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An implicit motive perspective on competence

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An implicit motive perspective on competence

1. Introduction

In this chapter, we will approach the competence construct from the perspective of a person's motive dispositions. We will first provide a short review of how nonconscious (i.e., implicit) motives differ from self-attributed (i.e., explicit) motives in terms of measurement, operating characteristics, and predictive validity. We will then turn to approach and avoidance aspects of implicit achievement motivation, portray some key measures of implicit achievement motivation, review how achievement motivation is formed through mastery experiences in early childhood, and discuss how implicit achievement motivation is related to the effectiveness, success, and ability aspects of competence. In closing, we will make the case for the concept of motivational competence, that is, the ability to make one's explicit and implicit motives congruent.

2. Implicit and self-attributed motives

When examining the role of achievement motivation in the development and expression of competence, it is important to keep in mind that motives can be assessed in two fundamentally different ways, which tap different constructs and predict different types of outcomes. When McClelland, Atkinson, Clark, and Lowell started their pioneering work, later published as "The achievement motive" (McClelland et al., 1953), their research was based on the premise that people may have no or only very limited insight into what motivates their behavior (cf. McClelland, 1984; see also LeDoux, 2002; Wilson, 2002). McClelland and colleagues therefore decided to assess motivational dispositions indirectly by analyzing fantasy stories written in response to ambiguous picture cues akin to Morgan and Murray's (1935) Thematic Apperception Test instead of asking participants directly about their level of achievement motivation. The story-coding approach (which eventually became known as the Picture Story Exercise, or PSE, technique) turned out to be a sensitive and valid measure of achievement motivation: it responded strongly to experimental arousal of achievement motivation (e.g., through success feedback, failure feedback or a combination of both) on various performance tasks, and it predicted achievement-related behaviors such as number of anagrams solved or arithmetic operations completed. Based on their findings, McClelland et al (1953) defined the achievement motive as a recurrent need to improve one's skills and do well according to a standard of excellence, and this need is manifested in PSE stories as themes of (a) competing with a standard of excellence, (b) unique accomplishments, and (c) long-term involvement in achievement goals. This PSE measure of achievement motivation was termed need (or n) Achievement.

Because doubts were raised about the PSE motive measure's reliability and validity (e.g., Entwisle, 1972; Lazarus, 1966; but see Atkinson, 1981) and also because picture-story assessment of implicit motives is comparatively laborious, other researchers developed questionnaires aimed at tapping into the same motive dispositions as the PSE. For instance, the widely used Personality Research Form (PRF; Jackson, 1984) contains an achievement scale with items such as "I will not be satisfied until I am the best in my field of work" or "My goal is to do at least a little bit more than anyone else has done before", which, at face value, assess a concern with excellence and achievement that is very similar to what McClelland et al (1953) described as the core of achievement motivation. Other prominent achievement motivation questionnaires include the Mehrabian Achievement Risk Preference Scale (Mehrabian, 1968), which measures the behavioral correlates of high achievement motivation identified in work with the n Achievement measure, and Gjesme and Nygard's (1970)

Achievement Motivation Scale, which gauges individuals' affective responses to achievement successes and failures.

In light of the immense care that researchers have taken to construct questionnaire measures of achievement motivation that closely correspond to the contents and correlates of the original n Achievement coding system, it is particularly striking that across hundreds of studies over the years, questionnaire and PSE motive measures have shown little to no variance overlap. For instance, Spangler (1992) found in a meta-analysis of studies using questionnaire- and PSE-based measures of achievement motivation that the former shared less than 3% variance with the latter. This means that individuals' n Achievement scores are essentially independent of their endorsement of achievement-oriented statements on questionnaire measures of achievement motivation. Common responses by proponents of either measurement approach have included glossing over the lack of overlap between questionnaires and the PSE, ignoring the "other" measure, or questioning its reliability and validity. We agree with Koestner and McClelland's (1990) view that it has been a mistake to call by the same name (i.e., "achievement motive") two measures that show no substantial overlap with each other, because this erroneously suggests that both represent the same underlying construct (for related arguments, see also Kagan, 1994), and that a more straightforward interpretation of the lacking overlap is to assume that the measures tap two qualitatively different types of motivation. This view was further elaborated by McClelland, Koestner, and Weinberger (1989), who posit that two different types of motives coexist within the person: implicit motives, which operate nonconsciously and are captured by the PSE, and self-attributed (or explicit) motives, which reflect facets of a person's language-based, consciously accessible self concept and can be assessed with self-report measures.

McClelland et al (1989) also specify the sources of implicit and explicit motives, the types of incentives implicit and explicit motives respond to, and the classes of behavior they affect most strongly. Implicit motives are hypothesized to be based on affective preferences, that is, on the capacity to experience the consummation of a motive-specific incentive as rewarding and pleasurable (cf. Brunstein, Schultheiss & Grässmann, 1998; McClelland et al., 1953). This capacity is at the core of three major functions of implicit motives: They select, orient, and energize behavior (McClelland, 1987). Through processes of Pavlovian, instrumental, and episodic learning, cues, behaviors, and contexts that were associated with pleasurable incentive attainment are learned and retained (selecting function; cf. Schultheiss & Rohde, 2002; Woike, 1995). Cues and contexts that have been associated with incentive attainment in turn are more likely to capture the individual's attention in the future (orienting function; cf. Atkinson & Walker, 1958) and to invigorate behaviors aimed at reinstating the rewarding goal state (energizing function; cf. McClelland et al., 1953; Schultheiss & Brunstein, 1999). Implicit motives' effect on learning, attentional orienting and behavioral energization is automatic and neither represented in nor ruled by conscious awareness. This is why the PSE, which taps into the cues and contexts that automatically arouse motivation as well as the behaviors that aim at incentive attainment (Heckhausen, 1991), is more suitable for assessing implicit motives than self-report instruments.

McClelland et al (1989) hypothesize that explicit motives, in contrast, are linked to the goals and expectations that are normative for a particular group (e.g., family, peers, society) and that thus focus the individual's decisions and behaviors on what the group deems important and desirable. To some extent explicit motives may also arise from the individual observing her or his own behavior (e.g., "I get straight As, therefore I

must be achievement-motivated") or feedback from others about their perceptions of one's own behavior (cf. Kagan, 1994; Schultheiss & Brunstein, 2002). Explicit motives are part of the individual's self-related, verbally represented knowledge and can be assessed through self-report. According to McClelland et al (1989), explicit motives guide voluntary goal setting and thus can either channel the expression of implicit motives into certain contexts and behaviors or even override motivational impulses, which increases both the flexibility and the stability of human behavior beyond what is feasible for other species (e.g., going to the dentist despite one's knowledge of what will happen there or learning for an exam despite the lure of a night at the movies with one's friends; cf. Muraven, Tice, & Baumeister, 1998; Schultheiss, 2001a). Thus, a crucial difference between implicit and explicit motives is that the former motivate and the latter channel (or regulate) goal-directed behavior.

Implicit and explicit motives also differ in the types of incentive cues they respond to. McClelland et al (1989) have argued that implicit motives respond to task-intrinsic (or activity) incentives, that is, to the pleasure of working on a challenging task in the case of achievement motivation. Explicit motives, in contrast, respond to social-extrinsic incentives, that is, to salient external demands and social norms as reflected in, for instance, an experimenter's instructions or others' performance on a task. Thus, a person who scores high on a questionnaire measure of achievement motivation should be particularly sensitive to instructions highlighting the importance of excellent performance on a task (a demand) or how well others have done on a similar task (a social norm). Recent research also suggests that implicit motives, including the achievement motive, are more likely to respond to nonverbal incentive cues than to verbal-symbolic stimuli (cf. Klinger, 1967; Schultheiss, 2001a; Schultheiss & Brunstein, 1999, 2002).

