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# Methodological and Dispositional Predictors of Congruence Between Implicit and Explicit Need for Achievement

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*In this research, the authors questioned the statistical independence of implicit and explicit motives. Their first aim was to identify a methodological factor that may have weakened implicit–explicit motive correlations in past research. Their second aim was to identify personality traits that moderate implicit–explicit motive congruence. They found that implicit and explicit need for achievement (nAch) are significantly correlated, but only if the implicit and explicit measures are matched in content. Three traits were found to uniquely moderate the relationship between implicit and explicit nAch: private body consciousness, self-monitoring, and preference for consistency. These findings indicate that implicit and explicit nAch are systematically related and suggest that some individuals may use implicit nAch as a foundation for the development of explicit nAch.*

**Keywords:** *implicit and explicit motives; congruence; moderation; self-monitoring; interoception; private body consciousness*

From the beginning of their research program on motive dispositions, McClelland and his colleagues found that implicit need for achievement (nAch), as revealed by content analysis of imaginative stories told as part of a picture-story exercise (PSE), was largely unrelated or inconsistently related to nAch strength as reported explicitly on questionnaires (deCharms, Morrison, Reitman, & McClelland, 1955; McClelland, Atkinson, Clark, & Lowell, 1953). Contemporary researchers have

likewise obtained data indicating a low degree of correspondence between implicit and explicit measures of motives (Brunstein & Maier, 2005; Pang & Schultheiss, 2005; Spangler, 1992). “The most reasonable interpretation of such findings,” stated McClelland (1987b),

is that these two types of measures are essentially independent, as they ought to be on theoretical grounds, and that when occasional correlations appear between them, they are the product of a peculiar set of circumstances related to the particular group being tested. (p. 521)

Our purpose herein is to identify some of these circumstances and groups of individuals; specifically, we aim to identify methodological and dispositional factors that predict the degree of congruence between implicit and explicit nAch. Whereas McClelland downplayed such factors as peculiarities, we regard them as crucially important to understanding why implicit and explicit motives are poorly aligned overall. The identification of factors that predict motive congruence is also important

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in light of evidence that incongruence has a negative impact on subjective well-being (Baumann, Kaschel, & Kuhl, 2005; Kehr, 2004; see also Brunstein, Schultheiss, & Grässmann, 1998; Hofer & Chasiotis, 2003).

### McClelland's Model Embraced But Qualified

McClelland's primary explanation for the lack of correlation between implicit and explicit motives is that statistical independence is a product of developmental independence. Implicit motives are posited to develop early in life through nonverbal, affect-based learning, whereas explicit motives are posited to develop later and independently through verbally mediated learning (McClelland, 1980; McClelland, Koestner, & Weinberger, 1989; McClelland & Pilon, 1983). McClelland's writings suggest two main reasons that explicit motives develop independently of pre-existing implicit motives. First, individuals lack access to or awareness of their implicit motives and therefore cannot draw on them when adopting explicit values. Second, explicit motives are posited to be determined primarily by social norms and others' expectations, which may or may not be congruent with the individual's implicit motives.

Although most motive researchers embrace the idea that implicit and explicit motives are statistically independent, other psychological literatures suggest a need to look more deeply into this issue. Reports that implicit and explicit motives are largely uncorrelated are reminiscent of reports of poor consistency between traits and behavior and between attitudes and behavior (Mischel, 1968; Wicker, 1969). In both the attitude-behavior and trait-behavior consistency literatures, researchers subsequently provided two types of evidence that the statistical relationship of attitudes or traits to behavior is more systematic than had been apparent in early research (Kraus, 1995). Researchers showed that methodological problems had attenuated (i.e., weakened) consistency coefficients (e.g., Ajzen & Fishbein, 1977; Epstein, 1979) and, moreover, that consistency itself varies systematically as a function of substantive moderator variables (e.g., Bem & Allen, 1974; Wymer & Penner, 1985). In parallel to the developments in these other consistency literatures, we posit that the true correlation between implicit and explicit nAch is positive when methodological problems of past research are overcome, and also that congruence varies systematically as a function of moderator variables (see also Hofmann, Gschwendner, Nosek, & Schmitt, 2005; Thrash & Elliot, 2002).

The possibility that implicit and explicit motives may be statistically nonindependent in these two respects would not necessarily require that McClelland's developmental model be abandoned. Indeed, only a minor

modification of McClelland's model would be needed to explain both a positive correlation between implicit and explicit motives and the existence of moderating factors. Specifically, we propose that McClelland's explanations for the lack of correlation between implicit and explicit motives may not apply to all individuals. If, for example, implicit motives are inaccessible for individuals at one pole of a particular trait, but not for individuals at the other pole, then the implicit-explicit motive relationship would be expected to be at least modestly positive overall and moderated by the trait variable. In the following sections, we present a hypothesis about a methodological factor that may have attenuated the implicit-explicit correlation in past research, followed by hypotheses about dispositional moderators of motive congruence.

### A Methodological Factor Influencing Implicit-Explicit Congruence

Ajzen and Fishbein (1977) demonstrated that attitude-behavior consistency is attenuated when attitudes and behaviors do not correspond with regard to content or specificity. A similar issue may apply to congruence between implicit and explicit nAch—explicit nAch items tend not to correspond directly to the story content that is coded as indicative of implicit nAch. Many popular measures of explicit nAch are based on Murray's (1938) early conceptualization of nAch (e.g., Edwards, 1959; Jackson, 1974), whereas McClelland's coding system for implicit nAch was derived empirically (Elliot, McGregor, & Thrash, 2002; McClelland et al., 1953) and deviates from Murray's conceptualization (Koestner & McClelland, 1990).

A preliminary indication of the importance of correspondence of content comes from a study by Sherwood (1966), who developed a measure of explicit nAch with items that correspond directly to the achievement imagery categories from McClelland's implicit nAch coding system. The relationship between implicit and explicit nAch reported by Sherwood was unusually strong ( $r_s = .35-.42$ ). However, Sherwood had put a strong emphasis on establishing trust with the experimenter and on maximizing motivation to be accurate, and, in contrast to standard procedures, he had provided in-depth instruction about achievement motivation theory. It is not clear to what extent the enhanced implicit-explicit relationship was due to enhanced correspondence of content or to these other factors.<sup>1</sup> Moreover, Sherwood's goal was not to establish the importance of correspondence of content, and therefore he did not provide the necessary evidence that non-matched measures converge to a lesser degree.

