland, 1990).

From the perspective of McClelland and his colleagues, *implicit motives* are affective associative networks rooted in midbrain structures, thus reflecting the phylogenetic heritage that humans share with all animals; *self-attributed motives*, in contrast, are cortex-based cognitive schemas representing one’s values, thus reflecting the cortical elaboration that distinguishes humans from lower animals (McClelland et al., 1989; Weinberger & McClelland, 1990). Implicit motives are responsive to natural incentives in the immediate environment and are effective in predicting spontaneous and operant behavior patterns; self-attributed motives, in contrast, are responsive to social incentives that make salient one’s values or self-image and are effective in predicting deliberate choices and respondent behavior (Koestner, Weinberger, & McClelland, 1991; McClelland, 1980). Implicit motives appear to develop via preverbal, affect-based socialization experiences, whereas self-attributed motives are thought to develop later in childhood via verbally encoded learning experiences (McClelland & Pilon, 1983). As a result of the different ways in which they are acquired, implicit motives tend to be poorly represented and difficult to articulate, whereas self-attributed motives tend to be readily accessible to consciousness.¹ Accordingly, implicit motives are assessed indirectly with projective instruments, typically

1. In contrast to some usages of the word “implicit” in the contemporary social cognition literature, McClelland and his colleagues have not defined implicit motives as strictly unconscious or inaccessible to awareness. Implicit motives have been characterized as accessible through rigorous self-examination (McClelland et al., 1989; Weinberger & McClelland, 1990).

the Thematic Apperception Test (TAT), whereas self-attributed motives are assessed directly with self-report questionnaires.

McClelland and colleagues' emphasis on the independence of implicit and self-attributed motives has been a valuable contribution to the literature, helping to dispel the assumption that there is only one type of motive underlying the two methodologies. However, now that the discriminant validity of implicit and self-attributed motive constructs has been well established (McClelland et al., 1989; Weinberger & McClelland, 1990), a continued emphasis on the strict independence of the two types of motive may be neither necessary nor desirable. In the present research, we investigate two issues that point to convergences between implicit and self-attributed motives, with the aim of promoting a more balanced view of the interface and functioning of implicit and self-attributed motive constructs. First, we explore a possible moderator of concordance between implicit and self-attributed achievement motives, addressing the question, "For whom are implicit and self-attributed achievement motives concordant?" Second, we explore whether implicit and self-attributed achievement motives function similarly as antecedents of achievement goal adoption.

Previous research on the implicit/self-attributed motive distinction has focused primarily on approach motives. However, implicit and self-attributed motives do not necessarily interface and function in the same way within the approach and avoidance spheres. Accordingly, the two issues under investigation are examined with respect to the need for achievement, an approach motive, as well as fear of failure, an avoidance motive. The need for achievement represents an implicit or explicit desire to achieve success, whereas fear of failure represents an implicit or explicit desire to avoid failure (Birney, Burdick, & Teevan, 1969; Elliot, 1997; McClelland et al., 1953).

Concordance Between Implicit and Self-Attributed Achievement Motives

In support of their conceptualization of implicit and self-attributed motives as independent constructs, McClelland and his colleagues have long noted that the two kinds of motive are often uncorrelated. However, one may question the emphasis on statistical independence on two grounds. First, a meta-analysis by Spangler (1992) found that implicit and self-attributed need for achievement are in fact significantly correlated, albeit modestly. Implicit and self-attributed

fear of failure have also been found to be positively correlated (Elliot & McGregor, 1999). Second, emphasizing the independence of implicit and self-attributed motives tends to focus attention on the first-generation question of whether the two types of motive are related, to the detriment of the second-generation question of when (Zanna & Fazio, 1982), or under what conditions, they may be related. Emmons (1997) recently noted that implicit and self-attributed motives have been found to correlate in some studies but not others, and he called for researchers to identify the conditions that influence the degree of motive concordance.

Factors that could influence the degree of concordance between implicit and self-attributed motives may be placed into three distinct categories. First, concordance may vary as a function of the substance of motive constructs, including valence (i.e., approach, avoidance) and domain (i.e., achievement, affiliation, power; e.g., King, 1995). Second, concordance may vary as a function of methodological factors, such as the validity and comparability of the instruments that are selected (e.g., Sherwood, 1966; see Ajzen & Fishbein, 1977, for an analogue in the attitude literature). Third, substantive individual difference or contextual variables may moderate the degree of motive concordance (e.g., Schultheiss & Brunstein, 1999). This third category of factors promises to be particularly revealing, especially if care is taken to examine moderator variables that point to particular processes through which concordance is facilitated or impeded (e.g., integration, dissonance/discrepancy reduction, or suppression/repression). The present study explores whether motive concordance is moderated by individual differences in self-determination, which has been linked theoretically to the process of integration.

From the perspective of self-determination theory, the self is the agentic center of organismic integration (Deci & Ryan, 1985, 1991; Ryan, 1993). The self seeks integration with respect to both intrapsychic forces (e.g., impulses and drives) and external regulations (e.g., cultural norms and parental values). However, individuals differ in the degree to which the self regulates behavior and experience, and thus in the degree to which integration is achieved (Deci & Ryan, 1985). Individuals high in self-determination are attuned to the needs of the self, and use this knowledge in deciding whether to accept or reject forces that impinge on the self, such as impulses and social pressures. The integrative process thus produces what Deci and Ryan (1985) describe as organismic congruence, a harmony among needs,

thoughts, feelings, and behaviors. Those low in self-determination, on the other hand, yield regulatory control to impulses or social pressures without being attuned to the needs of the self and, consequently, exhibit inconsistencies among various aspects of personality.