Finally, implicit and explicit motives influence different types of behavior. McClelland et al (1989) have argued that implicit motives affect operant behavior, that is, behavior that occurs spontaneously and without elicitation by any identifiable stimulus, whereas explicit motives generate respondent behavior, that is, behavior that is displayed in response to identifiable stimuli. While we are not ruling out that behavior driven by implicit motives can occur spontaneously, McClelland et al's distinction is, in our view, contradicted by the empirical finding that implicit motives are differentially responsive to different, clearly identifiable stimuli (as can be most clearly seen on the PSE; cf. Schultheiss & Brunstein, 2001) and is also at odds with the notion that motives operate in part by learning to associate specific cues with incentive attainment and by orienting attention to such incentive cues. We therefore offer an alternative distinction that we deem to be more valid and heuristically fruitful. We suggest that implicit motives are particularly likely to show an effect on procedural measures of motivation (i.e., measures that tap a person's know-how in operating on her or his environment), whereas explicit motives and goals have a stronger influence on declarative measures of motivation (i.e., measures that assess a person's self-related "knowing that", or her or his attitudes, judgments, and decisions; cf. deCharms, Morrison, Reitman, & McClelland, 1955).

Let us illustrate the difference between implicit and explicit motives, the incentives they respond to and the types of behavior they affect with a recent study by Brunstein and Hoyer (2002). In this experiment, 88 students first completed a PSE measure (implicit) and a questionnaire measure (explicit) of achievement motivation and then worked on a mental concentration task that required them to respond as quickly as possible to various stimuli presented on a computer screen. After each block of stimulus presentations, they received graphical feedback about their performance (a) relative to their performance on a previous block (self-referenced feedback) and (b) relative to

the performance of "previous participants" (norm-referenced feedback). Direction of performance feedback (ascending or descending, relative to one's own previous performance or others' performance) was varied independently for self- and norm-referenced feedback. After the sixth block of the mental concentration task, participants could decide whether they wanted to continue or switch to a different task, unrelated to achievement. Dependent variables were participants' average response time (reflecting energization and thus representing a procedural measure of motivation) and their decision to continue the mental concentration task (a declarative measure of motivation)

Results revealed not only that implicit and explicit measures of achievement motivation had little overlap (r = .08), but also that they predicted different outcomes in response to different incentive cues. As depicted in Figure 1 (Panel A), implicit achievement motivation, in conjunction with self-referenced feedback, was a significant predictor of response speed. After baseline response speed was controlled for, high levels of n Achievement were predictive of significantly faster response times after feedback indicating performance decreases (pr = -.33) than after feedback indicating performance increases (pr = .27). However, implicit achievement motivation failed to predict, either by itself or in interaction with self-referenced or norm-referenced feedback, participants' decision to continue with the task, which depended on their explicit achievement motivation and norm-referenced feedback. As shown in Panel B of Figure 1, under conditions of descending norm-referenced feedback, participants who considered themselves to be achievement-motivated were much more likely to continue the task than individuals who did not place much value on achievement (r = .46). In the presence of ascending norm-referenced feedback, explicit achievement motivation had no detectable impact on task continuation (r = -.05). Importantly, explicit achievement motivation, either by itself or in interaction with the feedback variables, did not predict participants' response speed.

These findings support McClelland et al's (1989) basic claims: First, not only do implicit motive measures show little overlap with explicit motive measures, they also respond to different kinds of incentive cues and affect different kinds of behavior. And second, implicit motives are the primary source of motivational energy, whereas explicit motives serve a predominantly regulatory or channeling function for behavior. Note that the latter claim can only be tested in a straightforward fashion in studies that, like Brunstein and Hoyer's, employ measures of both implicit and explicit motives, that vary incentive cues independently for implicit and explicit motives, and, most importantly, that allow to distinguish between motivational and decisional aspects of behavior at the dependent-variable level. Where these conditions have been fulfilled in past research, findings very similar to those of Brunstein and Hoyer were obtained (e.g., Biernat, 1989; deCharms et al., 1955).

In the following sections dealing with the link between achievement motivation and competence, we will focus our discussion on findings obtained with implicit motive measures because, consistent with McClelland et al's (1989) model of motivation, we consider implicit motives to provide the primary source of motivational energy for the actual development of competence, whereas explicit motives are more likely to serve a channeling role and to determine in which life domain a person seeks to become competent (cf. French & Lesser, 1964). In addition, the relationship between explicit achievement motivation and competence has received extensive coverage in recent reviews (e.g., Bong & Skaalvik, 2003; Spence, 1983; Zanobini & Usai, 2002), whereas reviews dealing specifically with implicit achievement motivation are comparatively scarce (for the most recent exception, see Koestner & McClelland, 1990) and the topic therefore deserves a fresh look.

3. Approach and avoidance modes of achievement motivation

As soon as the original n Achievement scoring system was developed, it was noted that there are two aspects to achievement motivation, hope of success (HS) and fear of failure (FF), which show up in subtle differences in achievement imagery on PSE stories as well as in behavior observed in the laboratory and the field (Clark, Teevan, & Ricciuti, 1958; McClelland et al., 1953). However, it seems to us that researchers never fully came to grips with the double-facedness of achievement motivation and particularly with the nature of its fear-of-failure component (but see Elliot & Covington, 2001). Before we go on to describe the measures that have been developed to assess HS and FF, the problems associated with them, and some of the findings obtained with them, we will therefore first take a closer look at issues of approach and avoidance within the domain of implicit achievement motivation.

We believe that it is informative to examine approach and avoidance motivation within a learning psychology framework. In the following, we will consider the simplified case that an individual either does or does not display a goal-directed behavior (e.g., a rat pressing a bar or a human showing achievement-related behavior) and that the individual can either be punished (e.g., by foot shock or social disapproval) or rewarded (e.g., by food or warmth and praise) as a consequence, which yields the four motivational modes depicted in Table 1. With the exception of the case that an organism is rewarded for doing nothing (which rarely happens and goes against the grain of phylogenetic learning and the brain's incentive-seeking systems; cf. Panksepp, 1998), we will consider each, starting with the case of active approach and moving clockwise through the table.

The most straightforward case is that a goal-directed behavior is displayed and leads to contact with a positive incentive, which will make the behavior more likely to be emitted in similar future situations. The motivational mode induced by this contingency is active approach, and the paradigmatic example from the learning psychologist's laboratory is the rat that learns that pressing a bar in the presence of certain discriminative stimuli (e.g., a red light) will provide access to food. After the initial association between bar-pressing, discriminative stimulus, and food has been formed, the rat will press the bar more frequently and vigorously in the future, provided that the proper discriminative cues are present. In the case of a human who for the first time tackles a challenging task (the paradigmatic example from the achievement motivation literature), successful mastery of the task may already provide a sense of satisfaction by itself and hence be rewarding. As we will discuss later, there is also evidence that warmth and praise for a task well done can have rewarding value. In either case, the person will form a HS motive, which makes her or him more likely to seek out and try to master challenging tasks in the future. Like in the animal experiment, discriminative stimuli typically come to play a pivotal role. If the original mastery experience occurred in the context of solving a puzzle, the person will be more likely to seek further mastery experiences in other puzzles; if it was learning a piece on the piano, then other piano pieces are particularly promising candidates for further mastery experiences. Over time and through stimulus generalization, the person may extend her or his HS motive to other tasks and situations. This should not blind us to the fact, however, that some activities and situations (e.g., working on a challenging task) will always be more suitable than others (e.g., watching TV) for achieving a sense of mastery and thus more likely to be included in the learning process.