More recently, Schultheiss and Murray (2002) developed a measure of explicit achievement motives with

items that correspond directly to the categories from Heckhausen's (1963) coding system, a revised and refined version of McClelland et al.'s (1953) original nAch coding system. For instance, in Schultheiss and Murray's questionnaire, the Positive Affect category of Heckhausen's system, which is scored when a story character expresses positive affect over an achievement success, is matched by the items "When I do well on a task, I experience a great deal of satisfaction" and "When I do well on a task, it does not affect me much one way or the other" (reverse scored). In the present research, we hypothesized that implicit nAch, as assessed using Heckhausen's coding system, would correlate significantly with the new content-matched measure of explicit nAch. Other measures of explicit nAch, which lack direct correspondence to Heckhausen's coding system, were expected to converge to a significantly lesser degree. This pattern of results would suggest that the weak relationship between implicit and explicit nAch typically observed in the literature is at least in part due to the lack of direct correspondence of content between implicit and explicit motive measures.

#### Traits as Moderators of Implicit–Explicit Congruence

Whereas enhanced correspondence of content is expected to strengthen the overall correlation between implicit and explicit motives, we posit that personality traits may be identified that specify the individuals in whom implicit and explicit motives are more closely aligned. We considered three such traits herein, two of which—private body consciousness and self-monitoring—represent individual differences in the processes that McClelland cited as explaining the developmental independence of implicit and explicit motives, and a third not directly relevant to McClelland's theorizing—preference for consistency.

*Access to implicit motives.* Lack of access to implicit motives is one possible substantive reason that implicit and explicit motives are largely uncorrelated. Whereas McClelland portrayed implicit motives as largely inaccessible, we propose that individuals vary in their access to implicit motives.

Given that the emergence of implicit motives predates, both developmentally and evolutionarily, the emergence of sophisticated cognition, and given that implicit motives tend to be poorly integrated with higher cognition (McClelland et al., 1989; Weinberger & McClelland, 1990), the processes most likely to facilitate access to implicit motives are those grounded in more primordial, experiential–nonverbal cognitive processes, rather than (or in addition to) rational–verbal processes (Schultheiss, 2001a; see also Bucci, 1985;

Epstein, 1994; Paivio, 1986; Wilson, 2002). The results of several studies are consistent with this proposal. Thrash and Elliot (2002) found that self-determined individuals are more congruent in implicit and explicit nAch, presumably because they use deeply rooted, affect-based inclinations as a guide when adopting explicit motives. Baumann et al. (2005) found that state-oriented individuals are prone to motive incongruence when stressed (see also Brunstein, 2001), a finding theorized to reflect inhibition of intuitive (rather than analytical) cognitive processes. In related research, Schultheiss and Brunstein (1999) found that the use of sensory imagery promotes congruence between implicit motives and explicit goals. Brunstein et al. (1998) found that goal progress is only satisfying to the extent that the goal is consistent with implicit motives (see also Brunstein & Maier, 2005), suggesting that affective gratification may provide a clue about implicit motive strength or implicit–explicit congruence.

Consistent with the importance of experiential and nonverbal processes, we propose that implicit motives may be accessed, indirectly, through the process of attending to the nonverbal bodily feeling of implicit motive arousal. This argument is supported by two observations. First, given that motives energize and drive behavior (McClelland, 1987b), implicit motive arousal should have effects on the body during mobilization for and maintenance of overt action. Research has linked implicit nAch to increased galvanic skin response prior to task engagement (Raphelson, 1957), increased muscle tension (Muecher & Heckhausen, 1962), resistance to general central nervous system (CNS) fatigue during task engagement (Wendt, 1955) and a greater drop in urine output after achievement arousal (McClelland, 1995). Implicit nAch arousal is also theorized to involve the release of neurotransmitters and hormones, the unique profile of which is posited to distinguish the physiology of implicit nAch arousal from that of other arousal states (McClelland, 1987a). Second, the nervous system is wired for *interoception*, or detection of the physiological condition of the body (Barrett, Quigley, Bliss-Moreau, & Aronson, 2004; Craig, 2002). Interoception is supported by the lamina I spinothalamicocortical system, an afferent pathway that conveys information about the condition of a wide range of bodily systems, and by higher structures such as the right anterior insular cortex, the substrate of conscious experience of bodily states (Craig, 2002; Critchley, Wiens, Rotshtein, Öhman, & Dolan, 2004). Interoception may yield a range of conscious states, including diffuse gut feelings and highly resolved sensations (Hölzl, Erasmus, & Möltner, 1996). Arousal of implicit nAch may be consciously perceptible via interoception and, we speculate, is experienced as a diffuse, felt sense of bodily activation, mobilization, and spontaneous readiness to achieve.

We propose that individuals higher in *private body consciousness*, a sensitivity to internal bodily states (Miller, Murphy, & Buss, 1981), are more likely to be aware of the occurrence of implicit motive arousal. In turn, these individuals are more likely to develop veridical explicit representations of implicit motives and may use this knowledge when developing and endorsing explicit values. Accordingly, we hypothesized that private body consciousness would moderate implicit–explicit congruence. If this hypothesis were supported, a rival interpretation would be that congruence is enhanced by directing one’s attention inward (Duval & Wicklund, 1972; Scheier, Carver, & Gibbons, 1979), rather than toward bodily feedback in particular. Thus, for the sake of discrimination, we also test for a moderating effect of *private self-consciousness* (Fenigstein, Scheier, & Buss, 1975), which involves attention to various aspects of one’s inner experience.