We propose that individuals who are more self-determined will demonstrate greater concordance between implicit and self-attributed motives as a manifestation of the organismic integration process. From a developmental perspective, we may view self-attributed motives as a product not only of verbally mediated learning from the social environment, as emphasized by McClelland and his colleagues, but also to varying degrees as a product of implicit motives. In the interest of integration, self-determined individuals are likely to be attuned to their deeply rooted affective needs (i.e., implicit motives), as well as ambient concerns, as they develop their explicit achievement values (i.e., self-attributed motives). Those low in self-determination, however, may develop self-attributed motives primarily on the basis of salient values espoused (and rewarded) by the social environment. Although no research to date has explored self-determination as a moderator of motive concordance, individual differences in self-determination have been linked to self-reports of personality integration (Sheldon & Kasser, 1995) and to enhanced attitude-behavior and trait-behavior consistency (Koestner, Bernieri, & Zuckerman, 1992).

This prediction that self-determination moderates motive concordance may need to be qualified in light of the fact that implicit motives, although deeply embedded in personality, are not necessarily compatible with the self (i.e., self-concordant; Sheldon & Elliot, 1999). Given that self-determination theory posits the self (as opposed to implicit motives) to be the center of integration, self-determined individuals would be expected to develop a self-attributed motive in accord with an implicit motive only to the extent that the implicit motive is compatible with the fundamental needs of the self. The implicit need for achievement is likely to be experienced as compatible with (if not part of) the self in most individuals (see Elliot, McGregor, & Thrash, 2000; Koestner & McClelland, 1990; White, 1959), given that competence (the core of need for achievement) is a fundamental need of the self according to self-determination theory. The implicit fear of failure, however, is likely to be experienced as aversive and may or may not be experienced as compatible with the self in most individuals. Accordingly, we hypothesized that self-determination would moderate concordance in

need for achievement, such that the implicit motive would predict the self-attributed motive more strongly among self-determined individuals, but no hypothesis was offered regarding moderation of concordance in fear of failure.

Implicit and Self-Attributed Achievement Motives as Antecedents of Achievement Goals

In addition to citing the modest correlation between implicit and self-attributed motives, McClelland and colleagues have also emphasized discriminant predictive validity as evidence for the independence of the two motive constructs. As noted, implicit motives tend to predict spontaneous and operant behaviors, whereas self-attributed motives tend to predict deliberate and respondent behaviors. The case for discriminant validity is compelling, yet it does not preclude the possibility that implicit and self-attributed motives function similarly in some respects. For instance, both implicit and self-attributed motives are likely to instigate goal adoption.

The reason that both types of motive are likely to lead to goal adoption is that neither is capable, without the assistance of goals, of guiding behavior in a precise way. All motives are telic by nature and thus provide a directive function, but this directive function is imprecise in two respects (Thrash & Elliot, 2001). First, motives specify a genotypic desire (or fear) that may be satisfied (or ameliorated) via any of a range of functionally equivalent phenotypic strivings (McClelland, 1981; McClelland et al., 1953). Second, because motives are construed as generalized dispositional constructs, they are non-optimal for making specific predictions about contextually based achievement behavior (Elliot, 1997). Elliot and his colleagues (Elliot & Church, 1997; Elliot & McGregor, 1999; see also Emmons, 1989; Murray & Kluckhohn, 1953; Nuttin, 1984) have therefore proposed a hierarchical model in which achievement motives are distal predictors of achievement-relevant outcomes, with achievement goals serving as the phenotypic, context-specific regulatory structures that proximally predict achievement-relevant outcomes. Elliot and his colleagues have not incorporated the distinction between implicit and self-attributed motives into the hierarchical model because the two types of motive have been assumed to function comparably as antecedents of achievement goals (Elliot, 1997). The present study tests this assumption empirically. The following is a description of the

achievement goals identified by the hierarchical model, as well as the motive-goal relationships presumed to hold for both implicit and self-attributed motives.

The hierarchical model differentiates achievement goals according to how competence, the aim of achievement goals, is valenced and defined. The valence dimension reflects whether the goal focuses on approaching a positive outcome or avoiding a negative outcome. The definition dimension reflects the mastery-performance distinction (Dweck & Elliott, 1983; Maehr, 1983; Nicholls, 1984). Mastery goals are focused on the development of competence or task mastery, whereas performance goals are focused on the attainment of competence relative to others. Crossing the valence and definition dimensions results in four distinct goal types, three of which are especially prevalent in the college classroom (Elliot & McGregor, 2001): *mastery-approach* (hereafter labeled *mastery*) goals that focus on developing competence or task mastery; performance-approach goals that focus on outperforming others; and *performance-avoidance* goals that focus on not performing worse than others.

Elliot and Church (1997) posited that the appetitive nature of need for achievement leads individuals to adopt positively valenced achievement goals but does not dictate how competence is to be defined. Thus, need for achievement is posited to be an antecedent of both mastery and performance-approach goals. The aversive nature of fear of failure, in contrast, is posited to lead to the adoption of performance-avoidance goals. Elliot and Church (1997) argued that individuals high in fear of failure may also regulate their anxiety by striving to outperform others (i.e., approaching normative competence in order to avoid failure); thus, fear of failure is posited to be an antecedent of performance-approach as well as performance-avoidance goals.

