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ARTICLES

Assessment of Implicit Motives With a Research Version of the TAT: Picture Profiles, Gender Differences, and Relations to Other Personality Measures

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Four hundred twenty-eight participants wrote imaginative stories in response to 6 picture cues of a research version of the Thematic Apperception Test (TAT; Morgan & Murray, 1935). Story protocols were coded for *n* (*need*) Power, *n* Achievement, and *n* Affiliation using Winter's (1991) integrated scoring system that provided detailed information about the motive profiles of individual picture cues. In general, picture cues differed strongly from each other with regard to how many scorable instances of power, achievement, or affiliation imagery they elicited. The *n* Affiliation, but not *n* Power, *n* Achievement, or activity inhibition—a measure of impulse control—was found to be higher in (a) women than in men and (b) individuals tested in a group than in individuals tested individually. TAT motive measures showed no significant overlap with questionnaire measures of motivational orientation (German Personality Research Form; Stumpf, Angleitner, Wieck, Jackson, & Beloch-Till, 1985) or traits (German NEO–Five-Factor Inventory; Borkenau & Ostendorf, 1993).

Over the past 50 years, scholars of motivation have developed scoring systems that allow them to code the content of verbal material for various motivational themes—usually termed *need* (*n*)—such as *n* Food (Atkinson & McClelland,

1948), *n* Achievement (McClelland, Atkinson, Clark, & Lowell, 1953), *n* Affiliation (Atkinson, Heyns, & Veroff, 1958), *n* Power (Winter, 1973), *n* Sex (Clark, 1952), *n* Aggression (Kornadt, 1982), *n* Intimacy (McAdams & Powers, 1981), or *n* Oneness (Siegel & Weinberger, 1997). These systems have in turn been applied to the measurement of personality in a wide variety of contexts and applications (see McClelland, 1987; Winter, 1996). Because motive scores obtained through these methods do not correlate substantially with questionnaire measures designed to assess the same motivational themes, content coding systems are thought to tap motivational dispositions and processes that operate outside of a person's conscious awareness. McClelland, Koestner, and Weinberger (1989) have therefore termed them measures of *implicit motives.*

Most researchers have used picture cues (and sometimes also sentence cues; see French, 1958) to collect imaginative verbal material from their participants, a technique that was derived from Murray's Thematic Apperception Test (TAT; Morgan & Murray, 1935). However, their method of gathering and interpreting verbal material differed from Morgan and Murray's approach in two important ways. First, the picture cues used were only rarely taken from the actual TAT but in many instances represented photographs, newspaper ads, or were created specifically for the purpose of assessing one particular motive. Second, the stories individuals produced in response to these picture cues were not interpreted following consensual clinical criteria but coded according to scoring systems that had been developed by systematically comparing stories written under motive arousal and under neutral conditions (see Atkinson, 1958; Gieser & Stein, 1999; Smith, 1992).

Although considerable efforts have been dedicated to the construction, revision, and refinement, as well as validation, of these scoring systems, comparatively less attention has been paid to the specification and selection of the picture cues. Thus, although researchers interested in studying human motivation now have well-developed, published coding systems for the "Big Three of motivation"—*n* Power (the need to have impact), *n* Achievement (the need to do something better), and *n* Affiliation (the need for friendly relationships)—at their disposal (Smith, 1992), they may have to rely on their intuition or on personal advice by other scholars when deciding what picture cues to use in assessing a particular motive or combination of motives. This is a deplorable situation because picture cues can vary widely with regard to the "pull" they have for any given motive, and choosing the wrong pictures may leave a researcher with stories that yield too few or even no codeable instances of the motive she or he wants to study.

Therefore, a major aim of this research was to provide detailed information on a set of six picture cues that we have found useful in assessing *n* Power, *n* Achievement, and *n* Affiliation. We present data that have accumulated from the assessment of 428 young adult German women and men in studies on the role of motives in goal commitment and task performance (Schultheiss & Brunstein, 1999), in emotional well-being as related to the pursuit of personal goals (Brunstein,

Schultheiss, & Grässmann, 1998), and in persuasive communication (Schultheiss & Brunstein, in press). By employing the same instructions and scoring procedures consistently across all studies, we are now in a position to provide robust characterizations of the motivational cue content of each picture for *n* Power, *n* Achievement, and *n* Affiliation.