*Concern with the social environment.* A second possible substantive reason that implicit and explicit motives are largely uncorrelated is that achievement values may be internalized from the social environment, regardless of whether they are congruent with implicit motives. Whereas McClelland portrayed explicit motives as determined by social norms, values, and expectations about appropriate behavior, we propose that individuals vary in the extent to which explicit motives are determined by these external influences. The construct of self-monitoring is particularly relevant to this aspect of individual differences. *Self-monitoring* refers to a concern with the social appropriateness of one’s behavior, a sensitivity to interpersonal cues reflecting others’ expectations and self-presentations, and the monitoring and control of one’s expressive behavior in order to create desired appearances (Snyder, 1974). The self-monitoring construct has already proved useful as a moderator of other forms of personal consistency, such as attitude–behavior consistency (Kraus, 1995) and value–attitude consistency (Mellema & Bassili, 1995).

Past research supports the idea that individuals higher in self-monitoring base their explicit values less on internal sources of information and more on what is deemed appropriate by the social environment. Eisenberg, Fabes, Schaller, Carlo, and Miller (1991) found that parents of children high in self-monitoring encourage efforts to change, control, or inhibit negative feelings. These children learn that internal cues are not trustworthy guides to behavior and instead strive to project self-images based on external cues about appropriate behavior (Graziano & Waschull, 1995). Individuals high in self-monitoring, in turn, come to internalize into their self-concepts the images that they present (Gangestad & Snyder, 2000; Tice, 1992) and

that others expect (Harris & Rosenthal, 1986; but see also Harris, 1989).

We hypothesized that self-monitoring would moderate the relationship between implicit and explicit nAch because the values that the social environment deems appropriate are less likely to correspond to the individual’s implicit motives than are internally derived sources of values. Furthermore, we predicted that the moderating effect of self-monitoring would be distinct from that of private body consciousness. Studies have shown that low self-monitoring represents more the absence of a social or external orientation than the presence of a personal or internal orientation (Briggs & Cheek, 1988; Miller & Thayer, 1988; Sampson, 1978). We posit that private body consciousness represents a “personal” orientation that promotes access to implicit motives, whereas low self-monitoring represents the absence of a “social” orientation that would lead one to adopt potentially motive-incongruent values for the sake of social harmony.

*Consistency seeking.* A third possible substantive reason that implicit and explicit motives are largely uncorrelated is that individuals may not seek motive congruence. Whereas it is often assumed implicitly that all individuals would attain congruence if they could, we propose that individuals vary in the strength of their motivation to seek congruence.

Numerous theorists have argued that individuals in general tend to seek personal consistency, congruence, or integration (e.g., Deci & Ryan, 1991; Festinger, 1957; Rogers, 1961). According to Festinger (1957), an inconsistency between two cognitions produces an aversive state of dissonance that motivates efforts to eliminate the inconsistency. Other researchers have argued that individuals are not motivated to reduce inconsistency per se but rather are motivated to maintain a coherent self-concept (Aronson, 1968), personal integrity (Steele, 1988), or integration with the core self (Deci & Ryan, 1991). Regardless, implicit–explicit motive incongruence appears to constitute an inconsistency that individuals in general would be motivated to reconcile. Congruence seeking is likely to occur through a reconciliation of explicit motives with propositional (i.e., explicitly represented) implications of implicit motives, rather than with implicit motives per se (cf. Gawronski & Strack, 2004). Given that implicit motives are known to influence spontaneous behavioral trends (McClelland et al., 1989) and are posited to influence felt motivation, propositional implications of implicit motives may include representations of spontaneous behavioral tendencies and of felt motivational impulses. Because explicit constructs are more amenable to dissonance-based modification than are implicit constructs (Gawronski & Strack, 2004), incongruent individuals

are likely to strive to bring their explicit values into alignment with propositional implications of implicit motives.

Although individuals in general may be motivated to seek congruence, the strength of this tendency may vary as a function of individuals' preference for consistency. *Preference for consistency* refers to a preference that cognitions be consistent with one another; individuals high but not low on this dimension tend to show evidence of dissonance-based attitude change in laboratory studies (Cialdini, Trost, & Newsom, 1995). More specifically, individuals high in preference for consistency seek *adherence*, such that cognitions are integrated with "the implications of the established rather than of the new" (Cialdini et al., 1995, p. 325). Given the developmental primacy of implicit over explicit motives (McClelland & Pilon, 1983), individuals higher in preference for consistency should be more motivated than those lower in preference for consistency to embrace explicit motives that adhere with the propositional implications of implicit motives. Accordingly, we hypothesized that preference for consistency would moderate congruence between implicit and explicit nAch. Moreover, because the process of consistency seeking is conceptually distinct from the processes associated with private body consciousness and self-monitoring, all three variables were predicted to make unique contributions to motive congruence.

## METHOD

### Participants

Participants were 203 undergraduate students (94 men, 109 women) enrolled in a course in personality psychology.<sup>2</sup> All individuals received extra course credit for participating in the study. Participants ranged in age from 18 to 37 ( $M = 19.58$ ).

### Procedure

Participants completed measures at several points throughout the semester. At the beginning of the semester, participants completed a take-home questionnaire packet that included two explicit nAch measures (deCharms et al., 1955; Edwards, 1959). Four days later, participants completed a second take-home packet consisting of a PSE and measures of the candidate moderator variables. Two months later, participants completed a third measure of explicit nAch (Nygård & Gjesme, 1973) in class, followed a month later by a fourth measure of explicit nAch (Schultheiss & Murray, 2002), also completed in class.

### Measures

*Implicit nAch.* Implicit nAch was assessed by having participants write imaginative stories about five pictures and having the stories coded for motivational content. The following five pictures were used: architect at desk (Smith, 1992), two women in lab coats in laboratory (Smith, 1992), boy in checked shirt (McClelland et al., 1953), woman painting in workshop (used for the first time in this study), and man in barren office (Birney, Burdick, & Teevan, 1969). Most of these pictures have been widely used in the assessment of implicit achievement motivation; notably, both men and women are included in the picture set. Each picture was presented on a separate page of a PSE packet, each followed by a ruled page where participants were to write a story about the preceding picture. Participants were asked to look at a given picture briefly before writing a story about it.

