Running head: The Achievement Motive

The Achievement Motive: A Review of Theory and Assessment of *N* Achievement,

Hope of Success, and Fear of Failure

Joyce S. Pang

Nanyang Technological University, Singapore

Author note:

Correspondence concerning this chapter should be addressed to Joyce S. Pang, Division of Psychology, Nanyang Technological University, Singapore 639798, or sent by email to (joycepang@ntu.edu.sg).

The Achievement Motive: A Review of Theory and Assessment of *N* Achievement,

Hope of Success, and Fear of Failure

Implicit achievement motivation, often denoted *n* Achievement, refers to a nonconscious and recurrent preference for affectively-rewarding experiences related to improving one's performance. In the following chapter, I will provide a brief and targeted history of the development of the construct of implicit achievement motivation, focusing on the legacy of David McClelland and John Atkinson. The first section highlights the major theoretical and methodological landmarks in achievement motivation research under the McClelland-Atkinson tradition, and will cover such topics as measurement, developmental considerations, motivational incentives, and behavioral outcomes.   I will also survey some of the major content areas in which implicit achievement motivation researchers have undertaken work in the past. Finally, one of the areas that has not received sufficient attention is the distinction between Hope of Success (HS) and Fear of Failure (FF) motivation, particularly in the development of valid measures of these motives and I end the chapter with a description of and validation data for a new *n* Achievement measure that takes this HS/FF distinction into consideration.

McClelland's Legacy on Achievement Motivation Research

Briefly, David McClelland's legacy is divided into three main areas, the benefits of which extend not only towards *n* Achievement research but to implicit motivation research in general:

One, his research program influenced a group of researchers with members such as Atkinson, Feather, Koestner, and Winter, who adopted his ideas and research principles so as to develop it further into the full program of work that exists today. For instance, McClelland's (1961) argument that the preferences of *n* Achievement motivated people for activities that involve skill and effort, provide moderate challenge and risk, and present clear

performance feedback are more likely to be satisfied in entrepreneurial situations, spawned a formidable body of research on the relationship between *n* Achievement and entrepreneurial behavior and economic productivity (c.f., Collins, Hanges, & Locke, 2004). In addition, Atkinson, a researcher who was directly influenced by McClelland, developed an expectancy-value theory of *n* Achievement that has since led to many productive findings and subsequent theory-making about the nature of *n* Achievement (see Cooper, 1983; McClelland, 1987; Schultheiss & Brunstein, 2005).

Two, starting with the publication of *The Achievement Motive* (McClelland, Atkinson, Clark, and Lowell, 1953), McClelland and his colleagues popularized a technique of measuring motivation scientifically, through first experimentally arousing the relevant motive and then developing content coding systems that were based on the effects of motive arousal. McClelland's introduction of these assessment procedures gave researchers ways of measuring *n* Achievement (and other motives) accurately, providing a powerful methodology with which to conduct and evaluate subsequent research. The publication of *The Achievement Motive* also led to a theory about the structure of the achievement motivated process, which will be described later.

The third accomplishment from McClelland's long history of work is his championship of the distinction between implicit and explicit/self-attributed motivation. McClelland, Koestner, and Weinberger (1989) argued convincingly that these two types of motivation are distinct, each with their own incentives, behavioral outlets, and correlates. The eventual acceptance of the implicit-explicit motive distinction allowed motivation researchers to explain findings that were previously difficult to explain, specifically clarifying many otherwise conflicting characteristics of *n* Achievement.

Thus, I will frame the first part of this literature review around McClelland's three research contributions. I will start with his theoretical concept of *n* Achievement as it is

described in *The Achievement Motive* as well as the research and assessment tradition that resulted from this work, chiefly, the development of theory of *n* Achievement after Atkinson's (1957) expectancy-value theory of *n* Achievement. Finally, I explain why the implicit-explicit distinction calls for a revision of *n* Achievement measures and theory.

The McClelland-Atkinson Assessment Tradition

In the 1930s, Henry Murray and his colleagues developed the Thematic Apperception Test (TAT; Morgan & Murray, 1935) in response to the belief that motive tendencies are unavailable to introspective awareness and need to be assessed through expression in wish-fulfilling fantasies. The development of the TAT technique enabled David McClelland to develop an assessment tool for implicit motives called the Picture Story Exercise (PSE; McClelland, Koestner, & Weinberger, 1989) that was based on the principles of the TAT. The PSE is similar to the TAT in that it requires participants to produce imaginative stories in response to a series of pictures but differs from Morgan and Murray's (1935) original approach in a few important ways (c.f., Pang, this volume).

Importantly, while previous scorers of the TAT relied on a combination of strategies including the individual clinician's expert intuition, consensus between multiple trained raters, and theoretically-driven guidelines that were more descriptive than prescriptive (e.g., Bellak, 1975; Cramer, 1991; Shneidman, 1999), McClelland and his colleagues promoted an approach to studying and measuring motivation systematically and scientifically: Through first experimentally arousing the relevant motive, and then using content coding systems to measure the differences in PSE protocols (McClelland, Atkinson, Clark, & Lowell, 1953; McClelland, Clark, Roby, & Atkinson, 1949).