Another issue we address in this research relates to gender differences in implicit motives. Although Stewart and Chester (1982) concluded from their review of the pertinent literature that women and men do not differ with regard to their *n* Power and *n* Achievement scores in response to the same picture cues, they noted that women may be higher than men in *n* Affiliation. Supporting this conclusion, McAdams, Lester, Brand, McNamara, and Lensky (1988) reported that women scored significantly higher in *n* Intimacy, which has some overlap with *n* Affiliation, than men. Therefore, we expected women to be higher in *n* Affiliation, but not in *n* Power or *n* Achievement, in this study.

We also explored the effect that administration conditions may have on individuals' implicit motives by comparing scores of participants tested individually with those of participants tested in a group situation. In past research (cf. Atkinson et al., 1958), group settings have often been used to arouse the affiliation motive, whereas there is little evidence in the literature that they may also have an influence on other motives. Thus, we expected individuals' affiliation motive to be more sensitive to group administration as opposed to individual administration than the power motive or the achievement motive.

Finally, we studied the relationship of implicit motive measures to measures of explicit motivation (i.e., motivational orientations as assessed by questionnaire) and traits in subsamples of our participant pool. As many studies with various U.S. sample populations have shown, implicit and explicit measures of the same motivational theme usually do not overlap with each other and may predict different behavioral outcomes (e.g., King, 1995; McClelland, 1980). Similarly, implicit motive measures have been found to be independent from measures of traits such as extraversion or neuroticism (e.g., Winter, John, Stewart, Klohnen, & Duncan, 1998). We therefore tested whether this lack of overlap between the TAT and questionnaire measures of personality would also emerge for our German sample.

METHOD

Participants

One-hundred and eighty-eight women and 240 men, age 18 to 36 years ($M = 24.35$, $SD = 3.31$), who were enrolled in various faculties at German universities, were assessed in the aforementioned studies (Brunstein et al., 1998; Schultheiss & Brunstein, 1999, in press). Also included in this sample are individuals participating in pilot phases of these studies because their personality measures did not differ

in terms of materials used, administration, or scoring from those of other participants. Each study was conducted by a different experimenter and at a different time between summer term 1994 and winter term 1996. Psychology students were not recruited in any study.

Personality Measures

Implicit motives. To assess participants' implicit needs for power, achievement, and affiliation as well as their level of inhibition, a TAT-type picture–story test was administered to participants using instructions described in Winter (1992). Following Lundy's (1988) recommendations, we took care to create a relaxed test-taking atmosphere in each study to ensure a high level of validity of participants' motive scores. The TAT consisted of the following six pictures, in the order of their presentation: architect at desk, women in laboratory, ship captain, couple by river, trapeze artists, and nightclub scene. With the exception of the last picture, which was taken from McClelland (1975), all pictures are contained in Smith (1992). All six pictures have been used extensively, if in varying selections or in combination with other pictures, in past research on implicit motives (e.g., see Jemmott et al., 1990; King, 1995; Lundy, 1988; McAdams et al., 1988; Zurbriggen, 2000) and have originally been selected for the ambiguous and everyday character of the depicted scenes. For each picture, participants had 5 min to look at the picture and write a story. Two-hundred forty-five participants were administered the picture–story test in a group testing setting, and 185 participants were tested individually.