Stories were coded for motivational imagery by a trained coder using Schultheiss's (2001b) translation of Heckhausen's (1963) system for scoring the motive to achieve. Heckhausen's system represents an advancement over McClelland et al.'s (1953) original nAch system in that it omits coding categories that either fail to consistently discriminate high- from low-achievement individuals or that are thematically related to other motives (e.g., affiliation; cf. Schultheiss, 2001b; Schultheiss & Brunstein, 2005). Moreover, the Heckhausen system allows the coding of hope of success (HS) separate from fear of failure (FF).

In scoring HS, each of the following categories may be coded as present in (1) or absent from (0) each story. *Need for success* is scored when a character in a story sets a positively framed achievement or work goal or feels compelled to pursue such a goal. *Instrumental activity* is scored when a character does something within the context of work or some other kind of achievement setting that will bring her or him closer to reaching an achievement goal or completing a task without relying on others' help. *Expectation of success* is scored when a story character expects to succeed in an achievement-related activity or to reach an achievement goal. *Praise* is scored when a person explicitly praises or rewards someone else because that person has performed well. *Positive affect* is scored for any occurrence of satisfaction or positive feelings related to work, improvement of a skill, achievement, goal attainment, or success. Finally, an additional *success theme* score is assigned if, within a given story, need for success or expectation of success is present and FF imagery is absent. Raw HS scores are computed as the total number of categories present across all pictures. The coder of the present data had previously exceeded 85% interrater agreement on calibration materials prescored

**TABLE 1:** Descriptive Statistics and Internal Consistencies

	Minimum	Maximum	Mean	Standard Deviation	Cronbach's $\alpha$
Implicit nAch	-4.63	10.31	0.01	2.51	
Explicit nAch: deCharms	11	59	37.66	8.72	.77
Explicit nAch: EPPS	26	63	49.79	7.26	.75
Explicit nAch: AMS	20	57	41.16	7.49	.90
Explicit nAch: Matched-content measure	24	49	39.19	5.15	.76
Private body consciousness	5	25	17.77	3.68	.72
Private self-consciousness	22	50	36.43	5.30	.73
Self-monitoring	2	17	9.89	3.34	.67
Preference for consistency	9	76	44.16	13.08	.87
Sex	1	2	1.54	0.50	

NOTE: nAch = need for achievement; EPPS = Edwards Personal Preference Schedule; AMS = Achievement Motives Scale.  $N = 203$ , except for explicit nAch: AMS ( $n = 200$ ) and explicit nAch: matched-content ( $n = 195$ ).

by an expert (and contained in the manual by Schultheiss, 2001b). The mean raw HS score was 7.28 ( $SD = 3.07$ ), and the average number of words across the five stories was 514 ( $SD = 205$ ). Raw HS scores were positively correlated with number of words,  $r = .34$ ,  $p < .001$ . Accordingly, raw HS scores for each story were corrected for story length by creating Z-scored residuals (Smith, Feld, & Franz, 1992). The final implicit HS score, hereafter called implicit nAch, was computed as the sum of the residualized HS scores for each picture.

*Explicit nAch.* Explicit nAch was assessed with four measures. The first was taken from a classic study by deCharms et al. (1955). This measure, hereafter referred to as the deCharms measure of explicit nAch, is a revised version of Murray's (1938) original explicit nAch questionnaire. The measure consists of 9 items that participants rated from 1 (*strongly disagree*) to 7 (*strongly agree*). As shown in Table 1, this scale and all other self-report scales had acceptable internal consistency in the present study. The second measure was the Achievement scale from the Edwards Personal Preference Schedule (EPPS; Edwards, 1959), which was administered using a Likert-type format rather than the original forced-choice format. This measure was designed to assess nAch as conceptualized by Murray. Our adaptation of this scale consisted of 9 items (excluding a duplicate item that had appeared in the original as a check for consistency) rated from 1 (*not at all true of me*) to 7 (*very true of me*). Evidence of reliability and validity is provided by Edwards (1959). The third measure was the 15-item motive-to-achieve-success scale from Nygård and Gjesme's (1973) Achievement Motives Scale (AMS). This scale is grounded in the achievement motivation theory developed by McClelland, Atkinson, and their colleagues (1953). Items were rated

on a scale from 1 (*not at all true of me*) to 4 (*very true of me*). Evidence of reliability and validity is provided by Nygård (1982).

The fourth measure of explicit nAch was the matched-content measure developed by Schultheiss and Murray (2002), the content of which corresponds directly to the categories of Heckhausen's (1963) coding system. Categories are represented by 2 items each, one positively scored and one negatively scored. The measure comprises 10 items, 2 each for the categories need for success, instrumental activity, expectation of success, praise, and positive affect. Participants responded to each item using a 1 (*not at all true of me*) to 5 (*completely true of me*) scale.

*Private body consciousness.* Private body consciousness was assessed using the five-item private body consciousness scale from L. C. Miller et al.'s (1981) Body Consciousness Questionnaire. This scale assesses sensitivity to bodily states, such as bodily tension and hunger. Participants responded to each item using a scale from 1 (*extremely uncharacteristic*) to 5 (*extremely characteristic*). L. C. Miller et al. (1981) provided evidence of reliability and validity, including evidence that individuals higher in private body consciousness, blind to caffeine versus no-caffeine conditions, show a greater increase in explicitly reported arousal following consumption of caffeine.

*Private self-consciousness.* Private self-consciousness was assessed using the scale developed by Fenigstein et al. (1975). Items concern a tendency to focus on internal thoughts and feelings. This scale consists of 10 items that were rated from 1 (*extremely uncharacteristic*) to 5 (*extremely characteristic*). Evidence of reliability and validity is provided by Fenigstein et al. and Carver and Scheier (1998).