Elliot and Church (1997) provided empirical support for the hierarchical model using self-attributed achievement motives. Elliot and McGregor (1999) additionally established implicit fear of failure as an antecedent of performance-approach and performance-avoidance goals. However, no research to date has explored whether implicit need for achievement functions as an antecedent of achievement goals. The present study aims to document both implicit and self-attributed achievement motives as antecedents of achievement goals.

METHOD

Participants, Context, and Procedure

One hundred and sixty-seven (60 male and 107 female) undergraduates enrolled in an introductory-level psychology course participated in the study in return for extra course credit.² The course was conducted in lecture format, and students were informed at the beginning of the course that grades would be based on a statistical curve derived from the overall distribution of scores.

In several group sessions held during the first 2 weeks of class, participants completed measures of implicit need for achievement and fear of failure, self-attributed need for achievement and fear of failure, and self-determination (participants completed the implicit and self-attributed motive measures at separate sessions). Participants also provided information regarding their sex and year at school. In a final group session during the 9th week of class (2 weeks prior to their midterm exam), participants completed an exam-specific achievement goals questionnaire. The descriptive statistics for and intercorrelations among the study variables are presented in Tables 1 and 2, respectively.

Measures

Self-Attributed Need for Achievement and Fear of Failure

Self-attributed need for achievement was assessed with the achievement motivation subscale of the Personality Research Form (see Jackson, 1974, for reliability and validity information). This measure is comprised of 16 true-false items (e.g., ‘I enjoy difficult work’), and the number of times that participants provided the achievement-oriented response to an item was summed to form the self-attributed need for achievement index.

Self-attributed fear of failure was assessed using Houston and Kelly’s (1987) nine-item fear of failure scale (see Houston & Kelly, 1987, for reliability and validity information). Participants responded to each item (e.g., ‘If I do poorly at something, I usually prefer not to let anyone know or try to cover it up’) on a 1 (*not at all like me*) to 5 (*very much like me*) scale, and their responses were summed to form the self-attributed fear of failure index.

2. The data for this study were collected in the context of a larger project (see Elliot & McGregor, 1999); none of the relationships reported in the present research have been reported previously. The participants in the present study were freshman-through-senior-year students at the university. Given the sensitivity of projective assessments, we excluded four individuals from the study: one person who had suffered a major brain injury that severely impaired his ability to communicate (both orally and through written word) and three persons who had previously learned about the projective assessment of need for achievement and fear of failure (through having taken a course with the junior author or having worked in the junior author’s research laboratory).

Table 1
Descriptive Statistics and Reliabilities

Variables	Mean	Standard Deviation	Observed Range	Reliability
1. Self-attributed need for achievement	9.96	3.27	1–16	.71
2. Self-attributed fear of failure	25.88	5.59	10–40	.72
3. Implicit need for achievement	.00	1.90	–3.81–5.37	–
4. Implicit fear of failure	.36	.29	0–.9	–
5. Self-determination	65.35	12.89	30–90	.81
6. Mastery goals	31.78	6.05	8–42	.90
7. Performance-approach goals	26.21	9.30	6–42	.92
8. Performance-avoidance goals	24.47	8.85	7–42	.87
9. Sex	1.64	.48	1–2	–
10. Year at school	2.63	.86	1–4	–

Implicit Need for Achievement and Fear of Failure

The implicit motive measures were obtained using the standard motive assessment procedure devised by McClelland et al. (1953). Participants were given 4 minutes to create a story in response to a series of pictures resembling those from the thematic apperception test (TAT). Three pictures were used to assess need for achievement (female scientists, student in checked shirt, and architect at desk), and three pictures were used to assess fear of failure (female scientists, student in checked shirt, and man in barren room). These picture sets were selected a priori in the interest of using sex-balanced stimulus cues (the sex of the student in checked shirt is ambiguous). McClelland and colleagues' (1953) scoring system was used to derive the implicit need for achievement measure (see McClelland & Koestner, 1992, for reliability and validity information). A professional coder, who had demonstrated excellent reliability with the McClelland et al. (1953) system, was hired to score the stories for need for achievement. Story scores that were significantly correlated with story length were corrected (see Smith, Feld, & Franz, 1992) using residualizing procedures (Winter, 1989), and participants' final scores for the three pictures were standardized and summed to form the implicit need for achievement index.

Birney et al.'s (1969) hostile press scoring system was used to derive an indicator of implicit fear of failure (see Birney et al., 1969, for reliability and

Table 2
Intercorrelations Among Variables

Variables	1	2	3	4	5	6	7	8	9	10
1. Self-attributed nAch	–									
2. Self-attributed FF	-.11	–								
3. Implicit nAch	.22**	-.05	–							
4. Implicit FF	-.14 [†]	.29***	-.12	–						
5. Self-determination	.11	-.50***	.12	-.11	–					
6. Mastery goals	.39***	-.10	.14 [†]	-.08	.11	–				
7. Performance-approach goals	.17*	.33***	.01	.19*	-.23**	.16*	–			
8. Performance-avoidance goals	.03	.34***	.02	.17*	-.31***	.04	.27**	–		
9. Sex	.16*	.16*	.07	.08	-.01	.15 [†]	.05	.25**	–	
10. Year at school	.03	-.09	.12	-.08	.03	-.14 [†]	-.14 [†]	-.18*	-.19*	–

Note. nAch = need for achievement; FF = fear of failure.