It is noteworthy that the active approach mode of achievement motivation, hope of success, seems to be supported by what Gray (1971) has termed the Behavioral Approach System (BAS), which is rooted in the

mesolimbic-mesocortical dopamine system and its structures (e.g., the nucleus accumbens), and initiates behavioral activation and approach behavior upon contact with stimuli predicting reward. Evidence for a connection between the BAS and HS comes from a study by Bäumler (1975), who administered a dopamine agonist, which increases dopamine transmission in, and thus activates, the BAS, to one group of participants, a dopamine antagonist, which decreases dopamine transmission in, and thus deactivates, the BAS, to another group, and a placebo to a third group. He then administered a PSE to all participants and analyzed their stories for HS imagery with Heckhausen's (1963) coding system, which allows separation of HS and FF imagery (see below). Bäumler found that stories written by participants in the dopamine agonist condition contained the most HS imagery, stories written by placebo-condition participants contained medium levels of HS imagery, and stories written by participants in the dopamine antagonist condition contained the least HS imagery. This suggests that the approach mode of achievement motivation is mediated in part by a brain system whose role in various types of approach motivation (e.g., food, sex, affiliation) has been thoroughly studied and documented in mammals (for an overview, see Panksepp, 1998).

Moving on to the next quadrant of Table 1, we find the case that the display of a goal-directed specific behavior is followed by punishment, which decreases the occurrence of the behavior in the future and thus describes the motivational mode of passive avoidance, in which an organism tries to dodge negative incentives by inhibiting a behavior. The paradigmatic illustration from the learning laboratory is the rat that learns to stop bar-pressing in the presence of specific discriminatory stimuli, because bar-pressing then reliably produces foot shock. The parallel example for the domain of achievement motivation in humans would be the case of a person encountering negative consequences after successfully mastering a task (e.g., ridicule or jealousy and resentment by others). As a consequence, the person's motivation to try similar challenging tasks in the future will be reduced and he or she may come to suppress the impulse to achieve and master, particularly when faced with achievement-related cues. Thus, the person should be motivated by a fear of success (FS). In the PSE, this fear should be evident in a peculiar absence of achievement-related imagery, particularly in response to pictures that typically elicit at least a moderate amount of achievement fantasies. In other words, FS is the anti-motive of HS, and a person can either be high in one or the other, but not both. In support of this notion, Karabenick (1977) found that individuals whose PSE stories were largely devoid of achievement imagery scored high on Horner's (cf. Horner & Fleming, 1992) FS measure, which codes for a preoccupation with negative consequences of one's actions, the maintenance of harmonious relationships with others, relief from anxiety, and a general absence of any competent instrumental activity towards the attainment of a goal. Although little is known about the brain substrates associated with FS, we would tentatively identify this mode of achievement motivation with Gray's (1971) Behavioral Inhibition System, a brain network that responds with the inhibition of behavior to stimuli predicting punishment.

The third and final quadrant of theoretical interest presents the case in which the absence of a particular behavior results in punishment, which increases the likelihood that the behavior is displayed in the future. The motivational mode associated with this kind of learning is one of active avoidance, in which the individual tries to cope proactively with an imminent threat. To the extent that one's goal-directed behavior reliably eliminates the occurrence of the punishment, active avoidance can be a particularly stable mode of dealing with specific situations, as animal experiments show. For instance, Solomon and Wynne (1953) trained dogs to jump from one compartment to another as soon as a stimulus signaling impending foot shock appeared. Remarkably, most dogs not only learned

to avoid shock by jumping to the safe compartment within very few trials, but also were amazingly resistant to extinction: some continued to traverse over to the safe compartment upon presentation of the warning signal for more than 600 trials! Equally remarkably, they quickly ceased to show any sign of fear after they had learned how to cope with the threat of shock. For these and many similar findings, Gray (1971) has offered the following explanation: The stimulus associated with non-shock (e.g., the safe compartment in Solomon and Wynne's study) takes on the meaning of a safety signal which has a rewarding effect on avoidance behavior. And as long as the safety signal remains associated with the absence of punishment, it does not lose its validity and thus retains its rewarding effects. Indeed, there is also strong, but often overlooked, evidence that the mesolimbic-mesocortical dopamine system, where Gray localizes the BAS, is activated by stressors, but only if the organism can cope with them through active behavior (i.e., behavior which helps bring about safety and relief) and not if they require suppression of behavior (i.e., passive avoidance; cf. Salamone, 1994).

What does this mean for the active avoidance mode of achievement motivation? We would argue that individuals who have been punished (e.g., through criticism or parental disapproval) for not taking on or failing to master a challenging task will learn to master the challenge in order to avoid similar punishments in the future. In the process, the successful mastery of the task acquires the properties of a rewarding safety signal, which should maintain the person's motivation to achieve as long as it remains associated with the absence of punishment. As a consequence, fear of failure (FF) should give rise to observable achievement-oriented behavior, both in the real world and in the form of scorable achievement imagery in PSE stories. Thus, individuals high in FF should share with individuals high in HS a preference for mastery experiences, although for different reasons and through sometimes different behavioral means and strategies. It seems noteworthy in this context that Bäumler (1975) found that dopamine antagonists, which decrease BAS activation, also reduce the amount of FF imagery in participants' PSE stories relative to the placebo group, which is exactly what we would predict based on Gray's model and our suggestion that the pleasure of mastery (HS) and the relief that comes with mastery (FF) should both elicit approach motivation. Thus, unlike fear of success, FF and HS are functionally compatible, because both have as their goal the mastery of challenging tasks, but we also predict that they should represent largely independent constructs, because different kinds of learning experiences (reward for mastery or punishment for failure to master a task) give rise to them.

In summary, then, we argue that achievement motivation has one approach mode, but two fundamentally different avoidance modes (active and passive). In the remainder of this chapter, we conceive of HS as a motive to get pleasure by mastering a challenging task, FF as a motive to gain relief from punishment by mastering a challenge, and fear of success (FS) as a motive to avoid challenging tasks and the cues associated with them altogether. Based on the findings sketched out above, we expect HS to produce in PSE stories imagery related to wanting, and working towards, success at challenging tasks, FF to produce imagery related to wanting, and working, to avoid failure at challenging tasks, and FS to be marked by the absence of achievement imagery in response to achievement-related picture cues. Thus, our view of avoidance in the context of achievement motivation is very similar to Heckhausen's (1986): "The fear-of-failure motive has turned out to have a double- or even multi-faceted nature – to say the least. One facet is coping- and approach-oriented, the other fearful and avoiding" (p. 13). In the following we will provide a short review of measures of avoidance modes of achievement motivation that have been

developed by researchers working in the field of implicit motives and evaluate them on the basis of our approach-avoidance framework.

4. Measures of the avoidance modes of achievement motivation

One of the first systematic attempts to assess HS and achievement avoidance motivation separately was made by Atkinson and his colleagues, who used McClelland et al's (1953) original n Achievement measure to assess a person's tendency to approach success and Mandler and Sarason's (1952) Test Anxiety Questionnaire (TAQ) to assess the person's tendency to avoid failure. Because Atkinson conceived of this avoidance tendency as passive avoidance and thus the mirror image of hope of success in its effects on task choice and behavior (cf. Atkinson & Birch, 1970), he often used a measure of the difference between participants' n Achievement scores and their TAQ scores in his research. Heckhausen (1986) had the following to say about this approach:

> Even more disquieting is the habit of American researchers to use the Test Anxiety Questionnaire (Mandler & Sarason, 1952), or one of its equivalents, as the fear-of-failure component in the resultant motive equation of hope-of-success minus fear-of-failure. Because test anxiety is indicative of self-perceived lower or inadequate ability, the fear-of-failure component in most American research is contaminated with perceived low ability, as Nicholls (1984) has rightly pointed out. This contamination might by itself devalue a large part of the risk-taking literature. (Heckhausen, 1986, p. 13)

And Covington and Roberts (1994) remarked about the frequent use of hope-fear difference measures in Atkinson's research:

> Not only does this treatment of data disregard the possibility of conflicting tendencies, but it also renders ambiguous the meaning of the zero point midway between high avoidance and high approach. Does it represent the complete absence of motivation or simply the result of canceling two extreme motives? Obviously genuine indifference is not the same, psychologically, as apparent indifference in which placidity may mask extreme and opposite forces held in uneasy check. (p. 161)

We agree with Heckhausen's (1986) and Covington and Roberts's (1994) judgments about the problems associated with Atkinson's approach and would only add that by today's state of knowledge about the fundamental differences between implicit and explicit measures of motivation, the calculation of a difference score between a PSE measure and a questionnaire measure represents a forced marriage between incommensurable assessment instruments (see also Heckhausen, 1991).