The resulting TAT protocols were content coded for *n* Power, *n* Affiliation, and *n* Achievement according to Winter's (1991) *Manual for Scoring Motive Imagery in Running Text*, which allows for scoring of various kinds of motive imagery at once and has been used in other research on implicit motives (e.g., King, 1995; Peterson & Stewart, 1993; Zurbriggen, 2000). According to this manual, *n* Power is scored whenever a story character shows a concern with having impact on others through strong, forceful actions, and controlling, influencing, helping, impressing, or eliciting emotions in others. Need Achievement is scored whenever a character shows a concern with a standard of excellence as indicated by adjectives that positively evaluate performances, by other positive evaluations of goals and performances, mention of winning or competing with others, disappointment about failure, or mention of unique accomplishment. Finally, *n* Affiliation–Intimacy is scored whenever a story character shows a concern with establishing, maintaining, or restoring friendly relations as indicated by expressions of positive feelings toward others; sadness about separation; affiliative activities; or friendly, nurturant acts. Winter's (1991) scoring system combines *n* Affiliation and *n* Intimacy into one conjoint imagery category due to the theoretical and empirical overlap between the two constructs. For brevity's sake, we denote this category with *n* Affiliation throughout the remainder of this article.

Before coding the TAT protocols, all scorers had undergone coding training using the materials contained in Winter's (1991) manual until they had achieved percentage agreement of 85% or better with calibration materials prescored by experts that are also contained in the manual. In each study, two scorers coded participants' protocols independently. Whereas one coding was done by different scorers in most studies (only in the Brunstein et al., 1998, studies were the protocols coded by the same two scorers in both studies), the other was done by one and the same scorer across all studies. In doing so, we ascertained that the scoring rules would be applied in a consistent manner across all studies. Percentage agreements between scorers across all six-picture protocols, conservatively estimated by the index of concordance (2 × number of agreements between scorers / [Scorer A's scores + Scorer B's scores]; see Martin & Bateson, 1993; Winter, 1991), were, averaged across all studies, 87% for *n* Power (varying across studies between minimum [min] = 81% and maximum [max] = 94%), 84% for *n* Achievement (min = 76%, max = 94%), and 90% for *n* Affiliation (min = 86%, max = 96%). Scoring disagreements were resolved by discussion, and scores from these joint sessions were used as participants' final scores. We also determined participants' level of activity inhibition—a variable that has been found to be an important moderator of implicit motives' behavioral expression and has often been used to define and differentiate motivational syndromes (e.g., Mason & Blankenship, 1987; McClelland, 1992; Schultheiss & Brunstein, in press)—by counting the frequency of the German negation *nicht* (English *not;* cf. McClelland, 1979) in each participant's protocol. In addition, we routinely determined participants' protocol length by counting the number of words for all six stories. Because overall protocol length was correlated with participants' overall scores for *n* Power, $r = .42$, *n* Achievement, $r = .19$, *n* Affiliation, $r = .28$, and for activity inhibition, $r = .52$, all *p*s < .001, we removed the influence of protocol length from participants' motive and inhibition scores by regression and converted the residuals to *z* scores (cf. Smith, Feld, & Franz, 1992).[1]

Explicit motives. To assess participants' explicit motives, we administered the scales Dominance, Achievement, and Affiliation of the German Personality Research Form (PRF; Stumpf et al., 1985) to a subsample including 117 men and 78 women. These PRF scales have been constructed to capture through question-

[1]Provided the same six picture cues and administration protocol are employed, the regression models used in these procedures can also be applied to estimate a new testee's motive scores relative to our sample, with word count being held constant. Thus, a person's residualized *z* score, and hence population percentile, for a given motive can be estimated by inserting the motive raw score and word count in the appropriate places of the regression formulas for *n* Power (0.22355 + 0.46867 × power score – 0.004220 × word count), *n* Achievement (–0.38889 + 0.66067 × achievement score – 0.00173 × word count), *n* Affiliation (–0.74791 + 0.42050 × affiliation score – 0.00266 × word count), and activity inhibition (1.15006 + 0.34228 × inhibition score – 0.00553 × word count).

naire items the same motivational themes that also guided the development of the original TAT measures of power, achievement, and affiliation motivation that have been integrated into Winter's (1991) scoring system (cf. Smith, 1992) and that were originally described by Murray (1938). According to Stumpf et al. (1985), the scales of the German PRF have high factorial validity, and the internal consistency coefficients of the three scales we used in our research are reported to be .70 (achievement), .75 (affiliation), and .82 (dominance).