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

validity information). The hostile press system is based on the contention that fear of failure is revealed indirectly by a perception of the environment as hostile or threatening. Two trained coders scored the stories for hostile press; interjudge agreement was 95% for the stories, with disagreements resolved through discussion. The story scores were not correlated with story length, and thus, participants' scores for the three pictures were simply summed to form the implicit fear of failure index. Examination of the distribution of these scores revealed that they were highly skewed ($z = 3.94, p < .001$). Thus, following the advice of Tabachnick and Fidell (1989) and established precedent in the projective assessment literature (see Jenkins, 1994; Smith, Feld, & Franz, 1992), the scores were transformed using log transformation.³

Self-Determination

Individual differences in self-determination were assessed with Sheldon and Deci's (1996) 10-item Self-Determination Scale (see Sheldon, Ryan, & Reis, 1996, for reliability and validity information). For each item, participants were asked to indicate which of two statements is more true for them (e.g., "A. I sometimes feel that it's not really me choosing the things I do" and "B. I always feel like I choose the things I do"). Participants responded on a 1 (*only A feels true*) to 9 (*only B feels true*) scale. After recoding reversed items, participants' responses were summed to form the self-determination index.

Achievement Goals

The achievement goals questionnaire developed by Elliot and Church (1997) was used to assess participants' achievement goals for the exam (see Elliot, 1999, for reliability and validity information). This 18-item questionnaire is comprised of 6 items for each goal in the trichotomous framework—mastery (e.g., "I desire to completely master the material presented in this [section of the] class"), performance-approach (e.g., "It is important for me to do well compared to others [on this exam]"), and performance-avoidance (e.g., "I just want to avoid doing poorly [on this exam]"). Participants indicated their responses to each item on a 1 (*not at all true of me*) to 7 (*very true of me*) scale, and their responses for each six-item set were summed to form the corresponding goal indexes.

3. The transformed scores correlated at .96 with the untransformed scores, but the transformed scores successfully eliminated the positive skewness in the distribution (log transformation was much more effective at reducing the skewness than either square root or inverse transformations, which were also examined).

RESULTS

Motive Concordance and Moderation by Self-Determination

Motive Concordance

Correlation coefficients were computed to determine the degree of concordance between the implicit and self-attributed achievement motives. Implicit and self-attributed need for achievement were found to be significantly positively correlated, $r = .22, p < .01$. Implicit and self-attributed fear of failure were also significantly positively correlated, $r = .29, p < .001$.

Moderation by Self-Determination

Two regression analyses examined whether self-determination moderated the relationships between implicit motives and self-attributed motives. In both analyses, a self-attributed motive (need for achievement or fear of failure) was regressed on the corresponding implicit motive, self-determination, and the implicit motive \times self-determination interaction term. Interaction terms were computed by multiplying the centered implicit motive and self-determination variables (see Aiken & West, 1991). In these analyses, a significant interaction term signifies moderation. In these and all subsequent analyses, preliminary analyses were conducted to test for the influence of sex and year at school (two variables considered important in research on approach-avoidance motivation, achievement motivation, and motive concordance [Elliot & Church, in press; Langan-Fox, 1991]), and these variables were included in the final analyses when significant (Judd & Kenny, 1981). When either of these variables was retained, additional analyses tested for interactions with sex or year at school; no such interactions attained significance and they were thus trimmed from the equations.

In the model predicting self-attributed need for achievement, implicit need for achievement was found to be a positive predictor, $F(1, 162) = 4.38, p < .05$ ($\beta = .16$). Sex was also a significant predictor, $F(1, 162) = 4.06, p < .05$ ($\beta = .15$), indicating that females were higher than males in self-attributed need for achievement. More importantly, the interaction term was significant, $F(1, 162) = 4.15, p < .05$ ($\beta = .16$), and indicated that individuals higher in self-determination evidenced a stronger relationship between implicit and self-attributed need for

achievement than those lower in self-determination (see Figure 1). This interaction is also shown by the correlations between implicit and self-attributed need for achievement among individuals in the bottom, middle, and top thirds of the self-determination distribution: low self-determination, $r = -.07, ns$; medium self-determination, $r = .25, ns$; high self-determination, $r = .40, p < .01$.

In the model predicting self-attributed fear of failure, implicit fear of failure was found to be a significant positive predictor, $F(1, 162) = 11.17, p < .01$ ($\beta = .22$), and self-determination was a significant negative predictor, $F(1, 162) = 53.03, p < .001$ ($\beta = -.47$). Sex was also a significant predictor, $F(1, 162) = 4.12, p < .05$ ($\beta = .13$),