A second approach to the assessment of fear of failure was presented by Birney, Burdick and Teevan (1969) in the form of a scoring system for Hostile Press (HP). The HP measure was developed based on arousal studies in which participants were frustrated in a variety of tasks such as public speaking, dart throwing, or speed-reading. Many of these tasks involved performance in front of a group or under the scrutiny of an "expert" and thus created a situation in which participants' performance was socially evaluated. Compared to PSE stories written under control conditions, stories written under what Birney et al described as fear-of-failure conditions were characterized by themes of criticism for one's actions, legal or judicial retaliation for one's actions, deprivation of affiliative relationships, vague environmental threats, and assaults on one's well-being. Thus, stories written under aroused conditions did not directly express any fear of failure, but instead portrayed the environment as exerting hostile pressure and threatening a person's self-esteem. The HP measure was validated extensively (cf. Birney et al.,

1969). The following findings emerged from the validation studies: First, HP correlates slightly negatively with McClelland et al's original n Achievement measure. Second, high-HP individuals avoid achievement situations if they can, but work very hard to do well if they cannot avoid an achievement situation (as reflected by the consistently better grades of high-HP students at all age levels). Third, high-HP individuals are more likely to bend to group pressure, and are less likely to play competitive games against other individuals. Thus, HP seems to capture both passive avoidance (shunning achievement situations; low n Achievement scores) and active avoidance (working hard to do well on achievement tasks) aspects of achievement motivation. Another ambiguity of the HP system results from the measure's substantial overlap with n Affiliation, particularly its fear-of-rejection aspect (Birney et al., 1969), and, we suspect, its overlap with n Power, because many of the hostile actions of the environment against a story protagonist could also be scored as power imagery. Thus, it remains unclear to what extent the findings obtained with the HP measure represent unique effects of FF (active avoidance) or FS (passive avoidance) and to what extent they could also be explained on the basis of power and affiliation motivation.

The third major attempt to develop a fear-of-failure measure was presented by Heckhausen (1963; see Schultheiss, 2001b, for a translation). Heckhausen tried to overcome several shortcomings of McClelland et al's (1953) n Achievement measure. First, McClelland et al noted in their original work that in addition to containing many purely success-oriented scoring categories, the n Achievement coding system also captures some aspects of fear of failure (likely due to the failure feedback that these researchers used to arouse achievement motivation in some experimental groups), and that HS and FF should be assessed separately in the further development of measures of achievement motivation. Second, some of the n Achievement coding categories (e.g., nurturant press) were infrequent and often did not validly discriminate between individuals high and low in achievement motivation. Third, with hindsight, it seems that the original n Achievement system also captured some aspects of power motivation (e.g., by scoring imagery related to beating others; cf. Heckhausen, 1963; Winter, 1973), presumably because some of the arousal conditions stressed the importance of leadership ability, and affiliation motivation (by including a scoring category for nurturing press, that is, the presence of others who help a story character reach an achievement goal) and that it therefore was not a pure-bred measure of achievement motivation.

Heckhausen (1963) tried to solve these problems in his new coding system by (a) dropping invalid coding categories, (b) narrowing the focus of the coding system to achievement imagery proper and excluding imagery related to power or affiliation, and (c) making the HS/FF distinction the cornerstone of his system. Heckhausen adopted most of the original n Achievement scoring categories (need, instrumental activity, goal anticipation, outcome, outcome-related affect), but he defined them separately for HS (wanting to do well on a task) and FF (wanting to avoid failing at a task), and added a social evaluation category to each (praise for success and criticism for failure).

The resulting coding system yields separate scores for HS and FF and thus allows the study of separate and conjoint effects of both components of achievement motivation on behavior. Hope of success and fear of failure are not substantially correlated with each other, but both are positively correlated with McClelland et al's (1953) original n Achievement measure (HS more strongly so than FF). The FF measure correlates close to zero with Birney et al's (1969) HP measure, which supports the notion that FF and HP measure different types of fear motivation. Validation studies reported by Heckhausen (1963; see also Heckhausen, 1968, 1991) revealed that both HS and FF were equally

predictive of the choice of difficult goals, performance increases on challenging tasks (maze learning), and higher muscle tone, both at rest and during mental activity. Differences between the two components of achievement motivation were also observed: high-FF individuals were more likely to overestimate their successes and to recall completed tasks, whereas high-HS individuals were more likely to overestimate their failures (!) and less likely to remember tasks after they were completed. Thus, Heckhausen's FF measure, which is independent of his HS measure, tends to predict some motivational markers and behaviors that reflect approach towards challenge mastery. The aforementioned results of Bäumler's (1975) pharmacological study also support this conclusion. This suggests that mastering challenging tasks is rewarding not only for high-HS individuals, but to some extent also for high-FF individuals, and therefore provides some evidence that, according to our approach-avoidance framework, Heckhausen's FF measure primarily taps the active avoidance mode of achievement motivation. The differences between HS and FF in their influence on estimations of success and failure and recall of completed tasks may reflect a greater need for "achievement safety" among high-FF individuals, which contrasts with a greater tolerance for frustrations on the way to success among high-HS individuals. Both may echo differences in the early socialization of implicit achievement motivation, to which we turn next.

5. Developmental precursors of implicit achievement motivation

Some of the strongest evidence for a role of achievement motivation in competence development comes from research on the developmental antecedents of this motive. Consider the case of 15-year-old Jose, which McClelland et al (1953) presented in The achievement motive. Jose grew up with several siblings in a Spanish-American family in New Mexico. The conditions of his upbringing were described by a field worker in the following way:

> "All the children are going to school. They have to take care of themselves. They cook themselves, take care of each other, clean the house, and keep the place going. The children had to take care of themselves ever since they were little – since the oldest boy was about two or three. [...] They all started working – helping to take care of the cattle and the pigs, milking the cows, and doing all sorts of work such as cleaning the house and cooking – from the age of five or earlier. [...] As soon as they could sit up, which was about three months, they would sit in a chair and eat by themselves. [The mother] said they learned early to eat by themselves. Toilet training began really quite early. They would begin about four months; [she] had a special high chair for them. The oldest boy taught the younger. By five months, he would know where to go and she said it was the same with all the children. By five months they were all trained... [...] The children learned to dress themselves shortly after they were a year old. She would just put their clothes out in a little box near their bed, and they had to dress themselves or else they didn't get dressed." (McClelland et al., 1953; pp. 307-308)

The field worker also collected PSE stories from Jose that were later coded for n Achievement. It was found that Jose had n Achievement levels more than one standard deviation above the mean of his classmates in school, which led McClelland and colleagues to suggest that socialization practices emphasizing early independence, self-reliance and mastery of skills help to build a strong need for achievement in the child. Subsequent research confirmed this prediction.

McClelland and Pilon (1983) followed up 78 participants of Sears, Maccoby, and Jacklin's (1957) study on

the patterns of child rearing. The participants had been children when Sears and colleagues collected data on how their mothers had raised them during the first five years of life, and were in their early thirties when McClelland and Pilon contacted and administered PSEs to them. McClelland and Pilon found that mothers who had been particularly strict when toilet-training their infants, or fed their babies on schedule instead of on demand, were consistently more likely to raise children with high n Achievement scores on the PSE than mothers who did not engage in these socialization practices (note that "strictness" referred to punishing and scolding children for mishaps in the study of Sears et al, 1957; in their sample, the modal age of toilet training onset was 5 to 9 months, with training usually lasting between 5 and 6 months!). This pattern of maternal strictness resembles the conditions of Jose's upbringing and suggests that the origins of a strong need for achievement and mastery lie in rigid and punitive socialization practices in early childhood.