In the arousal method, participants would either be exposed to a neutral and controlled setting or to an experimental scenario in which the relevant motive is aroused. Coding

categories are then constructed by examining differences found in the imagery of stories written under motive arousal versus those written under neutral conditions.

McClelland, Clark, Roby, and Atkinson (1949) attempted to arouse *n* Achievement in groups of male subjects. Participants were asked to complete a series of tasks that included anagrams, writing, and tests of verbal intelligence, as well as a 4-picture PSE. Additionally, participants were exposed to one of three meaningful study conditions:

There was a *Relaxed* group who was instructed that the tests they were completing were devised recently and the data collected was for the purposes of perfecting these tests. In this condition, the experimenters took care to divert attention away from the participants' performance on the tests, thus keeping the need for achievement un-aroused.

Conversely, there were two further conditions that led participants to focus their attention on their test performance. The *Failure* group received instructions that the tests they were completing were indicative of "a person's general level of intelligence" and "whether or not a person is suited to be a leader." They were also told that they would be able to calculate their scores and find out at once "how well you do in comparison with… [other] students." Then, the experimenter quoted norms for the tests that were so high that practically everyone in the class failed and placed in the lowest quarter of the relevant comparison group (other students at their University).

The *Success-Failure* group received the same instructions about the tests as the *Failure* group did, however, the *Success-Failure* group were quoted low norms after the first task and then high norms at the end of the last task, thus inducing a taste of success followed by failure.

Content categories were constructed by comparing the PSE protocols of those under *Failure* and *Success-Failure* arousal to the protocols of participants in the *Relaxed* condition. Under both the *Failure* and the *Success-Failure* conditions, participants' stories had greater

number of themes about wanting or needing to pursue achievement ("He wants to be a doctor"), engaging in activities in pursuit of the achievement need ("He is hard at work"), and of having positive or negative feelings in anticipation of either the successful or unsuccessful conclusion of an achievement task ("He is looking forward to the day when he will graduate with honours" "He is dreading the pending failure").

Based on the themes that emerged, McClelland and his colleagues introduced a useful way of organizing theory regarding *n* Achievement. Although the *n* Achievement coding system was constructed using experimental arousal, its coding categories can be organized into a general sequence of motivated behavior (Figure 1) and is easily explained in this context:

The *n* Achievement behavioural sequence is initiated when the person feels a need (*N*). The need is represented by an external goal, and the person may anticipate either successful attainment of this goal (*Ga+*) or she may become frustrated and anticipate non-attainment (*Ga-*). In order to accomplish her goal, the person has to engage in instrumental activity that is either successful (*I+*) or not successful (*I-*). During this process of goal pursuit, the person may either receive assistance (*Nup*) from others or suffer a hindrance or obstacle that can come from within her person (*Bp*) or from the world at large (*Bw*). She may also experience positive (*G+*) or negative (*G-*) affect in response to the goal-directed activity and its consequences.

For instance, a gymnast's need (*N*) to achieve may be represented in a goal of winning a competition. She will engage in instrumental activity (*I+*) by practising daily at her routine. During her practice, she may feel encouraged by her progress (*Ga+*) or become frustrated (*G-*) because she realizes she has hit a plateau in her training (*Bp*). If her training pays off and she wins her competition, the gymnast feels happiness and pride (*G+*) as a result of this accomplishment.

Table 1 presents an abbreviated summary of McClelland et al.'s (1953) coding categories. As shown, the *n* Achievement coding system follows the sequence of motivated behaviour presented in Figure 1. The scorer first assesses whether achievement imagery is present in general in the PSE protocols. For instance, if a story is concerned with routine work imagery, then achievement imagery (designated *AI*) is not scored and no further scoring is carried out. Only after achievement imagery is detected does the scorer proceed to code for the subsidiary coding categories of *N*, *Ga*, *I*, etc. The strength of one's achievement motivation is derived from the total score of *n* Achievement motive imagery recorded.

Distinction Between Hope of Success and Fear of Failure Achievement Motivation

In every achievement task—whether it is attaining a personal best, meeting a standard of excellence, or rising to a challenge—there are two possible outcomes: success or failure. Motivated achievement behavior can be categorized as approach tendencies, which is when people are driven to maximize the chances of succeeding at the achievement task, and avoidance tendencies, which is when people are driven to minimize the chances of failing the task. Thus, a distinction has traditionally been made between the active, approach-oriented aspects of *n* Achievement (also named hope of success, or HS) and the anxiety-based, avoidant tendencies of fear of failure (FF).

McClelland's Conditioning theory of Motivation

In order to understand the effect of HS and FF on achievement behaviour and performance, it is important to understand the relationship between learning and motivation. Specifically, McClelland et al. (1953) refer to the role of positive and negative affective change in reinforcing particular behavioural patterns.