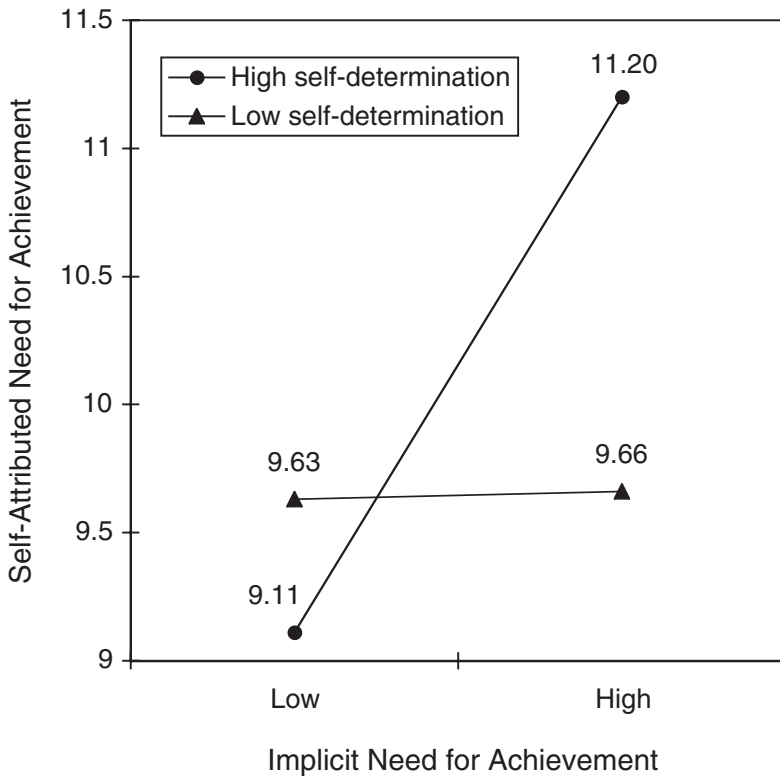


Figure 1

Predicted values illustrating the moderating effect of self-determination on concordance in implicit and self-attributed need for achievement. High and low values are one standard deviation above and below the mean, respectively.

indicating that females were higher than males in self-attributed fear of failure. The interaction term was not significant ($\beta = .08$), indicating that the strength of the relation between implicit and self-attributed fear of failure did not vary as a function of self-determination.

Achievement Motives as Predictors of Achievement Goals

Self-Attributed Motives as Predictors

Simultaneous regression analyses were conducted to examine self-attributed need for achievement and fear of failure as predictors of each of the achievement goal variables. Self-attributed need for achievement was shown to be a positive predictor of mastery goals, $F(1, 163) = 29.54, p < .001$ ($\beta = .39$), whereas self-attributed fear of failure was unrelated. Year at school was also related to the adoption of mastery goals, $F(1, 163) = 4.91, p < .05$ ($\beta = -.16$), indicating that participants earlier in their college career were more likely to adopt mastery goals.

Both self-attributed need for achievement and fear of failure were related to the adoption of performance-approach goals. Need for achievement was a positive predictor, $F(1, 164) = 8.09, p < .01$ ($\beta = .21$), as was fear of failure, $F(1, 164) = 24.24, p < .001$ ($\beta = .36$).

Self-attributed fear of failure was found to be a positive predictor of performance-avoidance goals, $F(1, 163) = 17.59, p < .001$ ($\beta = .31$), whereas self-attributed need for achievement was unrelated. Sex was also related to the adoption of performance-avoidance goals, $F(1, 163) = 7.05, p < .01$ ($\beta = .20$), indicating that females were more likely than males to adopt these goals.

Implicit Motives as Predictors

As with the self-attributed measures, simultaneous regression analyses were conducted to examine implicit need for achievement and fear of failure as predictors of each of the achievement goal variables. Implicit need for achievement was a positive predictor of mastery goals, $F(1, 163) = 3.75, p = .05$ ($\beta = .15$), whereas implicit fear of failure was unrelated. Year at school was also related to mastery goal adoption, $F(1, 163) = 4.41, p < .05$ ($\beta = -.16$), indicating that participants earlier in their college career were more likely to adopt mastery goals.

Implicit fear of failure was shown to be a positive predictor of performance-approach goals, $F(1, 164) = 6.43, p < .05$ ($\beta = .20$). In contrast to the results for self-attributed need for achievement, implicit need for achievement was unrelated to the adoption of performance-approach goals ($\beta = .03$).

Implicit fear of failure was also shown to be a positive predictor of performance-avoidance goals, $F(1, 163) = 4.37, p < .05$ ($\beta = .16$), whereas implicit need for achievement was unrelated. Sex was also related to the adoption of performance-avoidance goals, $F(1, 163) = 9.83, p < .005$ ($\beta = .24$), indicating that females were more likely than males to adopt these goals.

Latent Motives as Predictors

The above regression analyses documented both implicit and self-attributed motives as predictors of achievement goals. Furthermore, the two types of motive displayed the same patterns of relations to achievement goals, with the exception that implicit need for achievement did not predict performance-approach goals. Given that implicit and self-attributed motives functioned similarly as antecedents of achievement goals, a more parsimonious model was examined using structural equation modeling (SEM).⁴ In this model, a need-for-achievement latent variable was specified to account for the variance shared by implicit and self-attributed need for achievement, and this latent variable (rather than the observed need-for-achievement variables) was specified to predict mastery and performance-approach goals. Likewise, a fear-of-failure latent variable was specified to account for the variance shared by implicit and self-attributed fear of failure, and this latent variable (rather than the observed fear-of-failure variables) was specified to predict performance-approach and performance-avoidance goals. Based on the regression findings, sex and year at school were included as control variables and were specified to impact performance-avoidance goals and mastery goals, respectively. The model thus had four exogenous variables (latent need for

4. In analyzing the joint contribution of implicit and self-attributed motives, we employed latent variable SEM rather than simultaneous regression, because we were interested in whether the shared variance between implicit and self-attributed motives predicts achievement goals. Note that we would not necessarily expect both types of motive to uniquely predict achievement goals in a simultaneous regression analysis.

achievement, latent fear of failure, sex, and year at school), and the exogenous variables were permitted to covary. The model was identified by constraining the factor loadings of self-attributed need for achievement and self-attributed fear of failure to 1.