Traits. A different subsample of participants, consisting of 56 women and 55 men, completed the German NEO–Five-Factor Inventory (NEO–FFI; Borkenau & Ostendorf, 1993). The scales of this inventory—tapping the traits extraversion, neuroticism, openness to experience, conscientiousness, and agreeableness—have been found to be structurally valid by Borkenau and Ostendorf, and their internal consistency coefficients are given as .80, .85, .71, .85, and .71, respectively.

RESULTS

Picture Profiles

To test for differences of motive profiles between pictures, we computed a repeated measures multivariate analysis of variance (ANOVA) with Picture (pictures 1 to 6) and Motive (*n* Power, *n* Achievement, and *n* Affiliation) as within-subjects factors. As a highly significant Picture × Motive interaction indicated, participants' motive profiles varied across picture cues, $F(10, 418) = 193.16$, $p < .001$. Table 1 shows that picture cues differed quite markedly in the amount and thematic content of motive imagery they elicited in participants' story writing. For instance, *architect at desk* had a strong pull for *n* Affiliation, but almost none for *n* Power or *n* Achievement, whereas participants responded to *trapeze artists* with stories relatively saturated with power and achievement imagery and a moderate level of affiliation imagery. As a general rule, higher mean scores were accompanied by higher variances, which suggests that high-pull pictures may be more suitable for revealing interindividual differences in participants' response to their cue content. Although repeated measures ANOVAs for word count and activity inhibition indicated that these measures also varied across picture cues, with Fs(5, 423) = 35.22 and 5.49, respectively, ps < .001, Table 1 shows that they demonstrated considerably less variation across pictures than motive scores did.

Picture cues thus clearly differed in the kind of motive imagery they elicited, with some pictures having a high pull for a particular kind of motivational imagery and others having a low pull for the same kind of imagery. A researcher interested in studying a particular kind of motive or a specific combination of motives will try to select medium- or high-pull pictures to maximize the variance, and hence predictive

TABLE 1
Means and Standard Deviations of Raw Scores Across Coding Categories and Picture Cues for Women[a] and Men[b]

	n Power		*n Achievement*		*n Affiliation*		*Inhibition*		*Words*	
Picture	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Architect at desk										
Both	0.22	0.46	0.29	0.55	1.16	0.84	0.77	0.88	90.75	22.73
Women	0.26	0.46	0.31	0.57	1.32	0.89	0.82	0.86	92.85	21.50
Men	0.19	0.45	0.27	0.54	1.03	0.78	0.73	0.90	89.10	23.56
Difference					****					
Women in laboratory										
Both	0.80	0.84	0.66	0.77	0.19	0.48	0.85	1.02	82.85	21.15
Women	0.79	0.82	0.68	0.78	0.23	0.54	0.91	1.13	85.61	22.80
Men	0.80	0.85	0.65	0.77	0.15	0.43	0.80	0.92	80.68	19.53
Difference									*	
Ship captain										
Both	1.16	0.92	0.11	0.37	0.20	0.53	0.99	1.17	85.68	21.08
Women	1.14	0.92	0.09	0.31	0.29	0.66	0.99	1.20	88.34	21.97
Men	1.17	0.92	0.13	0.41	0.13	0.40	0.98	1.14	83.61	20.15
Difference					***				*	
Couple by river										
Both	0.43	0.72	0.03	0.17	1.84	1.05	0.94	1.10	91.53	22.01
Women	0.48	0.73	0.05	0.21	1.96	1.12	0.99	1.08	94.82	22.53
Men	0.40	0.71	0.01	0.11	1.75	0.98	0.90	1.11	88.94	21.29
Difference			*		*				**	
Trapeze artists										
Both	0.79	0.85	0.78	0.84	0.43	0.71	0.71	0.92	86.04	21.64
Women	0.80	0.88	0.84	0.85	0.50	0.72	0.74	0.91	88.63	21.70
Men	0.79	0.83	0.73	0.83	0.38	0.70	0.69	0.93	84.00	21.43
Difference									*	
Nightclub scene										
Both	0.86	0.83	0.09	0.31	1.29	1.08	0.88	1.04	89.44	22.77
Women	0.86	0.84	0.08	0.26	1.49	1.15	0.87	1.03	91.56	22.39
Men	0.85	0.83	0.10	0.34	1.12	0.99	0.88	1.04	87.79	22.97
Difference					****					
Total										
Both	4.26	2.35	1.96	1.54	5.11	2.48	5.14	3.42	526.29	110.31
Women	4.34	2.33	2.04	1.46	5.80	2.58	5.33	3.47	541.80	110.97
Men	4.20	2.37	1.90	1.60	4.57	2.25	4.99	3.38	514.13	108.47
Difference					****				**	