**TABLE 2:** Correlations Among Variables

	1	2	3	4	5	6	7	8	9	10
1 Implicit nAch	—									
2 Explicit nAch: deCharms	.00	—								
3 Explicit nAch: EPPS	.00	.48***	—							
4 Explicit nAch: AMS	.02	.37***	.26***	—						
5 Explicit nAch: Matched-content	.17*	.35***	.25***	.33**	—					
6 Private body consciousness	.12	.16*	.15*	.13	.15*	—				
7 Private self-consciousness	-.10	.23**	.39***	.27***	.16*	.29***	—			
8 Self-monitoring	-.08	-.01	.20**	.00	-.17*	-.09	.00	—		
9 Preference for consistency	.19**	.09	-.10	-.14*	.14*	.04	-.06	-.14	—	
10 Sex	.05	.08	.05	-.17*	.29***	.09	.11	-.18*	.21**	—

NOTE: nAch = need for achievement; EPPS = Edwards Personal Preference Schedule; AMS = Achievement Motives Scale.  $N = 203$ , except for explicit nAch: AMS ( $n = 200$ ) and explicit nAch: matched-content ( $n = 195$ ), or both of these measures ( $n = 194$ ).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

*Self-monitoring.* Self-monitoring was assessed using Snyder and Gangestad's (1986) revised, 18-item version of Snyder's (1974) Self-Monitoring Scale. The revised scale is more internally consistent and better captures a general self-monitoring factor than does the original scale (Gangestad & Snyder, 2000; Snyder & Gangestad, 1986). Participants responded to each item by choosing *true* (1) or *false* (0). Evidence of reliability and validity is provided by Snyder and Gangestad and Gangestad and Snyder (2000).

*Preference for consistency.* Preference for consistency was assessed using the brief version of Cialdini et al.'s (1995) Preference for Consistency Scale (PFC-B). This scale consists of nine items that assess a preference for consistency in one's behavior, a preference that one appear consistent to others, and a preference that others be consistent. Participants responded to each item on a scale from 1 (*strongly disagree*) to 9 (*strongly agree*). Evidence of reliability and validity is provided by Cialdini et al. and Nail et al. (2001).

## RESULTS

### Relationships Among Measures of Implicit nAch and Explicit nAch

Descriptive statistics for all variables are reported in Table 1, and correlations among the variables are reported in Table 2. As shown in Table 2, the four measures of explicit nAch were positively intercorrelated. To examine whether the four explicit nAch measures converge as indicators of a single latent variable, we conducted a confirmatory factor analysis using AMOS 5.0.1 (Arbuckle, 2003) with full-information maximum likelihood estimation. A one-factor model was found to have good fit to the data:  $\chi^2(df = 2; N = 203) = 3.77$ ,

$p = .15$ , Comparative Fit Index (CFI) = .99, Tucker-Lewis Index (TLI) = .93, root mean square error of approximation (RMSEA) = .066. All loadings were significant, and the standardized values were as follows: deCharms, .76; EPPS, .66; AMS, .49; matched-content, .49. These results indicate that the four measures converge as indicators of the same explicit nAch construct, despite different emphases in item content across measures.

To examine the overall relation between implicit and explicit nAch, we created a composite index of explicit nAch by computing the mean of the Z scores for the four explicit nAch variables. The correlation between implicit nAch and this composite index of explicit nAch was  $r = .07$ , *ns*. This relation is similar to the overall relation between implicit and explicit nAch observed in the extant literature,  $r = .088$ , as documented in a meta-analytic study by Spangler (1992).

Regarding our first hypothesis, we examined whether the correlation between implicit and explicit nAch varied across indicators of explicit nAch. The correlations indicated that implicit nAch was unrelated to the non-matched-content measures of explicit nAch: deCharms,  $r = .00$ , *ns*; EPPS,  $r = .00$ , *ns*; AMS,  $r = .02$ , *ns*. In contrast, implicit nAch was significantly related to the matched-content measure of explicit nAch,  $r = .17$ ,  $p < .05$ .

A Z test for comparing nonindependent correlations proposed by Meng, Rosenthal, and Rubin (1992) and recommended by Rosenthal and Rosnow (1991) showed that implicit nAch correlated more strongly with the matched-content measure than with the deCharms measure,  $Z = 2.13$ ,  $p < .05$ , and the EPPS measure,  $Z = 2.04$ ,  $p < .05$ . Implicit nAch showed a trend toward correlating more strongly with the matched-content measure than with the AMS measure,  $Z = 1.44$ ,  $p < .15$ .

### Moderation of Implicit–Explicit Congruence

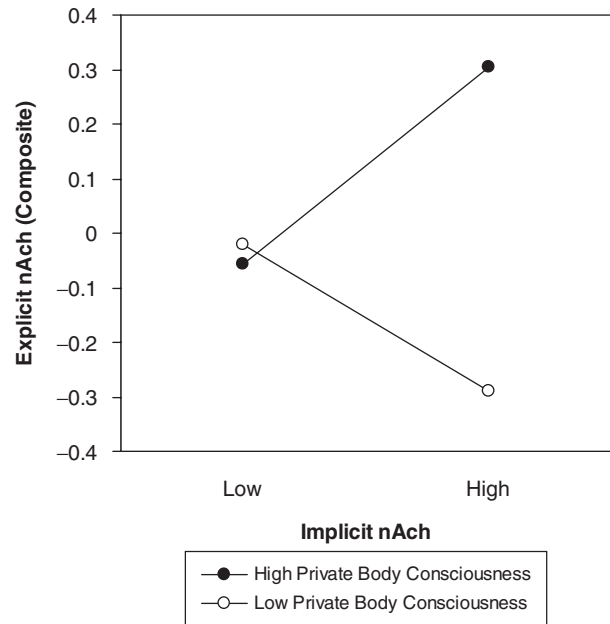
Our second set of hypotheses was tested by examining whether the relation between implicit and explicit nAch varied as a function of the candidate moderator variables. The moderation analyses were conducted using the composite measure of explicit nAch.

*Separate analyses of the three candidate moderator variables.* In the first set of moderator analyses, we tested each candidate moderator variable in a separate regression analysis. Prior to conducting the regression analyses, we centered the implicit nAch and moderator variables and computed each interaction term as the product of the centered implicit nAch and moderator variables (Cohen, Cohen, West, & Aiken, 2003). In cases of significant moderation, we computed predicted simple slopes at one *SD* above and below the mean of the moderator variable. For these and subsequent analyses, we tested for sex main effects and interactions in preliminary analyses. No sex effects emerged, and therefore all sex terms were trimmed from the final regression equations.