This model was examined using Amos 4.0 (Arbuckle, 1999) with maximum likelihood estimation, and the covariance matrix of observed variables served as input. The model was found to have good fit to the data, $\chi^2(20) = 14.67$, $p = .80$, $\chi^2/df = .73$, GFI = .98, AGFI = .96, CFI = 1.00, RMSEA = .00, and all theoretically relevant parameters were significantly different from 0 (see Figure 2). The data are thus consistent with a conceptually parsimonious model in which latent achievement motives account for the variance shared between implicit and self-attributed motives and predict achievement goals in the manner theorized by Elliot and Church (1997). It is important to note that the convergent validity implied by this SEM model does not suggest a lack of discriminant validity (i.e., that implicit and self-attributed motives are merely the same construct), as discussed in more detail below.

DISCUSSION

As a complement to the literature documenting the discriminant validity of implicit and self-attributed motives (for reviews, see McClelland et al., 1989; Weinberger & McClelland, 1990), this study explored two issues that point to convergences between the two types of motive: (1) moderation of motive concordance by self-determination, and (2) the role of the two types of motive as antecedents of goal adoption. Regarding the first issue, significant positive correlations were found between implicit and self-attributed need for achievement, and between implicit and self-attributed fear of failure. Self-determination was found to moderate concordance in need for achievement, such that the implicit motive predicted the self-attributed motive more strongly among individuals higher in self-determination. Self-determination did not moderate concordance in fear of failure.

The finding that implicit and self-attributed motives were positively correlated is consistent with the existing literature. A large body of literature attests to a modest positive relationship between implicit and self-attributed need for achievement (Spangler, 1992), although the

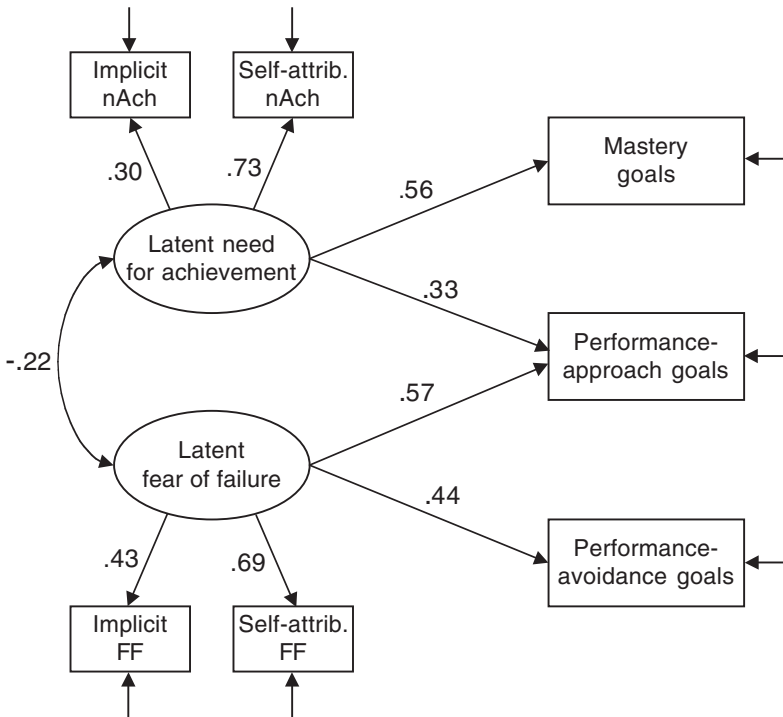


Figure 2

Hierarchical motive-goal model with latent motives. Parameter values are standardized coefficients. Only theoretically central variables are included in the diagram for presentation clarity. Not shown are the observed sex variable and its path to performance-avoidance goals, the observed year at school variable and its path to mastery goals, and the covariances between sex or year at school and the other exogenous variables. All (unstandardized) factor loadings, structural paths, latent variable variances, and error variances in the full model are significant at $p < .05$. Two covariances among exogenous variables are also significant: the covariance between sex and year at school, and the covariance between latent fear of failure and year at school. FF = fear of failure; nAch = need for achievement; Self-attrib. = self-attributed.

relationship is sometimes not significant in individual studies. In contrast, few studies have examined concordance between implicit and self-attributed fear of failure, but the present findings support concordance in the two forms of this avoidance motive. Given the evidence that the implicit and self-attributed forms of need for

achievement and fear of failure are positively correlated, we urge researchers to reconsider the claim that implicit and self-attributed motives are independent at the zero-order level (see also Emmons & McAdams, 1991).