Note. *Difference* indicates significant differences between women and men within a picture and coding category. Underlined motive scores indicate that more than 50% of participants have responded with at least one instance of a codeable motive imagery to the picture cue.

[a]$n = 188$. [b]$n = 240$.

*$p < .05$. **$p < .01$. ***$p < .005$. ****$p < .001$.

power, of his or her motive measure and leave out low-pull pictures to which only few participants will respond with any imagery of the motive(s) in question. To establish a rough guideline as to which of the pictures may be considered high-pull with regard to a specific motive content category, we inspected histograms for each coding category and each picture and determined to which pictures more than 50% of participants had responded with at least one codeable imagery within a given content category. According to this criterion, *women in laboratory*, *ship captain*, *trapeze artists*, and *nightclub scene* can be considered high-pull pictures for *n* Power; *architect at desk*, *couple by river*, and *nightclub scene* can be considered high-pull pictures for *n* Affiliation; and *women in laboratory* and *trapeze artists* can be considered high-pull pictures for *n* Achievement.[2,3]

Effects of Administration

Participants scored significantly higher on *n* Affiliation when the TAT was administered in a group situation ($M = 5.64$, $SD = 2.55$) than when it was administered individually ($M = 4.41$, $SD = 2.20$), $F(1, 426) = 27.85$, $p < .001$. This effect remained significant after differences in overall protocol length were controlled for, $p < .001$. Administration type had no significant effect on participants' *n* Power, *n* Achievement, inhibition, or word count, *p*s > .20.

Gender Differences

For most picture cues, women were significantly higher than men in protocol length and *n* Affiliation, but not in *n* Power, *n* Achievement, or activity inhibition (see Table 1). This pattern of gender differences also emerged for total motive, inhi-

[2]It should be noted that what we term *high-pull* pictures are by no means pictures that unambiguously suggest stories about one particular motivational theme. Rather, these are pictures that many, but by far not all, participants responded to at least once with one particular kind of motive imagery, but that also suggest other motivational themes or can sometimes even elicit stories devoid of any motive imagery. Thus, high-pull should not be equated with "explicit or unambiguous stimulus," which, as the researchers who had introduced these pictures to the study of implicit motives were very much aware, can have counterproductive effects for the assessment of human motives in fantasy (e.g., see Fenz & Epstein, 1962; Murstein, 1963; Smith et al., 1992).

[3]One reviewer brought to our attention that readers not familiar with this set of pictures might have difficulties understanding why *architect at desk* has a strong pull for affiliation, whereas *nightclub scene* elicits so much power imagery. *Architect at desk* shows, besides the architect, a framed picture on his desk that could depict his family. Consequently, the most typical story individuals write in response to this picture is about a man who is away from, and wants to be reunited with, his family. *Nightclub scene* depicts a man and a woman seated at a table and drinking beer, with the man looking at the woman and the woman smiling at a partially visible guitarist who is serenading them. Typical stories about this picture not only involve romantic issues that can be scored for affiliation but also frequently mention conflict between the two men, espionage, sexual exploitation, betrayal, and so forth, which can be scored for power.