But there is also another pathway to a strong need for achievement, one that emphasizes reward and affection for the child's mastery and independent accomplishments. Winterbottom (1958) found that mothers of school-age boys high in n Achievement are more likely to report than mothers of low-achievement boys that they use affectionate, nonverbal ways (e.g., hugging, kissing) of commending their sons when they succeed in their mastery- and independence-related efforts. They also report that they made demands for the child's independent accomplishments earlier than mothers of low-achievement boys. In contrast, mothers of boys low in n Achievement were more likely to report that they imposed restrictions on the child's ability to make decisions by himself and that they curtailed their sons' ability to choose their own friends; in other words, they did not want their children to be independent. Winterbottom did not explicitly report whether these mothers used punishment to restrict their sons' drive towards mastery and independent decision making; but if they did, it would certainly be consistent with our claim that punishment for mastery and independence should lead to passive avoidance of achievement and thus low n Achievement scores on the PSE.

Results from a study by Rosen and D'Andrade (1959) suggest that both punitive and rewarding parenting techniques, as well as the parents' standards and expectations of excellence with regard to their children's performance, may be conducive to high levels of n Achievement in children. Rosen and D'Andrade brought forty 9- to 11-year old boys and their parents into the lab and observed interactions between the boys and their mothers and fathers while they were working on a number of problem-solving and performance tasks (e.g., ring-tossing games, anagrams). They found that parents of high-achievement boys were more likely than parents of low-achievement boys to set challenging goals for their son, to have a higher regard for his problem-solving competence, and, in the case of mothers, to be directive, to reward good performance with affection, but also to punish poor performance with hostility and disapproval.

Taken together, the results from these three studies suggest that parents who emphasize early self-reliance and mastery of basic skills and who teach their children to "reach higher" and set challenging goals for themselves have children who are characterized by high levels of achievement motivation. It should be noted, however, that subsequent studies did not provide straightforward evidence for the notion that early independence training is per se conducive for a strong need for achievement in the child (cf. McClelland, 1987, for an overview). Rather, it is age-appropriate demands for mastery and independence that foster the child's achievement motivation (McClelland, 1961; Veroff, 1969). For instance, both Reif (1970) and Trudewind (1975; both cited in Heckhausen, 1980) found

that children whose mothers had emphasized independence too early were high in FF (Heckhausen measure) and children whose mothers had emphasized self-reliance too late were low in overall achievement motivation (HS + FF) compared to children whose mothers' demands for independence were in tune with the child's budding abilities.

The studies by McClelland and Pilon (1983), Winterbottom (1958) and Rosen and D'Andrade (1959) also suggest that a strong need for achievement may have a dual root in affectionate reward for the mastery of challenging goals and in punishment for failing to meet the parents' (particularly the mother's) expectations for the child to be independent. It remains to be tested, though, whether a relative predominance of rewarding versus punitive parenting strategies are differentially related to the hope-of-success and fear-of-failure aspects of achievement motivation. We believe that it is highly plausible that parental punishment for failure to master challenging tasks specifically enhances an active-avoidance orientation of the child's achievement motivation (i.e., fear of failure), which makes the child want to master tasks and skills primarily to avoid, or gain relief from, parental punishment for failure. Conversely, a positively challenging parenting style that uses affectionate reward for the child's mastery of difficult, but age-appropriate tasks should nourish in the child a strong need to approach challenges and help the child learn to associate the effort invested in and the accomplishment of a task with satisfaction and pleasure. Some suggestive evidence for an association between parental punitiveness and FF comes from Birney et al's (1969) research. They found that mothers of students high in HP were more likely to report that they had punished their sons when they had failed to meet achievement-related demands but had remained neutral about their sons' achievement successes than mothers of students low in hostile press. However, due to HP's considerable fear-of-rejection component, it is difficult to sort out whether the former mothers had fostered high FF, high fear of rejection, or both in their sons.

6. Motives and competence

Competence is a multi-faceted concept. It can refer to the skills and abilities a person has developed, to the degree to which the person is effective in her or his transactions with the environment, and to how successfully a person performs. In the following, we will review how the need for achievement (hope of success and fear of failure) contributes to all three aspects of competence. Because research on implicit motives has been most prolific where it has studied the strategies that individuals use to effect rewarding changes in the situation or the environment and where it has looked at the effects of motives on performance results (in the laboratory) and, even more so, career and life outcomes (in the field), we will start with the notions of competence-as-effectiveness and competence-as-success and then work our way back to competence-as-ability.

Competence as effectiveness. McClelland (1987) has argued that achievement-motivated individuals are really concerned with efficiency, that is, with figuring out ways to get more accomplished in less time or with less effort (cf. McClelland, 1987, p. 595). Research has uncovered several strategies that achievement-motivated individuals use to be efficient. First and foremost, they are attracted to and choose tasks which allow them to improve their performance and skills, which is typically neither the very easy tasks (which they already master) nor the extremely difficult tasks (which overtax their skills and are thus almost impossible to master) but tasks of medium difficulty, which challenge their current capabilities, but are not unsolvable and therefore provide an optimally stimulating incentive for them. Evidence for this preference for medium risks is pervasive in the achievement literature. For instance, high-achievement individuals choose intermediate distances from a target in

ball-pitching games (Atkinson, Bastian, Earl, & Litwin, 1960), prefer arithmetic tasks of medium difficulty (i.e., with an approximately 50% chance of solving them; deCharms & Carpenter, 1968), and show the highest persistence on challenging tasks (Feather, 1966).

Atkinson (1966) has proposed a theoretical framework for the inverted-u shape of high-achievement individuals' choice of medium task difficulty. According to his model, the positive incentive value of success (I) increases linearly with difficulty level, but is multiplicatively linked to expectancy of success (E), which decreases linearly with difficulty level. The product between the two, that is, the resulting tendency to approach or choose tasks of a certain difficulty, will be maximal at medium difficulty levels (e.g., at 50%) but close to zero at minimum or maximum difficulty levels. This product score in turn is multiplicatively weighted by individuals' n Achievement (which Atkinson considered to be a measure of hope of success), and the inverted-u shape resulting from I x E will therefore be steeper for high-achievement individuals, and closer to a flat line for low-achievement individuals. Thus, HS amplifies a person's tendency to choose medium-difficulty tasks. Atkinson also constructed a parallel case for FF. Here, the negative incentive value of failure decreases linearly with difficulty level (it's more embarrassing to fail on an easy task than on a difficult task), while the expectancy of failure increases with task difficulty. If both variables are multiplied, the result is a u-shaped function, in which the choice of medium levels of difficulty produces the strongest tendency to avoid the task. Again, through multiplication with individuals' FF motive, the curve is steeper for high-FF individuals and closer to a flat line for low-FF individuals. Atkinson (1966) therefore argued that FF has a dampening effect on behavior that is the exact mirror image of the augmenting effect of HS.