Furthermore, the fact that self-determination moderated concordance in implicit and self-attributed need for achievement indicates that the zero-order correlation tells an incomplete story. Whereas implicit need for achievement predicted self-attributed need for achievement at a modest level overall, individuals high in self-determination demonstrated enhanced predictability, and individuals low in self-determination demonstrated an essentially random relation between the two forms of need for achievement (see Figure 1). These results are consistent with previous findings linking self-determination to integration in various aspects of personality and behavior (Koestner, Bernieri, & Zuckerman, 1992; Sheldon & Kasser, 1995) and extend the scope of integration to include the interface of implicit and self-attributed motives. The exhibited structural integration is presumed to be the product of a process in which self-determined individuals attend to and embrace their deeply rooted affective proclivities (i.e., implicit need for achievement) as they develop their more cognitive achievement values (i.e., self-attributed need for achievement). In contrast, those low in self-determination are presumed to internalize the achievement values of the social environment without regard to their preexisting implicit motives and thus fail to achieve integration. Thus, one's standing as relatively concordant or discordant may not be a chance consequence of the independent development of parallel motivational systems, but instead (or in addition) may reflect the degree to which integrative processes have been operative. It should be noted that, although the moderation effect obtained herein unambiguously addresses the second-generation question, "In whom are motives concordant?," it is only suggestive of the process through which concordance is achieved, which may be considered a third-generation question (Zanna & Fazio, 1982). Developmental research is needed to verify that an integrative process is in fact responsible for the moderation effect that we predicted and obtained. A promising hypothesis for future research is that integration is achieved by employing imagery processes (Schultheiss & Brunstein, 1999) to test candidate values for compatibility with implicit motives.

Whereas self-determined individuals demonstrated enhanced concordance in implicit and self-attributed need for achievement, this

enhanced concordance did not extend to avoidance motives. Rather than demonstrating concordance in fear of failure, self-determined individuals tended to portray themselves explicitly as low in fear of failure, regardless of their level of implicit fear of failure. A plausible interpretation is that self-determined individuals consider an implicit fear of failure to be incompatible with the self's need for competence and thus choose to disregard it rather than using it as a basis for the development of a self-attributed fear of failure. The integrative process may thus be distinguished from consistency seeking or dissonance reduction (Festinger, 1957), in which implicit and self-attributed motives would be brought into congruence, regardless of the nature of their content (see also Ryan, Deci, & Grolnick, 1995). It should be noted that we had not hypothesized whether self-determination would moderate concordance in fear of failure and that self-determined individuals demonstrated a non-significant trend toward greater concordance in fear of failure; therefore, this null finding should be considered tentative until further research is conducted. Furthermore, developmental research would be needed to confirm that self-determined individuals in fact disregard their implicit fears when developing self-attributed motives, as opposed to lacking awareness of them in the first place.

In the introduction, we outlined three categories of factors that may influence the degree of concordance between implicit and self-attributed motives: motive characteristics, methodological factors, and moderator variables. This categorization scheme may be useful in guiding and organizing future research on motive concordance. In the present work, we have focused on the third category (self-determination as a moderator), but the other two categories also promise to be fruitful areas for future research. As an example of the first category of factors, we speculate that avoidance motives may, in general, demonstrate greater concordance than approach motives. From an evolutionary perspective, mistakes tend to be more maladaptive than missed opportunities (Cacioppo, Gardner, & Berntson, 1997), and enhanced concordance of avoidance motives may facilitate avoidance of threat. As an example of the second category, we would expect concordance to relate to the degree of correspondence between the implicit motive coding system and self-attributed motive items. To the extent that the content domains do not directly correspond (as they typically do not; for an exception see Sherwood, 1966), concordance is, no doubt, underestimated. It should be noted that factors in the three

categories may interact to determine motive concordance. For instance, the present research found that self-determination (a category 3 factor) moderated concordance in the case of an approach motive but not an avoidance motive (a category 1 factor). Additionally, future research could examine consequences of motive concordance. It is likely, for instance, that concordance facilitates outcomes such as task commitment, goal attainment, and performance, due to a harmony between one's overt decisions and spontaneous inclinations (see Schultheiss & Brunstein, 1999, for related research).

Regarding the second issue explored in this study, both implicit and self-attributed motives were found to predict achievement goals. As originally documented by Elliot and Church (1997), self-attributed need for achievement predicted the adoption of mastery and performance-approach goals, and self-attributed fear of failure predicted the adoption of performance-approach and performance-avoidance goals. Implicit motives demonstrated the same pattern of relations to achievement goals, with one exception—implicit need for achievement did not predict performance-approach goals. Structural equation modeling established good fit for a model in which latent need for achievement and latent fear of failure variables account for the shared variance between the corresponding implicit and self-attributed motives and predict achievement goals in the theorized pattern (including the path from latent need for achievement to performance-approach goals).

It is noteworthy that both implicit and self-attributed motives predicted the adoption of goals. McClelland et al. (1989) have placed goal pursuit specifically within the province of the self-attributed motive system, arguing that implicit motives lead directly to behavior, unmediated by commitment to goals. We would be in agreement with McClelland et al. (1989) if we were to embrace their view of goal adoption as a strictly volitional and deliberate act. However, we prefer to view goal adoption more broadly. From our perspective, all motives, whether implicit or self-attributed, should lead to goal pursuit, but may do so via different mediating processes. Prompted by a self-attributed motive, goal adoption may entail considering one's values concerning desired outcomes and deciding on a particular goal. Prompted by an implicit motive, in contrast, one may find oneself pursuing a particular goal spontaneously in the presence of the appropriate incentive cues in the environment. In reality, goal adoption may fall somewhere on a continuum between these two extremes, as a function of the relative

strength of implicit and self-attributed motives and the proportion of task and social incentives available in the environment.