In the functional behaviourist tradition, drives are strong internal stimuli that focus the organism's attention on acquiring or maintaining conditions (such as air, food, water) that are necessary for growth and survival. The classic instantiation of this argument is Thorndike's

(1911) Law of Effect according to which responses are strengthened that lead to rewarding experiences (or, incentives) and responses are weakened that cause unpleasurable or disturbing experiences (or, disincentives).

According to McClelland et al. (1953), *n* Achievement is an acquired drive that is based on a set of instrumental response elements that are directed by their sensory effect. Those behaviours that produce increases in positive affect are seen as naturally rewarding incentives and will be repeated in similar circumstances. Over time, instrumental approach response tendencies become developed; these response tendencies cue anticipated increases in positive affect, are preferred over other responses that are not as closely associated with pleasure, and form the basis of approach motivation.

Conversely, there is a class of behaviours that produces disincentives, notably, responses that produce decreases in positive affect or increases in negative affect as well as those responses that produce decreases in negative affect. In the first two scenarios (reduction of positive affect or increase in negative affect), the antecedent behaviour will be less likely to be repeated, while in the third scenario (reduction of negative affect), the behaviour is more likely to be repeated. Over time, responses following the third scenario develop into instrumental avoidance response tendencies; these response tendencies cue anticipated decreases in negative affect, are preferred over other responses that are not as closely associated with avoidance of pain, and form the basis of avoidance motivation.

Schultheiss and Brunstein (2005) built on McClelland et al.'s (1953) theory by using learning psychology to highlight some important characteristics of approach and avoidance achievement motivation. They present four possible variations of goal-directed behaviour: A person can either display a goal-directed behavior or not (active versus passive responding) and she can either be rewarded or punished (leading to approach or avoidance) as a

consequence of the behavior. Thus four possible modes of goal-directed behavior are: active approach, active avoidance, passive approach, and passive avoidance.

The most straightforward scenario is when a person is in an *active approach* mode, which is when she displays the goal-directed behavior and is rewarded for doing so. The reward increases the likelihood that the person will repeat the goal-directed behavior in the future. On the other hand, the person may also be punished for displaying the goal-directed behavior. In this case, the punishment decreases the likelihood of the goal pursuit, and results in a *passive avoidance* mode, which is when the person avoids punishment by inhibiting goal-directed behavior. In the case when the person is punished for *not* displaying the goal-directed behavior, the punishment has the effect of increasing the likelihood of goal-pursuit, and results in an *active avoidance* mode, which is when the person executes a goal-directed behavior in order to avoid punishment. Finally, there is the case when a person is rewarded for *not* displaying goal-directed behavior, which results in the passive approach mode. Behavior motivated by the *passive approach* mode—the person is basically being rewarded for doing nothing—is usually rare and difficult to identify with certainty, thus I will not discuss it here.

In the context of achievement motivation, the passive avoidance mode can be interpreted as a Fear of Success (FS; e.g., Fleming & Horner, 1992). Individuals who score higher on FS learn to avoid negative incentives (e.g., social disapproval or resentment from male colleagues) by inhibiting any achievement-related activity that will lead them closer to goal attainment. A person motivated by FS may have been punished for doing well at an achievement task or for displaying any instrumental activity towards goal attainment; hence she learns to restrict future goal-directed behavior in order to avoid facing the same punishment. According to Horner and Fleming (1992), the FS motive is scored in PSE protocols whenever there is presence of negative consequences brought about by external

forces, when two or more people are involved on an interpersonal level, when there is a relief of tension that comes about without any significant goal-oriented activity, and when there is an absence of instrumental activity. This form of avoidance is also often characterized by a lack of *n* Achievement imagery on PSE protocols (Karabenick, 1977).

In the active approach, or HS, motivational mode, goal-directed behavior is displayed in anticipation of the positive consequences of success. For instance, a novice pianist may successfully tackle a challenging music piece for the first time and be rewarded with praise from her teacher. This makes her more likely to seek out and try to master challenging pieces in the future in order to receive praise. Eventually, the act of mastering challenging music pieces becomes intrinsically rewarding because of the accompanying sense of mastery and self-satisfaction. The HS mode represents the most prototypical notion of achievement-motivated behavior; understandably, measures of HS (Heckhausen, 1986) correlate positively with the original *n* Achievement measure.

In the active avoidance, or FF, motivational mode, the *absence* of goal-directed behavior leads to punishment; goal-directed behavior is displayed in anticipation of negative consequences of failure. Using the above example, a novice pianist may be punished by admonishment or nagging from her teacher whenever she fails to master a difficult piece of music. This causes the pianist to try harder to master the piece in order to avoid hearing the nagging. Subsequently, the act of mastering challenging music pieces becomes intrinsically rewarding because of the sense of relief from any embarrassment, guilt, or shame that accompanies failure to master the pieces. Thus, the person learns to actively pursue a goal in order to avoid the punishment.