Atkinson's model was very useful in that it helped lift the achievement motivation construct above the level of "just another personality trait" and generated a huge body of basic and applied research. Like all good theories, however, its limitations were eventually revealed by the data it helped generate. Most crucially, there is surprisingly little evidence for a dampening effect of FF. Rather, deCharms and Dave (1965) found that individuals high in HS and FF (assessed in the PSE with a measure similar to Heckhausen's) were more likely to choose medium difficulty levels and also showed better performance on a ball-pitching game than individuals low in either component of achievement motivation, which contradicts the predictions of the Atkinson model. Moreover, there is little evidence that individuals high in FF are motivated primarily by the negative incentive of failure. In a study with 90 participants that used a carefully constructed measure of the valence of succeeding or failing on a task, Halisch and Heckhausen (1989) found that individuals high in HS and individuals high in FF judged succeeding on difficult tasks as more rewarding than individuals low in these motives. By comparison, they judged failing on difficult tasks as less aversive than individuals low in either HS or FF. Thus, this study, too, fails to support Atkinson's prediction that failure should be particularly aversive for FF-motivated individuals. Rather, it suggests that both HS and FF predispose an individual to place less emphasis on the prospect of failing at a task than on the prospect of mastering it, which is consistent with the notion that the approach (HS) and active avoidance (FF) components of achievement motivation are both geared towards rewarding/relieving mastery experiences. It is also notable that individuals low in HS or FF were the only ones who perceived the prospect of succeeding at challenging tasks as scarcely attractive, which supports our notion that the passive avoidance mode of achievement motivation is not expressed as a high level of FF, but by a conspicuous absence of achievement themes in participants' PSE stories.

So how then can the tendency of achievement-motivated individuals to choose challenging tasks be

explained? We believe that the affective-arousal model of achievement motivation proposed by McClelland et al (1953) provides a better account and can also integrate the FF findings that are incompatible with Atkinson's theory, particularly if their model is integrated with Gray's (1971) notion that relief from punishment and reward are often behaviorally indistinguishable. In a nutshell, the McClelland et al model posits that a motive comes into being when a situational cue becomes predictive of a change in a situation and concomitant changes in affective state. For the case of achievement motivation, they posit that deviations from expectation, or moderate uncertainty when tackling a task, is the cue which through previous learning has become associated with the positive affect of mastery and regaining certainty and control at a higher level of complexity or quality. This knowledge (which is emotional, not declarative) inoculates achievement-motivated individuals against the initial frustrations of working on a challenging task and turns the challenge into an opportunity for reward: per aspera ad astra, through hardship to new heights (for related arguments, see Eisenberger, 1992). Not surprisingly, they are also better able to delay gratification (Mischel, 1961). Note that McClelland et al's predictions only hold for tasks of subjectively moderate difficulty; at the fringes of the difficulty continuum, high-achievement individuals find very easy tasks boring (perfect predictability, and thus no opportunity for positive affect through mastery) and very difficult tasks aversive (failure is certain and therefore there is little hope for rewarding mastery). Also note that the association between moderate difficulty and rewarding mastery is something that, according to our previous analysis, characterizes both HS- (approach of the mastery incentive as reward) and FF-motivated individuals (approach of the mastery incentive as relief from impending punishment), but not individuals low in achievement motivation generally, who have either never come to associate the initial difficulties of solving a challenging task with the subsequent pleasure of mastery or have been punished for mastery and therefore engage in passive avoidance.

In conjunction with Gray's (1971) suggestion that relief equals reward, McClelland et al's (1953) theory can therefore account for why HS- and FF-motivated individuals (as assessed with Heckhausen-type measures) both prefer medium-difficulty tasks, judge them as more satisfying, and show superior performance at this difficulty level (deCharms & Dave, 1965; Halisch & Heckhausen, 1989). It also helps explain why achievement-motivated individuals in Brunstein and Hoyer's (2002) study responded with increased effort to feedback indicating a decline in their performance, but not to feedback indicating performance increases. It is only when the cue of moderate task difficulty is present that the prospect of mastery reward comes into play and has a motivating effect on behavior, but not if everything proceeds predictably and smoothly (as in Brunstein and Hoyer's positive feedback condition). In this sense, then, achievement-motivated individuals are really more concerned with efficiency than with excellence for its own sake, as McClelland (1987) argued.

Two other strategies follow almost by necessity from achievement-motivated (HS or FF) individuals' concern with mastering challenging tasks. First, they must have some way of knowing how well they are doing and whether they are improving. In other words, they seek feedback about their performance. In the absence of feedback, individuals high in achievement motivation do not differ in their performance from individuals low in achievement motivation (McClelland, 1987). Achievement-motivated individuals are also discriminating in the type of feedback they seek: they prefer feedback that informs them about how well they are doing now relative to their own previous performance (i.e., self-referenced feedback) but ignore for the most part feedback about how well they do relative to others' performance (i.e., norm-referenced feedback), because knowledge of others' performance usually does not

help them determine whether they improved their skills on a task (Breckler & Greenwald, 1986; Brunstein & Hoyer, 2002; Halisch & Heckhausen, 1989; Horner, 1974; O'Connor, Atkinson & Horner, 1966; Spangler, 1992; Veroff, 1969; Wendt, 1955; it is notable, however, that individuals with a strong implicit power motive or high levels of explicit achievement motivation do respond to such norm-referenced feedback; see Schultheiss & Brunstein, 1999, Study 2; Tauer & Harackiewicz, 1999). The only exception to the preference for self-referenced over norm-referenced feedback seems to be the special case in which all members of the social comparison group are highly similar in their ability to the achievement-motivated individual seeking feedback and their performance thus becomes more diagnostic of the individual's own improvement (O'Connor et al., 1966).

Finally, achievement-motivated (HS or FF) individuals also prefer personal responsibility for performance and thus show a greater interest in, and better performance on, tasks that are under their direct control than on tasks whose outcomes depend on chance (e.g., Raynor & Smith, 1966) or other people's performances (e.g., McClelland & Boyatzis, 1982). This preference for personal responsibility is not surprising in light of the parental push for independence that achievement-motivated individuals have been exposed to in childhood and is, of course, a necessary prerequisite for the choice of medium-difficulty tasks and the search for, and availability of, self-referenced feedback. It is probably safe to say that in order to be effective, an achievement-motivated individual has to be able to do all three: choose challenging tasks, get self-referenced information about her or his performance, and have direct personal control over the task outcome. If one of these ingredients is missing, individuals high in achievement motivation will not be more effective than individuals low in achievement motivation.

Competence as success. Reflecting a general trend in the implicit motive literature, PSE-based achievement motivation measures fared best and produced the most convincing body of data where they were used to predict real-life phenomena and outcomes. This was particularly evident in the domain of entrepreneurship and economic success. McClelland (1961, 1987) has argued that individuals high in n Achievement should do particularly well in small business, in which all three prerequisites for mastery experiences (personal responsibility, direct feedback, liberty to set and attain challenging goals) are provided. Evidence supporting this prediction comes from research on the effects of achievement motivation on economic success at the individual and at the collective level. For instance, Wainer and Rubin (1969) found that small companies led by high-achievement entrepreneurs had a growth rate 250% higher than those led by entrepreneurs with low or medium levels of n Achievement. This type of finding has been replicated in other cultures and with different types of entrepreneurial behavior (see McClelland, 1961, for an overview). Thus, Singh and Gupta (1977) found that Indian farmers high in n Achievement had a substantially steeper increase of income-per-acre over six years than farmers low in n Achievement, suggesting that the former had been more successful in getting the most (or best) output from their farms than the latter.

Effects of high levels of achievement motivation can also be found in life outcome measures, such as income levels and career paths. McClelland and Franz (1992) reported that n Achievement (but not measures of explicit achievement motivation) at age 31 predicted higher annual income at age 41 for both men and women. Because this study's sample was identical with the one originally studied by McClelland and Pilon (1983), McClelland and Franz could test whether there was a direct link between early parental pressure for the child's independence and mastery and the "child's" income level at age 41. The correlation between the two variables was positive and significant, but dropped to near zero after participants' n Achievement levels had been controlled for.

Thus, effects of early emphasis on independence on later income were completely mediated by the achievement motivation measure. There is also evidence that achievement motivation and sociocultural values and constraints interact in shaping life outcomes. For instance, Jenkins (1987) reports that women high in n Achievement in college are more likely to work as teachers 14 years later. Teaching is a traditionally female career and provides some of the incentives that should be attractive to the high-achievement person: The teacher is personally responsible for creating situations and tasks conducive to student learning, controls the level of task difficulty (both for the teacher and the students), and also gives and receives performance feedback through tests and exams. Thus, just as entrepreneurial business is a more traditional career path for high-achievement men, teaching appears to be a traditional career path for high-achievement women (see also French & Lesser, 1964).