Not only did both types of motive predict achievement goals, but the specific motive-goal profiles documented in the regression analyses were very similar for both. In terms of the configural relations between motives and goals (i.e., the pattern of present versus absent motive-goal paths), implicit and self-attributed motives functioned comparably with respect to five of the six possible motive-goal paths. The one difference that did emerge suggests that performance-approach goals may have different motivational underpinnings in the implicit and self-attributed motive systems. Specifically, within the self-attributed motive system, both approach and avoidance motives appear to underlie performance-approach goals; in the implicit motive system, only the avoidance motive appears to underlie this goal. Despite this one difference, implicit and self-attributed motives functioned in a similar manner overall as antecedents of achievement goals. The SEM analysis provides additional evidence for convergent validity. Superordinate latent motive variables predicted achievement goals as posited by Elliot and Church's (1997) hierarchical model, providing the first validation of the hierarchical motive-goal model employing a multimethod motive measurement model. Whether these results are interpreted as evidence that implicit and self-attributed motives converge as antecedents of achievement goals (based on the SEM analysis) or function similarly but not identically (based on the regression analyses) depends on one's preference for conceptual parsimony or precision, respectively; at present, either position is warranted by the data.⁵

5. The evidence for convergence should not be interpreted to mean that implicit and self-attributed motives contributed equally to the prediction of goals. In the regression analyses, the betas linking implicit motives to goals were weaker than those linking self-attributed motives to goals, and in the SEM analysis, implicit motives loaded less strongly than self-attributed motives on the latent variables. This asymmetry may be due to the lower reliability of projective measures and to the fact that goals were assessed with respondent measures. Future research could examine these two explanations of differential predictive validity. Nevertheless, consistent with our emphasis on convergence, it is appropriate to conclude that only a single approach-motive construct (latent need for achievement) and a single avoidance-motive construct (latent fear of failure) are needed to account for the relations among the implicit motive, self-attributed motive, and goal observed variables.

As noted above, it is important not to interpret the SEM results as evidence that implicit and self-attributed motive measures lack discriminant validity or are merely the same construct. Such a conclusion would be justified if latent variables, by definition, accounted for all meaningful variance in each observed variable and if the measurement model “error” terms (i.e., diagonal elements of Θ_{δ}) represented only random, unreliable measurement error. However, according to the logic of SEM, latent variables only account for the common or shared variance among observed variables, and therefore the “error” terms consist of not only random error variance but also systematic and reliable specific variance that is unique to the observed variable, but not accounted for by the latent variable (Bollen, 1989). Thus, the SEM model demonstrates convergence in the form of latent common factors, but does not contradict the conventional view that implicit and self-attributed motives have unique variance that provides the basis for discriminant relationships with other variables. In fact, future research could employ SEM to demonstrate convergent and discriminant validity simultaneously by relating the latent motive variables to antecedents or outcomes that are common to both types of motive and by relating the implicit and self-attributed motive error terms to distinct antecedents or outcomes (e.g., operant and respondent behavior).

Taken together, the results of this study indicate that implicit and self-attributed motives may not be as independent as conventional wisdom seems to suggest. Implicit and self-attributed achievement motives, regardless of valence, were significantly correlated; a substantive psychological construct (self-determination) was related to enhanced concordance in need for achievement; and both implicit and self-attributed motives predicted achievement goals, and they did so in a similar fashion. Although our emphasis on convergence may seem antithetical to the position of McClelland and his colleagues, their focus on independence must be understood in its historical context. McClelland’s task was to establish the validity of implicit motives before an often skeptical research community (e.g., Entwisle, 1972), and doing so required an emphasis on discriminant rather than convergent validity. Furthermore, there is no contradiction in arguing that implicit and self-attributed motives are different in some respects and similar in others. Thus, we view our differences with McClelland as differences in emphasis, not in substance.

An open question confronting motivation researchers is how best to conceptualize the motive construct in light of the implicit/self-attributed distinction. At one extreme, implicit and self-attributed motives may be viewed as wholly separate and independent entities that serve different functions; at the other extreme, the implicit/self-attributed distinction would be dismissed in favor of a single, undifferentiated motive construct. In our view, neither extreme is optimal. We propose that a motive is best conceptualized as a single, but multidimensional, construct comprised of implicit and self-attributed components, each pertaining to the same domain (e.g., achievement) and having the same valence (e.g., approach). Conceptualizing constructs as multidimensional is a common practice in personality and social psychology. For instance, trait researchers have identified superordinate trait factors that organize primary traits or facets (e.g., Eysenck, 1947). A second example is the tripartite model of attitudes, which characterizes attitudes as consisting of affective, cognitive, and behavioral components (e.g., Breckler, 1984). Each component reflects an evaluative reaction to (i.e., attitude toward) an object, but the components may be discrepant and differentially related to antecedents or other variables (Eagly & Chaiken, 1993).

Applied to motives, a multidimensional model is attractive in a number of respects. First, this approach explicitly acknowledges that implicit and self-attributed motives share a portion of their variance and also that each has unique, unshared variance. Second, this approach is consistent with theory pointing to a common conceptual backbone underlying the two kinds of motive (i.e., both energize and direct behavior, have a particular valence, function with respect to a particular domain, and are manifest in goal pursuit), and is also consistent with theory pointing to differential functioning (i.e., implicit motives are more affectively based and predict spontaneous behavior, whereas self-attributed motives are more cognitively based and predict overt decisions). Third, this approach allows researchers to speak meaningfully and parsimoniously of a single motive in those research contexts where implicit and self-attributed motives function in a similar or identical manner; at the same time, it allows researchers to speak with maximal precision by focusing on the specific components in those contexts where they function differently. Finally, this perspective offers heuristic value and brings into focus a number of research questions that have received little attention to date, including

issues of motive structure and the development, integration, and coordination of motive components.

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