TABLE 2
Correlations Among Residualized Motive Variables and Between Residualized Motive Variables and Age

Variable	*1*	*2*	*3*	*4*	*Age*
1. *n* Power	—	.15*	–.25****	.09	–.11*
2. *n* Achievement	.14*	—	.04	.11	–.09
3. *n* Affiliation	–.08	.10	—	–.15*	–.12*
4. Inhibition	.05	–.06	–.19***	—	–.04

Note. Women (N = 188) are represented above the diagonal; men (N = 240) are represented below the diagonal.
*p < .05. ***p < .005. ****p < .001.

bition, and word count scores. To test whether women's higher scores in total affiliation imagery would be accounted for by their higher verbal fluency, we partialed out total word count before testing for the influence of gender on total *n* Affiliation. Women remained significantly higher than men in *n* Affiliation, partial $r = .22$, $p < .001$. We also computed an ANOVA (unique sums of squares) to test whether there were any interactive effects between gender and administration type on *n* Affiliation. Although the main effects of these variables remained highly significant, ps < .001, their interaction did not reach significance, $p = .98$, thus indicating that participant gender and administration condition had independent, additive effects on *n* Affiliation scores.

Correlations Among TAT Measures

Using residualized scores for *n* Power, *n* Achievement, and *n* Affiliation as well as inhibition, we computed correlation coefficients for these measures separately for men and women (see Table 2). We found that, for both women and men, higher levels of *n* Power were significantly associated with higher levels of *n* Achievement, and higher levels of *n* Affiliation were significantly associated with lower levels of activity inhibition. In addition, higher levels of *n* Power were significantly related to lower levels of *n* Affiliation in women but not in men. We also tested for the relationship between implicit motive measures and age and found that older participants had slightly, and in the case of *n* Power and *n* Affiliation significantly, lower residualized scores on these measures.

TAT Measures Versus Questionnaire-Based Personality Variables

To determine whether there is some convergence between implicit (TAT) and explicit (PRF) measures of a particular motivational domain, we computed correlations between residualized TAT motive measures and PRF scales. As shown in

TABLE 3
Correlations Between Residualized TAT Measures of Implicit Motives and Activity Inhibition and Questionnaire Measures of Motivational Themes (PRF)[a] and Traits (NEO–FFI)[b]

			TAT			
Theme or Trait	*M*	*SD*	*n Power*	*n Achievement*	*n Affiliation*	*Inhibition*
PRF						
Dominance	7.30	3.85	.04	–.00	–.05	–.02
Achievement	9.88	2.94	–.02	.06	.01	.09
Affiliation	11.57	3.23	–.06	.15*	.13	–.08
NEO						
Extraversion	40.84	6.48	–.01	.00	.05	.01
Neuroticism	35.41	7.32	.05	–.11	.10	–.18
Openness	45.19	5.98	.04	.00	–.18	–.10
Conscientiousness	41.51	6.65	–.05	–.00	.13	–.07
Agreeableness	42.23	5.90	.06	–.01	.12	–.12

Note. TAT = Thematic Apperception Test; PRF = German Personality Research Form; NEO–FFI = German NEO–Five-Factor Inventory; *n* = need.
[a]$n = 195$. [b]$n = 111$.
*$p < .05$.

Table 3, there were no significant within-domain correlations between these two methods of assessing motivational orientation. Thus, for instance, an individual could be high in *n* Power without necessarily endorsing many items on the PRF Dominance scale and vice versa. Likewise, when we computed correlations between TAT measures and the NEO–FFI Big Five scales, we found no substantial overlap between the two approaches to measuring personality. Therefore, whether individuals were high or low in, for instance, extraversion did not determine whether they were also high or low in *n* Power, *n* Achievement, *n* Affiliation, or activity inhibition.[4] These relationships between TAT and questionnaire measures of personality did not differ between men and women.