A meta-analysis conducted by Spangler (1992) on 105 studies provides a more comprehensive evaluation of the effects of implicit achievement motivation on various outcome measures, such as farm output, occupational success, or creative achievements. He found that n Achievement was a strong and positive predictor of success at all kinds of tasks, but only if they contained achievement incentives (e.g., if they were challenging, provided objective feedback, and required personal responsibility) and used procedural measures of motivation (i.e., if they provided individuals with an opportunity to apply their know-how and skills). If these conditions were met, correlation coefficients for achievement motivation/outcome relationships could rise as high as .66. If, on the other hand, the criterion measures contained no achievement incentives or were declarative (e.g., measures of attitudes and opinions), correlation coefficients dropped to near zero. Notably, Spangler (1992) also found evidence that the wrong kind of incentives can drive achievement-motivated individuals away from good performance and success. In the presence of verbal instructions to do well on a task or experimenter-assigned goals, achievement motivation was a negative predictor of procedural outcome measures. Thus, it looks like achievement-motivated individuals do not like to be told what to do, which is consistent with the socialization pressure towards autonomy and self-reliance they have been exposed to in childhood.

In a very ambitious, successful, and controversial attempt to apply psychological constructs to the explanation of societal, economic, and historical processes, McClelland and colleagues (for an overview, see McClelland, 1987) have used content coding measures developed in implicit motive research to assess motivational needs at the collective level, by, for instance, scoring folk tales or children's story books representative of a given culture at a certain historic time and have used these scores to predict indices of economic success within and across nations. Thus, deCharms and Moeller (1962) found that in the 19th century, an increase of levels of n Achievement in US children's books preceded an increase in the US patent index by 10 to 30 years. The increase in collective n Achievement correlated at .79 with the increase in the patent index, suggesting that societal emphasis of achievement and mastery when a new generation is in childhood (e.g., through the use of readers) translates into higher innovativeness when that generation reaches adulthood and joins the workforce. Based on findings such as this, McClelland (1961) argued that collective values of self-reliance and achievement translate at the individual level into parenting practices nurturing independence and mastery, which give rise to increased achievement motivation in the next generation, and thus to the high entrepreneurial activity and innovativeness that drive the growth of national economies.

Competence as ability. Although relatively little is known about if and how motives are related to a

person's skills and abilities, we suggest that the relationship can have two main forms: (a) motives may have a causal effect on the development of skills, because mastery of a skill may put the individual in a better position to obtain a motive-specific incentive and thus satisfy her or his motivational need; (b) motives may interact with existing skills in shaping behavior (cf. Atkinson, Lens, & O'Malley, 1976). We will primarily rely on examples taken from the literature on power and affiliation motivation to illustrate each point, because for the most part research on achievement motivation has not addressed the issue of motives and skills. (We acknowledge that there is a huge body of research documenting the effect of achievement motivation on performance. However, because in these studies learning proper is usually not separated from performance and it is therefore unclear whether the performance effects are entirely due to the energizing function of motives or in part driven by their selecting function, too, no firm conclusions can be drawn about the effects of achievement motivation on skill development.)

A recent study by Schultheiss and Rohde (2002) documents how motives in conjunction with situational outcomes can help shape procedural skills. Sixty-six men participated in pairs in a speed-based dominance contest whose outcome was experimentally varied by having one participant in each dyad win, and the other lose, most contest rounds. The paper-and-pencil task participants worked on during the contest required them to track consecutive numbers arranged in a matrix as quickly as possible. On half of the forms, the numbers were arranged in a repetitive visuospatial pattern that could be learned procedurally; on the other half, the number connections did not feature any pattern. A measure of procedural learning was obtained by subtracting participants' post-contest performance on patterned forms from their performance on unpatterned forms. Power motivation and contest outcome conjointly determined how well participants learned: Among winners, the power motive correlated .68 with pattern execution and thus was predictive of enhanced procedural learning, whereas in losers, it was correlated -.58 with pattern execution and was thus predictive of impaired procedural learning (this pattern of results was predicted and obtained only for participants low in activity inhibition, a measure of motivational impulse control, and did not emerge for high-inhibition participants). Notably, participants were unable to reproduce or identify the repeating pattern on subsequent free recall and forced-choice recognition tasks, which indicates that procedural learning occurred in the complete absence of participants' awareness of the process. These findings suggest that motives may play a crucial role in procedural learning of behaviors that are instrumental for incentive attainment (and suppression of behaviors that are associated with motivational disincentives) and thus help build a repertoire of skills that maximize the frequency of incentive contact and thus pleasant affective states.

Motives are not only involved in the development of skills, they can also interact with existing skills in shaping goal-directed behavior. McClelland (1987) reports data from an unpublished study by Constantian (1981) in which a procedural measure of affiliative behavior was obtained by beeping participants randomly and having them report whether they were engaged in affiliative contact (conversing with someone or writing a letter) or not. Participants also provided a measure of perceived social skill on which they indicated how sure and confident they felt when interacting with others. Although participants' n Affiliation (assessed with a PSE) correlated close to zero with their social skill, both measures conjointly predicted the frequency of affiliative acts, such that only individuals who were high both in n Affiliation and social skills frequently interacted with others, but not individuals low in either n Affiliation or social skills. In other words, a skill will only be put to use if the person expects to attain a highly attractive incentive with it (as was the case for the affiliation incentive as perceived by high-affiliation

individuals), but not if the person is not motivated to procure the incentive. The flip side of these findings is that even a strong motive will not guarantee incentive attainment (i.e., being engaged in friendly contact with others) unless the person also has the skills to get to the incentive. In the absence of the skills necessary to satisfy a motive, a frustrated motive may become expressed in impulsive, unsophisticated behavior, such as raw aggression or narcissistic fantasies induced by drinking in the case of power-motivated individuals who have not learned more appropriate forms of having impact since their childhood days (cf. McClelland, 1987; Winter, 1973), or behavioral "short-cuts" to a motivational incentive, such as achievement-motivated individuals' tendency to cheat if they have no other way of demonstrating superior performance (Mischel & Gilligan, 1964). It remains an open question whether a strong motive disposition can survive for an extended period of time without the proper skills for incentive attainment or will, through learning by frustration and punishment, eventually extinguish (cf. McClelland, 1942). The fact, however, that motives aid in the development of instrumental skills, as suggested by Schultheiss and Rohde (2002), indicates that they do not only depend on and interact with existing skills, but, in the absence of these, readily help to build new abilities and competencies.

7. Motivational competence

Let us conclude by returning to what we believe is one of the most interesting and important emerging issues in the field of human motivation: the independence between implicit and explicit motivational systems, their effects on well-being, and the identification of factors and processes that promote harmony between the two systems. Past research shows that implicit motive dispositions not only have little overlap with explicit motives, but also seem to have only little (e.g., Elliot & Sheldon, 1997) or no influence on the types of goals individuals choose or develop in their daily lives (e.g., Brunstein et al., 1998). At the same time, however, mismatches between implicit and explicit motives spell trouble, as McClelland et al (1989) pointed out. We have found some evidence for this prediction in our own research on the effects of motive-goal congruence on emotional well-being (Brunstein et al., 1998): People who pursue goals that match their implicit motives experience increases in emotional well-being when they make good progress in realizing their goals and thus have many opportunities to satisfy their motives, but people who pursue goals that are not backed up by their motives do not derive any emotional satisfaction from the goal's successful realization. On the contrary, they even experience decreases in their well-being, because spending time on the pursuit of motive-incongruent goals takes away time from the pursuit of motive-congruent goals, which leads to motive frustration. It does not take much speculation, then, to see a link between severe or prolonged motive-goal mismatches and clinical states of depression and other mood disorders (cf. Becker, 1960), just as it seems reasonable to assume that individuals whose explicit motives are well aligned with their implicit motives and who consistently choose and pursue motive-congruent goals are more likely to experience stable and heightened well-being. We therefore believe that it will be fruitful to study and explore motivational competence, that is, an individual's ability to bring and keep her or his implicit and explicit motives into alignment (cf. Rheinberg, 2002). We furthermore suggest that motivational competence can be promoted by flexible processes and strategies as well as dispositional factors. We obtained considerable evidence for the former in our research on the effects of goal imagery on goal commitment and pursuit (Schultheiss & Brunstein, 1999, 2002). When participants were given a chance to explore an experimenter-assigned goal imaginatively and thus to translate it into the nonverbal format that their implicit motives could process, their willingness to adopt the goal and their efforts to realize it were directly