Measurement of Hope of Success and Fear of Failure

Because of the hypothesized defensive reasons behind the development of FF, early predictions about FF highlight the role of anxiety in avoidant achievement motivation.

Specifically, anxiety is assumed to be the emotional basis of FF and an achievement-motivated individual with avoidance tendencies engages in achievement behavior in order to minimize her anxiety about impending failure.

Early researchers used a self-report measure of test anxiety in their assessment of fear of failure. The most commonly employed measure was Sarason and Mandler's (1952) Test Anxiety Questionnaire (TAQ). The general procedure was to use the difference between participants' n Achievement scores and their TAQ scores as a measure of FF (thus, FF = TAT n Achievement - TAQ score). Atkinson (1958) and his students developed the Resultant Achievement Motivation (RAM) score, which is obtained by cross-classifying scores on the McClelland et al. (1953) n Achievement measure with scores on the TAQ. Specifically, subjects who score above the median in n Achievement and below the median on the TAQ have the greatest RAM scores and are considered to be the most achievement motivated and hope of success motivated while those who score below the median in n Achievement and above the median on the TAQ have the lowest RAM scores and are considered to be high in fear of failure.

Atkinson's Expectancy-Value Theory of Motivation

Atkinson's expectancy-value theory of achievement motivation asserts that the tendency to engage in achievement behavior (T_{suceed}) is a multiplicative function of motive (M_s), subjective probability (P_s) of succeeding at the task in question, and the incentive value (I_s) of succeeding at that task. Thus, $T_{suceed} = M_s \times P_s \times I_s$.

A basic assumption of Atkinson's theory is that the incentive value of success for a task is directly proportional while the probability of success is inversely proportional to its level of difficulty. Mathematically, the incentive value of a task is defined as one minus the probability of success (thus, $I_s = 1 - P_s$).

A difficult task would carry a high incentive value for success, since there is a greater challenge to be mastered. However, the difficult task naturally also carries low probabilities of success. On the other hand, an easy task would carry high probabilities for success but also a low incentive value because the standard of excellence is not challenging enough to be motivationally satisfying. Finally, a moderately difficult task would carry moderate incentive value and moderate probabilities of success. Because the tendency to approach a task is a function of the multiplicative effects of incentive value and probability of success, the preference of achievement motivated individuals in attempting tasks of varying difficulty approximates an *inverted-U-shape* (Figure 2), where tasks of moderate difficulty receive the highest preference and are flanked on both sides by lower preference scores for tasks of lesser and greater difficulty. The model suggests that achievement motivated people who are high in RAM would be more likely to approach a moderately difficult task than they would approach extremely difficult or easy tasks.

Because Atkinson conceived of the avoidance motive as the mirror image of the approach motive, the formula for FF paralleled that of HS. Specifically, the tendency to engage in avoidant achievement behavior is a function of the motive to avoid failure (M_f), the disincentive value of failure (I_f), and the probability of failing (P_f), thus, $T_{avoid} = M_f \times P_f \times I_f$. Similarly, the disincentive value of failing is inversely related to the probability of failing, mathematically represented as $I_f = 1 - P_f$.

Under Atkinson's model, the preference of FF motivated individuals in attempting tasks of varying difficulty approximates a *U-shape* (Figure 3), where tasks of moderate difficulty receive the lowest preference and are flanked on both sides by high preference scores for tasks of lesser and greater difficulty. Hence, people motivated by FF would be most likely to avoid tasks of moderate difficulty, just as people motivated by success would be most likely to approach these same tasks.

Table 2 illustrates Atkinson's predictions for the tendency to avoid failing as a function of motive strength, disincentive value, and probability of failure. The key to this model is that the disincentive value of failure is expected to diminish with the level of difficulty of the task. As shown in Table 2, the disincentive should be much greater for failing at an easy task than that for failing at a difficult task. However, the probability of failing the task grows directly to the level of difficulty of the task. Therefore, as a task becomes more difficult, the disincentive value of failure decreases and the probability of failing increases.

Support for the McClelland-Atkinson Model of Achievement Motivation

Atkinson's (1957) expectancy-value theory had a dominating influence on achievement motivation research in the 1960s and 1970s and the assumptions of his model continue to inform current research. Following Cooper (1983), I briefly describe a nomological network of dependent variables such as task choice and difficulty, persistence, performance, preference for autonomy, and valence that have been commonly studied in relation to Atkinson's theory. Except where mentioned explicitly, *n* Achievement is measured by the McClelland et al. (1953) PSE-based coding method while HS and FF are measured by Atkinson's 1957) RAM and the PSE-TAQ difference score respectively.

Task Choice and Task Difficulty

According to Atkinson's model *n* Achievement motivated people consistently choose to undertake tasks of moderate difficulty, as opposed to tasks that are too easy or too difficult because moderately difficult tasks provide the maximum opportunity to succeed.