We also explored for each picture cue separately correlations between TAT motive and inhibition scores, corrected for length of the respective picture's protocol, and questionnaire measures of personality but did not find more significant correlations between these measures than would be expected by chance alone: Only 2 out of a total of 72 TAT × PRF correlations and 3 out of a total of 96 TAT × NEO–FFI correlations were significant at $p < .05$.

[4]Longer protocols were associated with higher scores on the NEO Neuroticism scale, $r(111) = .26$, $p < .005$, and on the PRF Dominance scale, $r(195) = .15$, $p < .05$. No other correlations between protocol length and personality questionnaire scales became significant, ps $> .05$.

DISCUSSION

As expected, picture cues varied considerably with regard to the relative amount of power-, achievement-, or affiliation-related imagery they elicited in participants' stories. For instance, whereas some pictures had a strong pull for *n* Power and produced a wide range of scores in participants, others induced only very few participants to mention anything power related at all. Although it may be argued that these picture differences are not so much due to actual differences in picture content but to the possibility that individuals may satisfy a given need by expressing it in a story—whereupon a kind of "satiation effect" sets in that will make it unlikely for that motive to resurface in a subsequent story (regardless of the subsequent picture's content)—we believe that this explanation does not fully account for our findings. For one, according to the dynamics of action theory (Atkinson & Birch, 1970), the frequency of such oscillations in motive expression is, among other factors, a function of motive strength, and although oscillation may be detectable in the stories of an individual person, oscillations will tend to cancel each other out across individuals because individuals differ in motive strength and hence in oscillation frequency (see also Reuman, 1982). Moreover, we have used various of these picture cues in other studies not included in this report (e.g., Schultheiss, Campbell, & McClelland, 1999; Schultheiss, Dargel, & Rohde, 2001) where they have been combined with other pictures and presented at different serial positions. Nevertheless, these pictures retained their overall profiles; that is, a picture like *couple by river* that had a strong pull for *n* Affiliation but a weak pull for other motives here also had a strong pull for *n* Affiliation and a weak pull for other motives in other studies. Thus, we are confident that the picture profiles we present here are due to the picture content itself rather than to other factors, and that other researchers may use these profiles when they tailor TAT picture sets to the assessment of a specific motive or combination of motives they want to measure.

We have also formulated a guideline according to which pictures should be considered to have a low pull for a given motive if less than 50% of individuals respond to it with one or more codeable instances of that motive and to have a high pull if that criterion is exceeded. We recognize that this guideline is to some extent arbitrary and rough, and that in the past more fine-grained categorizations (e.g., low-, medium-, and high-pull) and alternative scaling procedures have been proposed (see Murstein, 1963; Smith et al., 1992). However, it reflects the fact that we have not worked with the original coding systems for the motivational Big Three, which contain highly elaborated coding rules and would have yielded a greater range of scores and hence differentiation for a given motive (see Smith, 1992), but with Winter's (1991) integrated system, which simplifies scoring conventions to a considerable degree but also narrows down the range of possible scores. This lower range of scores effectively prohibited the construction of a more fine-grained grading system. It should moreover be recognized that the 50% rule only

makes sense if one is interested in compiling multiple pictures into a picture set but not if a researcher is restricted to the use of only one or two pictures. In this case, pictures with a much higher response rate should be selected to ensure adequate spread and approximate normal distribution in the total variance of motive scores assayed with these cues.

With regard to the administration of the TAT, we found evidence that participants selectively responded with heightened *n* Affiliation to a group administration format, as compared to an individual testing situation. This finding is not too surprising if one considers that the original scoring systems for *n* Affiliation were developed by arousing individuals' affiliation motive through exposure to a group situation. Although we are not aware of any restrictions in the validity of *n* Affiliation scores obtained under group administration conditions relative to individual administration in our own research or in the published literature, researchers using a group administration format should bear in mind that *n* Affiliation scores obtained in this manner may to some extent reflect situationally elicited motivation above and beyond interindividual differences in the underlying motive disposition.