proportional to how well the goal fit their implicit needs; without goal imagery, goal commitment and effort expenditure were independent of their motives. Other studies point to stable dispositions that promote (or inhibit) motive-goal congruence. Brunstein (2001) found that individuals with a particular self-regulatory deficit, namely, the inability to down-regulate negative affect after encountering a stressor (cf. Kuhl, 1981), were particularly prone to report personal goals that did not match their motives. In contrast, individuals without this deficit were much more likely to report goals that were well-aligned with their motives. Thrash and Elliot (2002) recently reported that achievement-related implicit and explicit motives are better aligned in individuals who are high in self-determination than in individuals low in this disposition. It is clear that these scattered findings can only be the beginning and much more work needs to be done until we have a better sense of what the core constituents of motivational competence are and how this type of competence can be promoted. It is equally clear, though, that finding ways to increase motivational competence will help people gain greater awareness of and access to their implicit motives and thereby promote the development of motive-specific competencies and well-being.

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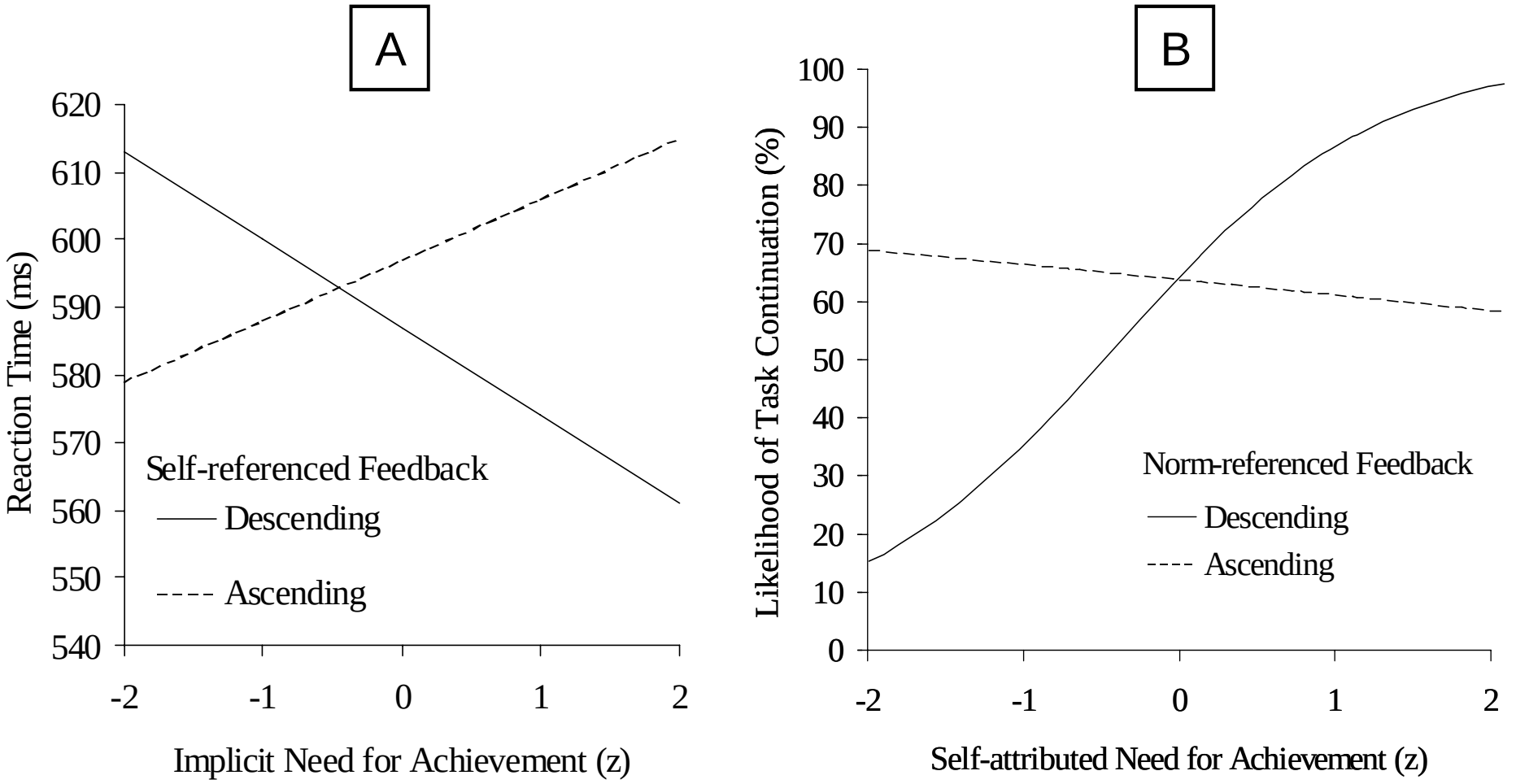
Table 1

Comparison of effects of reward and punishment on motivation and behavioral changes in animal learning studies and on the development of achievement motivation in humans

	Contingency	
Behavior	Reward	Punishment
Displayed	active approach	passive avoidance
	behavior displayed more frequently	behavior suppressed
	rat presses bar to get food	rat stops bar pressing to avoid shock
	person works on challenging	person stops working on challenging
	tasks to get praise, mastery satisfaction	tasks to avoid negative consequences
		(e.g., ridicule, disrupted relationships)
	achievement motive: hope of success	achievement motive: low (fear of success)
	mesolimbic dopamine system	septohippocampal system
Not displayed	(passive approach)	active avoidance
		behavior displayed more frequently
		rat presses bar to avoid shock
		person works on challenging tasks
		to avoid negative consequences
		(e.g., scolding for dependency, lack of effort)
		achievement motive: fear of failure
		mesolimbic dopamine system

Figure caption

Figure 1. Effects of implicit and self-attributed achievement motives on procedural and declarative measures of motivation. Panel A: Joint effect of self-referenced feedback and n Achievement (PSE) on students' response speed. A descending pattern of self-referenced feedback sped up response latencies of students high in n Achievement. Panel B: Joint effect of norm-referenced feedback and the self-attributed achievement motive (value questionnaire) on students' task continuation. Students high in the self-attributed achievement motive were most likely to continue with the test task if they were exposed to a descending pattern of norm-referenced feedback. Adapted from: J. C. Brunstein, & S. Hoyer, "Implizites versus explizites Leistungsstreben: Befunde zur Unabhängigkeit zweier Motivationssysteme" [Implicit versus explicit achievement strivings: Empirical evidence of the independence of two motivational systems]. Zeitschrift für Pädagogische Psychologie, 16 (2002): 58. Copyright by Verlag Hans Huber.


A
620
610
600
590
580
570
560
550
540
Reaction Time (ms)
Self-referenced Feedback
Descending
Ascending
-2
-1
0
1
2
Implicit Need for Achievement (z)
B
100
90
80
70
60
50
40
30
20
10
0
Likelihood of Task Continuation (%)
Norm-referenced Feedback
Descending
Ascending
-2
-1
0
1
2
Self-attributed Need for Achievement (z)