Atkinson's predictions on task difficulty have yielded mixed results. De Charms and Carpenter (1968) found that fifth and sixth grade students who were higher in *n* Achievement preferred to work at questions of moderate difficulty, compared to students low in *n* Achievement, who showed no such preference. Atkinson and Litwin (1960) and Litwin (1966)

found that subjects with greater RAM chose to throw from moderately long distances in a ring-toss game. Mahone (1960) found that FF (as measured as a difference score between *n* Achievement and scores on Alpert's 1957 Debilitating Anxiety Scale) was associated with more unrealistic task choices, such as preference for occupations with high discrepancy between one's own ability and the ability that is needed for the occupation. Thus, FF motivated people chose a very "difficult" occupation—which in Atkinson's theory would have a low negative incentive value and a high probability of failure—over a more realistic choice of occupation with moderate incentive value and probability of failure.

However, de Charms and Davé (1965) found contradicting evidence. Their study asked participants to choose distances from which to shoot volleyballs into a basket and used a content-coding measure of HS and FF, instead of RAM. As predicted from Atkinson's formula, participants motivated primarily by FF avoided situations of moderate risk (as calculated by moderate probabilities for making a shot); however, contrary to expectations, subjects motivated primarily by HS also avoided moderate risks. That is, both high HS and high FF groups were taking more extreme risks than low *n* Achievement groups. De Charms and Davé's findings that those motivated by HS also avoid moderate risks can be understood in the context of their experimental design and another of their findings. First, the participants did not have prior knowledge of the risk-taking probabilities of the task before they chose the distance to throw their balls from. This may have contributed to their making slightly riskier choices and (at least initially) selecting distances with harder probabilities of success. Additionally, there was an interaction effect of HS and FF, such that subjects with both high FF and high HS are most likely to concentrate their efforts at a point of moderately high risk, or what de Charms and Davé described as a "calculated risk". It seems that a combination of HS and FF leads to results closer to Atkinson's predictions for *n* Achievement.

De Charms and Davé's results suggest that Atkinson's conception of FF needs to be revised. Since de Charms and Davé (1965), other research on risk-taking and task difficulty has contradicted Atkinson's predictions (e.g., Hamilton, 1974). In fact, even in Atkinson and Litwin's (1960) ring-toss study, although subjects with higher FF had a lower preference for moderate distances than subjects motivated by HS, they still preferred moderate to either very high or very low levels of risk. FF-motivated achievement behaviour seems to be more complicated than can be predicted by the basic formula of $T = M \times P \times I$.

Atkinson (1957, pg. 364) suggests one reason that might explain the preference that FF-motivated people sometimes have for moderately difficult tasks. He makes a distinction between activities that FF-motivated individuals pursue *voluntarily* versus those that they are obligated to perform because they are *constrained* within an achievement situation. In the former case, mounting anxiety about a possible failure outcome may prompt the person to either leave the situation or, if leaving is not an option, perform the task well enough to prevent failing at it. Following Atkinson's argument, the FF-motivated individual who is prevented from escaping an achievement situation will have similar task difficulty and risk preferences as an HS-motivated individual because easy to moderately-difficult tasks have higher chances of success (and lower chances of failure) than extremely difficult tasks.

Persistence

Insofar as a person chooses to perform in an achievement situation, she should also exhibit persistence in that task after failure. Atkinson predicts that HS-motivated individuals will try their hardest and be more likely to persevere after failure when the probability of success is moderate and people motivated more by FF than by HS should try hardest and persevere at a task when the task is very easy or very difficult.

Atkinson's persistence predictions have received good support from research findings. Feather (1962) reviewed studies testing Atkinson's theory and found that people motivated

by HS persist longer after failure when a task is considered easy than when the task is difficult, whereas people motivated by FF persist longer on a more difficult task than on an easy task. Feather's explanation for these variations in persistence highlights the importance of the probability of success. In an easy task, the perceived probability of success is high. However, once a subject fails at the easy task, the task's probability of success becomes lower, thus moving it into the region for medium probability of success. Since, according to Atkinson's formula, HS-motivated people prefer moderately difficult tasks to easy tasks, failure at an easy task will make the task become moderately difficult and thus more attractive to a HS-motivated subject, who will then persist on that task.

Independence and Autonomy

In cases when an extrinsic incentive—such as pleasing the experimenter (French, 1955) or attaining an externally-set standard of excellence (McKeachie, 1961)—is provided, *n* Achievement is either unrelated to or even negatively correlated with performance. It is clear that achievement motivated people are interested in doing something for *its own sake*, for the intrinsic satisfaction of "doing better."

How does this intrinsic need to do things better become developed in humans? Research and theory have focused mainly on child-rearing practices and parental styles during early childhood; of the extant literature, the findings on age-appropriate independence training are the most consistent and persuasive. Mothers of boys with high *n* Achievement set high performance standards for their sons at an earlier age and gave more specific directions during an achievement task (Winterbottom, 1958). They are also more warm and affectionate when their sons succeed, but more likely to react to poor performance with hostility and disapproval (Rosen & D'Andrade, 1959). Thus, parents who produce highly achievement motivated boys not only expect more from their sons, they also encourage the attainment of the higher standards by rewarding progress with praise and warmth and

punishing poor performance with social disapproval. Additionally, perhaps as a precursor to the *n* Achievement preference for tasks of moderate difficulty, parents with children who scored high in *n* Achievement presented challenges to their children that were age-appropriate, that is, not too difficult nor too easy for the child's developmental stage (McClelland, 1961; Veroff, 1969).