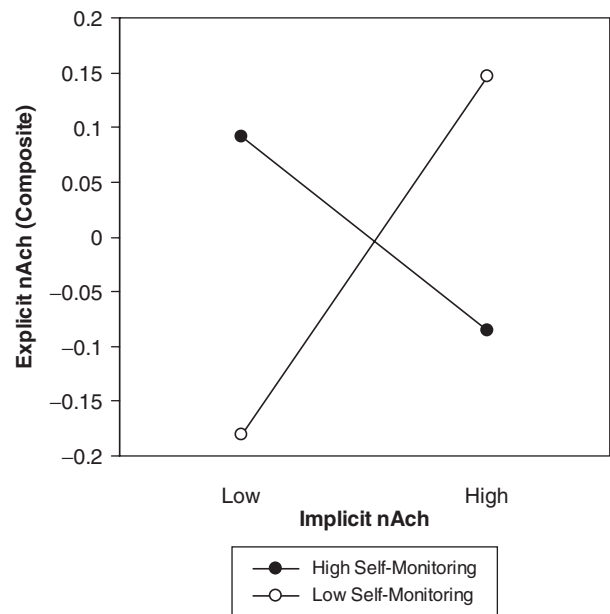
In the private body consciousness analysis, the explicit nAch composite was found to be predicted by private body consciousness,  $\beta = .20$ ,  $p < .01$ , and, more important, by the Implicit nAch  $\times$  Private Body Consciousness interaction,  $\beta = .20$ ,  $p < .01$ . This interaction indicated that implicit–explicit congruence was greater among individuals higher in private body consciousness (see Figure 1). Simple slope analyses indicated that the implicit–explicit slope was positive and significant for individuals high in private body consciousness,  $\beta = .25$ ,  $p < .05$ , and nonsignificant for individuals low in private body consciousness,  $\beta = -.18$ , *ns*.

In the self-monitoring analysis, the explicit nAch composite was found to be predicted by the Implicit nAch  $\times$  Self-Monitoring interaction,  $\beta = -.18$ ,  $p < .05$ . This interaction indicated that implicit–explicit congruence was greater among individuals lower in self-monitoring (see Figure 2). Simple slope analyses indicated that the implicit–explicit slope was positive and significant for individuals low in self-monitoring,  $\beta = .23$ ,  $p < .05$ , and nonsignificant for individuals high in self-monitoring,  $\beta = -.12$ , *ns*.

In the preference-for-consistency analysis, the explicit nAch composite was found to be predicted by the Implicit nAch  $\times$  Preference-for-Consistency interaction,  $\beta = .16$ ,  $p < .05$ . This interaction indicated that implicit–explicit congruence was greater among individuals higher in preference for consistency (see Figure 3). Simple slope analyses indicated that the implicit–explicit slope was positive and significant for individuals high in preference for consistency,  $\beta = .19$ ,  $p < .05$ , and nonsignificant for individuals low in preference for consistency,  $\beta = -.10$ , *ns*.<sup>3</sup>



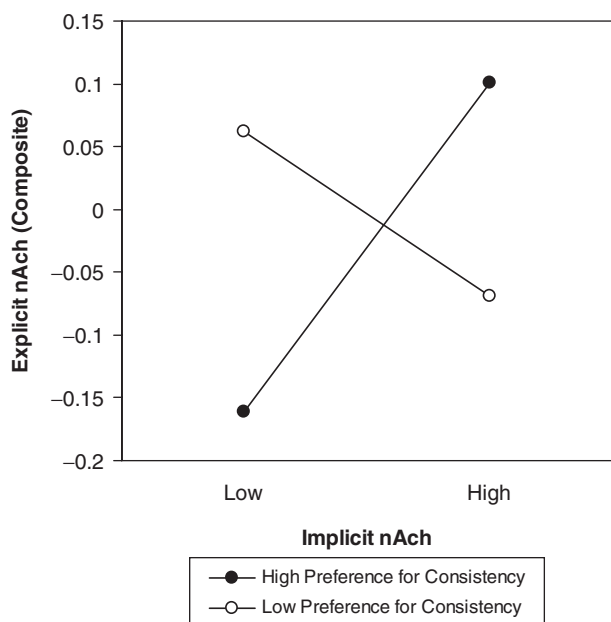
**Figure 1** Predicted Values Illustrating the Moderating Effect of Private Body Consciousness on the Relationship Between Implicit Need for Achievement (nAch) and Explicit nAch



**Figure 2** Predicted Values Illustrating the Moderating Effect of Self-Monitoring on the Relationship Between Implicit Need for Achievement (nAch) and Explicit nAch

*Tests of an alternative explanation for moderation by private body consciousness.* To test whether moderation by private body consciousness is attributable to a focus on internal states rather than a focus on bodily states in particular, we conducted two additional analyses. In the





**Figure 3** Predicted Values Illustrating the Moderating Effect of Preference for Consistency on the Relationship Between Implicit Need for Achievement (nAch) and Explicit nAch

first analysis, we tested for moderation by private self-consciousness. The explicit nAch composite was found to be predicted by private self-consciousness,  $\beta = .38$ ,  $p < .001$ , but, more important, not by the Implicit nAch  $\times$  Private Self-Consciousness interaction,  $\beta = .07$ , *ns*.

In a second analysis, all predictors from the analyses of private body consciousness and private self-consciousness were entered into the regression equation simultaneously. The explicit nAch composite was found to be predicted by private self-consciousness,  $\beta = .32$ ,  $p < .001$ , and, more important, by the Implicit nAch  $\times$  Private Body Consciousness interaction,  $\beta = .14$ ,  $p = .05$ , but not by the Implicit nAch  $\times$  Private Self-Consciousness interaction,  $\beta = .01$ , *ns*. These findings indicate that it is a sensitivity to bodily states in particular that predicts motive congruence; a general focus on internal states makes no additional contribution to the prediction of motive congruence.

*Simultaneous analysis of the three moderator variables.* To examine whether the three moderator variables uniquely predict motive congruence, all predictors from the separate analyses of private body consciousness, self-monitoring, and preference for consistency were included in a simultaneous regression analysis. The explicit nAch composite was found to be predicted by private body consciousness,  $\beta = .21$ ,  $p < .01$ , and, more important, by the Implicit nAch  $\times$  Private Body Consciousness interaction,  $\beta = .15$ ,  $p < .05$ , the Implicit

nAch  $\times$  Preference-for-Consistency interaction,  $\beta = .15$ ,  $p < .05$ , and, marginally, the Implicit nAch  $\times$  Self-Monitoring interaction,  $\beta = -.12$ ,  $p < .09$ . These results indicate that the moderator variables made unique contributions to motive congruence.