Apart from these measurement issues, we found that motive measures had only slight overlap with each other after controlling for protocol length, and that motive intercorrelations were comparable for men and women. Notably, however, *n* Power and *n* Affiliation scores were negatively correlated in women but not in men (for similar findings, see McClelland, 1987, p. 355). This may indicate that for women the need for positive, harmonious relationships and the need to have impact may conflict with each other and thus be mutually exclusive to some extent, whereas in men having a strong power motive does not necessarily rule out an equally strong affiliation motive and vice versa. As predicted, we also found that women had higher levels of *n* Affiliation than men, regardless of protocol length or administration conditions, but were comparable to them with regard to their *n* Power, *n* Achievement, or activity inhibition. This finding is in keeping with results reported for U.S. populations (see McAdams et al., 1988; Stewart & Chester, 1982), but stands in marked contrast to gender differences obtained with questionnaire measures of personality both in U.S. and German populations on which women tended to describe themselves as more affiliative but consistently score lower on measures of dominance and assertiveness than men (Feingold, 1994). Although these differences may be congruent with women's and men's interdependent versus independent self-construals and sociocultural expectations in Western cultures (Cross & Madson, 1997), they also suggest that women may experience greater conflict over expressing their implicit need to have impact on others because that need is less likely to be reflected in their describing themselves as a dominant person. Clearly, this may represent a worthwhile avenue for future research.

More important, we were also able to demonstrate that implicit, TAT-based measures and explicit, questionnaire-based measures designed to assess the same motivational themes did not show any substantial overlap with each other. Similarly,

TAT-based motive measures correlated close to zero with scales assessing the Big Five traits Extraversion, Neuroticism, Agreeableness, Openness, and Conscientiousness. These findings replicate the results of earlier research on the relation between TAT and self-report measures of personality and reinforce a conclusion that deCharms, Morrison, Reitman, and McClelland drew as early as 1955—namely that implicit and explicit measures of personality capture aspects of personality that are unrelated, and therefore signify different things and predict different kinds of behavior. This does not mean, however, that one kind of measure is in some way inferior to the other; rather, it suggests that these measures assess different levels or aspects of personality that may conjointly shape the person's thoughts, feelings, and behavior. Indeed, as Winter et al. (1998) have shown, a person's motives and traits may interactively predict the person's behavior over the course of many years. In a related vein, Biernat (1989) found that individuals' implicit achievement motive and explicit achievement orientation had an interactive effect on performance, with the highest levels of performance attained by individuals high both in achievement motive and orientation. Thus, research on personality may benefit considerably by acknowledging the value of implicit as well as explicit personality measures in describing the person, rather than, as has happened all too often in the past, preferring one approach to measurement over the other (for similar arguments in the clinical literature, see Ganellen, 1996; Meyer, 1996).

Although the results of our research are based on a large number of cases, it should be acknowledged that our sample consisted predominantly of young adults. Thus, it may be informative to explore in future studies whether, for instance, correlations between implicit motives and measures of explicit motivational orientation may become more substantial in midlife, which could reflect the development of a more integrated personality from early to middle adulthood (see also Maehr & Kleiber, 1981). In general, the use of longitudinal designs would allow us to determine whether the negative correlations between age and implicit motives observed in this study truly reflect a developmental process and whether matches and mismatches between individuals' implicit and explicit motivational orientations (as indicated by cross-sectional correlations close to zero) will remain stable or vary over time. Within-person stability would suggest that some individuals may for some reason have continuous and good access to their implicit motives, which then are reflected in their explicit motivational orientations, whereas others may be hindered in some way in attaining this correspondence between implicit and explicit levels of motivation. Such a result would point to the existence of personality variables or processes moderating the amount of congruence between the two levels. Within-person variability, on the other hand, would indicate that for a given person the amount of congruence varies over time, which would make the existence of congruence-moderating personality variables less likely.

Finally, it would also be desirable to identify the motive profiles of picture cues different from those we have used in our research and possibly also those of sen-

tence cues. We believe that knowing more about the motivation-eliciting properties of such cues will help to make the TAT technique an even more effective and powerful instrument for the assessment of implicit motives.

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