Why do these parental practices lead to higher *n* Achievement in children and what kind of incentives do these practices offer that are different from the extrinsic incentives such money and social validation that have been found in previous studies *not* to arouse *n* Achievement (c.f. French, 1955)? The key lies with McClelland et al.'s (1953) conditioning theory of motivation and the kinds of nonverbal affective reinforcements that parents provide to their children. For children in the preverbal stage, the pleasure that parents express in response to the child's actions is inherently rewarding while the parents' displeasure is inherently punishing. This pleasure or displeasure expressed by the parents often occurs as a result of satisfaction or disappointment at the child's accomplishment of age-appropriate activities (such as grasping, walking) that indicate developmental milestones for the child. Over time, as the children are repeatedly reinforced (by parents) for not relying on anyone else in accomplishing these developmentally challenging skills, the children internalize a standard of performance and develop a self-evaluative sense of pride at the successful outcomes of their own efforts. In addition, they may also learn to associate interference from the outside with failing to master a challenge on their own and the punishment this may entail. The positive affect that occurs as a result of accomplishing a task well eventually become intrinsically rewarding and is the basis for *n* Achievement.

Task Performance, Standards of Excellence, Independence and Autonomy

Since HS is associated positively with persistence and preference for tasks of moderate difficulty, this increased attention and effort is expected to translate into better performance.

Hence, HS-motivated individuals are expected to perform best at moderately difficult tasks. In several studies, high *n* Achievement predicted significantly better performance at scrambled word tasks (Lowell, 1952), anagram tasks (Raynor & Entin, 1982), paired associates tasks (Karabenick & Youseff, 1968), and in the classroom (O'Connor, Atkinson, & Horner, 1966).

An interesting finding from Lowell's (1952) study demonstrates that the better performance of achievement motivated individuals is due to motivation rather than ability. The high *n* Achievement and low *n* Achievement groups performed similarly at the start of the task, however, the high *n* Achievement group's performance increased steadily over the course of the task and at a faster rate than the low *n* Achievement group. It seems that although superior performance at any achievement task is affected by both ability and determination, *n* Achievement motivated people make up for whatever they lack in natural ability with more efficient learning behavior.

However, high achievement motivation does not necessarily translate to good performance in all situations. Among the factors hypothesized to complicate the relationship between achievement motivation and achievement performance are overly high and debilitating levels of motivation, lack of necessary aptitude and ability to carry out achievement tasks, and the presence of extrinsic incentives (c.f. McClelland, 1987). Another important moderator is task difficulty—for instance, when the perceived difficulty of a task is high, students with high RAM performed better than those with low RAM, and when the task is perceived as easy, high RAM actually lowers performance levels (Kukla, 1974). Thus, *n* Achievement and HS are linked to better performance provided (a) the achievement situation is moderately challenging, (b) the achievement task is within a domain in which the subject has adequate aptitude and proficiency, and (c) the outcome and goals of the task are under the subject's personal control. Spangler (1992) conducted a meta-analysis of achievement

motivation studies and found that *n* Achievement "strongly predicted operant behavior in the presence of activity achievement incentives" (pg. 150). In other words, *n* Achievement predicts better performance on activities that are relatively free from explicit experimenter or external control (e.g., farm and industrial output, professional rank, publications, social behavior occurring under natural conditions), especially when task characteristics that are intrinsically motivating, such as moderate task risk, are present.

The relationship between task performance and FF is more complicated and less well-explored. Many motivation researchers (e.g., Seligman, 1975; Covington & Omelich, 1985) have assumed FF to be detrimental to task performance, mainly because of the observation that exposure to failure outcomes increases negative emotional reactions and reduces one's self-efficacy, which in turn weakens one's performance. However, other researchers (e.g., Brunstein and Maier, 2005) have pointed out that while failure may undermine subsequent performance, it also has the likelihood of stimulating it, especially when the individual is given the chance to salvage a threatened goal. However, consistent empirical evidence for FF leading to better or worse performance is sorely lacking.

Valence of Success and Failure

The predictions of Atkinson's theory regarding task choice, task difficulty, and persistence rely on the assumption that *n* Achievement motivated people, particularly those motivated by HS place a high incentive value on success, and that those motivated by FF place a high disincentive value on failure. Valence describes the total attractiveness of an outcome and expectancy-value theory predicts that HS-motivated people should experience more satisfaction (positive valence) after successful achievement outcomes while FF-motivated people should experience more dissatisfaction (negative valence) after failure, when compared to people who are low in *n* Achievement.