Additional analyses revealed that none of the Implicit nAch  $\times$  Moderator interactions in the simultaneous analysis were qualified by higher order interactions involving other moderator variables. Thus, the effects of the three moderator variables were not conditional on the levels of the other moderator variables.

*Correlations between implicit and explicit nAch for groups of individuals with particular trait profiles.* To further explore the combined effect of the moderator variables on implicit–explicit congruence, we computed the correlation between implicit nAch and the explicit nAch composite separately for groups that would be expected to be the most congruent or the least congruent based on their standing on all three moderator variables. For individuals above the mean in private body consciousness and preference for consistency and below the mean in self-monitoring ( $n = 29$ ), the implicit–explicit correlation was  $r = .46$ ,  $p < .05$ . For individuals below the mean in private body consciousness and preference for consistency and above the mean in self-monitoring ( $n = 33$ ), the implicit–explicit correlation was  $r = -.30$ , *ns*. For all remaining individuals ( $n = 141$ ), the implicit–explicit correlation was  $r = .05$ , *ns*. These results illustrate that the overall implicit–explicit correlation masks substantial systematic variability in the implicit–explicit motive relationship.

## DISCUSSION

This study yielded two primary sets of findings. First, we found that implicit nAch was uncorrelated with several established measures of explicit nAch but was significantly correlated with a new explicit measure that directly matched the implicit measure in content. Second, we found that the relationship between implicit and explicit nAch was moderated by private body consciousness, self-monitoring, and preference for consistency. Simple slope analyses indicated that the relationship between implicit and explicit nAch was positive and significant for individuals high in private body consciousness, for individuals low in self-monitoring, and for individuals high in preference for consistency; at the other pole of these moderator variables, the implicit–explicit slope was not significantly different from zero. The three moderator variables were found to make unique and noninteracting contributions to the prediction of motive congruence.

Regarding the first set of findings, the fact that the implicit–explicit relationship was nonsignificant using established (nonmatched) measures of explicit nAch is consistent with most previous studies. More important, the finding of a significant correlation only for the matched-content measure suggests that a poor correspondence of content may have led to an underestimation of the true implicit–explicit relationship in past research. Our findings parallel developments in the attitude–behavior and trait–behavior consistency literatures, in which early claims of poor consistency were later shown to be overstated once methodological improvements permitted disattenuation of consistency coefficients (see also Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005, regarding related correspondence issues in the Implicit Association Test [IAT] literature). We should note that the implicit–explicit correlation was weak even with the matched-content measures ( $r = .17$ ). It is possible that further methodological refinements focused on minimizing error variance (e.g., increasing the internal consistency of PSE measures by using more pictures) may further increase the implicit–explicit correlation. However, it is likely that no amount of methodological refinement would yield a strong overall correlation between implicit and explicit motives, given evidence of discriminant validity (McClelland et al., 1989; Spangler, 1992). Our argument that implicit and explicit nAch are correlated is fully compatible with the discriminant validity of these constructs, because discriminant validity rests on the presence of unique variance rather than on the absence of shared variance. Our findings suggest that implicit and explicit nAch are distinct but related constructs.

The second set of findings provides additional evidence of statistical nonindependence. The moderation findings indicate that part of the reason that the implicit–explicit correlation is weak overall is that the implicit–explicit relationship varies as a function of trait moderator variables. Individuals higher in private body consciousness, who were posited to have better access to implicit motives, were found to be more congruent; individuals lower in self-monitoring, who were posited to be more independent of the social environment, were more congruent; and individuals higher in preference for consistency, who were posited to prefer that explicit motives be consistent with cognitive implications of implicit motives, were more congruent. These findings indicate that the relationship between implicit and explicit nAch is more systematic than is apparent from the zero-order correlation alone, a conclusion that parallels developments in the attitude–behavior and trait–behavior consistency literatures (for related developments in the IAT literature, see Hofmann, Gawronski, et al., 2005; Hofmann, Gschwendner, Nosek, et al., 2005; Hofmann, Gschwendner, & Schmitt, 2005; Nosek, 2005). The

results of our moderation analyses indicate that implicit and explicit nAch may be characterized most accurately as distinct but variably related.

The finding that private body consciousness moderates motive congruence suggests that implicit motives may be accessible, at least indirectly. The weak implicit–explicit motive relationship may in part reflect the fact that many individuals simply do not know how to access their implicit motives. If focusing one’s attention inward were sufficient, then private *self*-consciousness would be expected to moderate congruence, but we found no evidence for the moderating role of private self-consciousness. Private self-consciousness and related forms of self-reflection likely focus attention on the self-concept and associated explicit motives, rather than on implicit motives, and therefore may be less likely to facilitate motive congruence. Attention to one’s body, in contrast, may permit one to perceive the bodily effects of the implicit motive in action. We presume that individuals higher in private body consciousness develop more veridical representations of implicit motives (i.e., beliefs about spontaneous, “felt” motivation), which may serve as a bridge between implicit and explicit motives. However, additional research is needed to examine this process. Additional research is also needed to determine the degree to which the information provided by interoception of bodily processes is redundant with or complementary to that provided by goal imagery (Schultheiss & Brunstein, 1999), the experience or anticipation of satisfaction upon goal attainment (Brunstein et al., 1998), and various other proposed means of gaining access to or awareness of nonconscious content (for reviews, see Wilson, 2002; Wilson & Dunn, 2004).