However, valence predictions have never received full support. While Atkinson and Litwin's (1960) findings supported the predictions, other research has had difficulty replicating either the predicted relationship between HS and positive emotional valence following success or the hypothesized relationship between FF and negative emotional valence following failure (e.g., Karabenick, 1972; Feather, 1967).

Halisch and Heckhausen (1989) had subjects participate in a stimulus-tracking task where they were given predetermined performance feedback. Participants were then asked to identify a standard for success and failure before the commencement of the task. The study authors calculated valence scores by assessing a participant's level of satisfaction or dissatisfaction with her performance. Specifically, *positive valence gradients* were calculated by asking participants to identify an upper performance threshold beyond which they would experience success, as well as a point on this difficulty scale where they would experience twice the satisfaction in the case of success. In the same fashion, *negative valence gradients* were calculated by asking participants to identify a lower performance threshold below which they would experience failure, as well as a point below the threshold where they would experience twice the dissatisfaction with failure. Notably, this study did not use the RAM measure of HS and FF, but separate PSE-based measures for HS and FF respectively (Heckhausen, 1963). The authors found that highly motivated participants who received high scores in both HS and FF had steeper positive valence gradients than negative valence gradients; conversely, the participants with lower aggregate motives (i.e., had low scores on either HS or FF, or on both motives) had steeper negative valence gradients than positive valence gradients. Halisch and Heckhausen's results, which were later replicated by Brunstein and Maier (2005) for HS, contradict Atkinson's valence predictions and suggest that those motivated by fear of failure are just as strongly and positively affected emotionally by success as those motivated by hope of success are.

The Importance of Feedback

Finally, another distinctive trait of *n* Achievement motivated people is their need for performance feedback. French (1958) found participants with high *n* Achievement (measured using a semi-projective test she developed called the Test of Insight) worked more efficiently after performance feedback and Kagan and Moss (1962) found that boys with high *n* Achievement were more interested in and better at mechanical activities such as carpentry and construction. Theorists have suggested that achievement-motivated individuals prefer mechanical activities such as construction because feedback from these tasks is usually concrete, direct, and immediate (see also McClelland, 1987; Bartmann, 1965). These studies illustrate the attractiveness of performance feedback to achievement motivated individuals; immediate, consistent, task-centred feedback provides information about how to improve on one's performance, by acting on the feedback.

In more recent work, Fodor and Carver (2000) found that, compared to subjects who did not receive feedback, those with higher PSE-measured *n* Achievement produced more creative performances in response to feedback, regardless of whether the feedback was positive or negative. Brunstein and colleagues found that *n* Achievement assessed by either Heckhausen's (1963) subsystem for HS (Brunstein & Maier, 2005) or by a version of the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998; Brunstein & Schmitt, 2004) predicts effortful performance on a mental concentration task, after the receipt of performance feedback.

Summary and Shortcomings of McClelland-Atkinson's Model of N Achievement Theory Development

The RAM measure of hope of success (Atkinson, 1958), Heckhausen's (1963) PSE-based content-coding system for HS, and McClelland et al.'s PSE-based content-coding scoring system 1953 *n* Achievement have generally been treated as the same construct because

theoretical and empirical predictions that have been made for either construct have consistently followed Atkinson's model for the approach-oriented achievement motive.

The research findings for HS have generally supported Atkinson's theory regarding *n* Achievement. Specifically, highly HS-motivated individuals prefer, persist in, and perform better in moderately challenging tasks in which they have personal control over the outcome. Valence predictions have received less clear support; it is not clear whether HS-motivated people experience positive affect after they have attained successful achievement outcomes. More importantly, wherever supporting evidence has emerged, valence has been assessed using subjects' self-reported emotional reactions to success and failure. This cardinal criterion of emotional change after a motivationally-relevant successful or unsuccessful outcome has never been adequately tested using physiological assessments of affect change—for instance, through facial EMG or through coding of facial emotional expressions (however, see Schultheiss & Hale, 2007, for a study that documents selective orienting responses of *n* Power and *n* Affiliation motivated people to certain motivationally-relevant facial emotional expressions).

Characteristics of FF-motivated individuals are less well-supported. While FF has been linked to more unrealistic task choices and levels of aspiration, FF-motivated people appear more likely to persist after failure at a difficult task than an easy task and they do not consistently experience greater negative affect after failure than those motivated by HS do (e.g., Halisch & Heckhausen, 1989). In studies which have measured FF using a PSE-based measure rather than RAM, FF-motivated people behave similarly to HS-motivated people, tending to experience greater negative affect after failure and greater positive affect after success compared to low achievement motivated individuals (Halisch and Heckhausen, 1989) and choosing to make moderately risky decisions (DeCharms and Dave, 1965). These findings suggest that, rather than behaving like someone with low achievement motivation,

the person who is motivated by FF is just as likely as to be energized and directed in her

achievement behaviour as someone motivated by HS.