The fact that self-monitoring moderated motive congruence suggests that a concern with meeting others’ standards of acceptable behavior may lead the individual to internalize values arbitrarily, even if the values are incompatible with implicit motives. Our finding is consistent with recent findings by Hofer, Busch, Chasiotis, and Kiessling (2006), who reported that congruence between implicit and explicit need for affiliation was poor among individuals with an identity status of foreclosure, which involves the unquestioned internalization of others’ values. We should note that we do not wish to promote a good-versus-bad perspective on internal-versus-external sources of values. What is bad for motive congruence may be good for social harmony. Moreover, parents and other socialization agents have the capacity to actively promote motive congruence, either by being consistent in the socialization of early nonverbal learning and later verbal learning, or perhaps by promoting the types of processes that we have found to predict motive congruence. Nonetheless, the particular type of social orientation represented by self-monitoring

appears to involve the wearing of a persona that is not predictable from the core personality behind it and thus does not represent an optimal reconciliation of the desires to be oneself and to fit in with others.

The finding that preference for consistency moderated implicit–explicit motive congruence suggests that not all individuals are inclined to reduce incongruence. Given that implicit motives develop prior to explicit motives (McClelland & Pilon, 1983), and given that individuals high in preference for consistency seek adherence with what has already been established (Cialdini et al., 1995), it is likely that a preference for consistency leads these individuals to bring explicit motives into alignment with implicit motives, rather than vice versa. Consistent with the theorizing of Gawronski and Strack (2004), we presume that adherence seeking involves reconciling explicit motives with propositional implications of implicit motives (e.g., cognitions regarding felt motivation or spontaneous behavioral trends), rather than with implicit motives per se, although additional research would be needed to document the specific process linking preference for consistency to motive congruence. We should also note that the moderating effect of preference for consistency on the relationship between implicit and explicit motives may itself be moderated by a variety of other factors. For instance, when propositional implications of implicit motives are more salient, consistency seeking may be more facilitative of implicit–explicit congruence. When these cognitions are less salient (or when cognitions unrelated to implicit motives are salient; e.g., Gawronski & Strack, 2004), consistency seeking may undermine rather than promote implicit–explicit congruence. Although no higher order interactions emerged in this study, null higher order interactions should not be interpreted, particularly in correlational studies, in which higher order interactions are difficult to detect.

Together, our various findings suggest the possibility that explicit motives may not develop independently of implicit motives as McClelland had argued. The primary empirical basis of McClelland's argument was the lack of correlation between implicit and explicit motives (but see also McClelland & Pilon, 1983), a basis that is undermined by our finding of a positive implicit–explicit correlation when properly matched measures are used. Moreover, our moderation findings suggest that McClelland's explanations of developmental independence—the inaccessibility of implicit motives and the influence of the social environment—may be applicable to some individuals rather than to all individuals. We are not proposing that McClelland's model be rejected; in fact, our findings may be viewed as providing support for McClelland's explanations of poor correspondence between implicit and explicit motives.

Rather, we propose that McClelland's model of independent development may need to be qualified, such that it applies to some rather than all individuals. Of course, although our findings justify a strong and unambiguous rejection of statistical independence, they are merely suggestive of developmental nonindependence. Longitudinal research is needed before conclusions about developmental nonindependence would be warranted.

A related limitation of this study is that the moderator variables were measured rather than manipulated. Therefore, the moderator variables should be regarded as predictors of congruence and not necessarily as causes of congruence. It is possible that the moderator variables are effects rather than causes, or that both congruence and the moderators are effects of unidentified "third" variables. Furthermore, assuming that the moderators have a causal impact on congruence, additional research would be needed to document the crucial ingredients of the moderator variables and the processes through which they influence congruence. For instance, individuals higher in private body consciousness may be more sensitive to internal bodily states because they direct their attention to interoceptive feedback; alternatively, these individuals may be more sensitive to bodily states because their interoceptive cues are stronger or more readily interpretable. Longitudinal and experimental research would facilitate a shift in emphasis from second-generation questions about moderation to third-generation questions about causality and mediating processes.

We should also note that our findings are based on a single sample (albeit a large sample) of undergraduate students and may not generalize to other samples or populations. Also, we have examined only one motive domain. Additional research is needed to determine whether our findings generalize to other domains, such as affiliation and power. Most of our theorizing is applicable to other motive domains; however, it is possible that interoceptive processes are more facilitative of congruence for agentic motives (i.e., need for achievement, need for power) than for communal motives (i.e., need for affiliation or intimacy), because agentic motives may yield a more intense state of bodily activation. Limitations notwithstanding, the present findings give new life to the half-century-old question of whether implicit and explicit motives are correlated, they answer long-overdue second-generation questions, and they integrate the motive-congruence literature with other prominent literatures in personality and social psychology.

## NOTES

1. A subsequent study in which the Sherwood measure was administered under more typical conditions yielded a correlation of only .07 with a picture-story exercise measure (Weinstein, 1969). However,

this study is difficult to interpret in light of unacceptably low reliability in the coding of implicit need for achievement (nAch; Atkinson & Raynor, 1974, p. 191).

2. Five individuals who reported disabilities that would compromise their ability to provide valid data were excluded from the sample. Three of these persons had a language-related disability (e.g., dyslexia) and 2 had suffered severe brain injury.

3. In addition to conducting moderation analyses using the composite measure of explicit nAch, we also conducted analyses using the individual measures of explicit nAch. For moderation by private body consciousness, the interaction term effects were as follows: deCharms,  $\beta = .16, p < .05$ ; Edwards Personal Preference Schedule (EPPS),  $\beta = .14, p < .05$ ; Achievement Motives Scale (AMS),  $\beta = .17, p < .05$ ; matched-content,  $\beta = .11, ns$ . For moderation by self-monitoring, the interaction term effects were as follows: deCharms,  $\beta = -.19, p < .01$ ; EPPS,  $\beta = -.17, p < .05$ ; AMS,  $\beta = -.04, ns$ ; matched-content,  $\beta = -.10, ns$ . For moderation by preference for consistency, the interaction term effects were as follows: deCharms,  $\beta = .09, ns$ ; EPPS,  $\beta = .14, p < .10$ ; AMS,  $\beta = .15, p < .05$ ; matched-content,  $\beta = .07, ns$ . Thus, for each moderator variable, the direction of the effect was consistent across measures of explicit nAch, but the effects were not statistically significant for all measures. These findings attest to the importance of reliability of measurement. If we had used a single measure of explicit nAch rather than the more reliable aggregate, we likely would have failed to find support for at least one of the three moderator variable hypotheses.

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