Development of Assessment Methods

Inadequacy of the RAM measure for Fear of Failure

The lack of supportive evidence for Atkinson's predictions regarding FF is related to the

fact that RAM is neither an adequate nor a valid measure. The lack of an adequate measure

of FF has largely been responsible for the reduced emphasis on research conducted on FF

relative to the research carried out on HS and *n* Achievement.

Conceptually, levels of test anxiety are neither valid nor appropriate indicators for

achievement motivation or fear of failure. Highly anxious subjects with high scores on TAQ

perform less well than their less anxious peers on standardized achievement tests (Sarason &

Mandler, 1952). This is because the highly test-anxious subjects are afraid of the novel

situation that the standardized test represents. However, these highly test-anxious subjects

are not necessarily less well-performing in all achievement situations. In non standardized-

test settings, e.g., in the classroom, when achievement expectations and standards of

excellence are informal, clear, and more relaxed, the high test-anxious subjects actually

perform better than less test anxious subjects (Sarason & Mandler, 1952). Test anxiety is

thus a measure of an affective reaction to a very specific achievement setting—standardized

tests—it does not represent general achievement need. Furthermore, Sarason and Mandler's

(1952) measure is partly indicative of self-perceived ability. Especially in a situation such as

a test, demonstrations of competence depend on the performance of a normative reference

group. In this situation, individuals with low self-perceived ability expect to do worse than

their peers on tasks of moderate difficulty and should therefore avoid such tasks. They might

instead choose very easy or very difficult tasks so as to avoid implications of incompetence

due to their (self-perceived) low ability. Hence, the behaviour of persons with self-perceived

low-ability, as measured by their greater test anxiety, is functionally similar to the predicted behaviour of persons with high fear of failure. Thus, the use of the TAQ measure as a proxy of FF confuses motivation with self-perceived ability (Nicholls, 1984) or with general negative emotionality and neuroticism (Schmidt & Riniolo, 1999).

Additionally, the employment of a difference score demonstrates a clear theoretical position about the nature of fear of failure. It assumes that the higher one's anxiety is about an achievement situation, the greater their fear of failure is, and the lesser their *n* Achievement will be. Because of the juxtaposition between high TAQ scores and high FF on one hand and low TAQ scores and high *n* Achievement on the other, subjects high in FF are assumed to be less well-performing as well as less motivated than those high in *n* Achievement. The main explanation for this belief is that the anxiety that FF-motivated subjects have for failing acts as an inhibitory force that diminishes the need for achievement and hope of success. However, it is important that we make clear the distinction between the individuals with low *n* Achievement on one hand and those with high *n* Achievement and avoidant tendencies on the other. It has never been clearly stated by researchers such as McClelland and Atkinson whether the fear of failure is theoretically or empirically the direct opposite of *n* Achievement, although the TAQ measurement procedure assumes this to be the case.

Additionally, differences scores have been criticized by methodologists and psychometricians (e.g., Cohen & Cohen, 1983; Griffin, Murray, & Gonzalez, 1999) because they inherently create basic conceptual problems. For instance, the TAQ measure obscures possible interactions between HS and FF, since the underlying assumption of a difference score is that HS and FF are opposing and mutually exclusive phenomena. More importantly, difference score correlations are actually less informative than the sum of their parts; conclusions derived from difference scores are not easily explained by the individual

components of the difference score since a number of underlying models exist, each assigning different proportion of weights and directionality to each individual component (Griffin, Murray, & Gonzalez, 1999).

Finally, McClelland, Koestner, and Weinberger (1989) introduced the now-accepted idea that self-report measures of achievement motivation and PSE-type measures of *n* Achievement are measuring two fundamentally different types of motives; because of this, the use of difference scores between a self-report scale such as the TAQ and the PSE-based measures such as McClelland et al.'s (1953) *n* Achievement measure is contrived and not psychologically meaningful.

All the studies reviewed above (except Halisch and Heckhausen, 1989, and DeCharms and Dave, 1965) assessed FF using the anxiety questionnaires, thus confounding failure-avoidance with self-efficacy. The use of such "contaminated" measures of FF has diminished the validity of evidence for Atkinson's theory regarding FF. Clearly, there is a need to develop measures of FF that are independent from measures of approach achievement motivation and self-efficacy.

The Hostile Press Measure

A measure that sought to address the approach/avoidance distinction without relying on anxiety questionnaires was the Hostile Press (HP) PSE scoring system devised by Birney, Burdick, and Teevan (1969). Just as Atkinson accepted McClelland's original *n* Achievement system as his measure of hope of success, Birney and colleagues did not seek to develop a new HS coding system. Instead, they focused on a technique to measure FF. However, in contrast to Atkinson, who used a self-report measure of test anxiety as a proxy for FF, Birney, Burdick, and Teevan created a PSE-based measure of fear of failure using McClelland and Atkinson's technique of experimental arousal. Birney, Burdick, and Teevan created their coding categories by contrasting stories written by students whose fear of failure

was aroused by performing very difficult tasks versus stories written by students in relaxed conditions. The basic arousal design was to have participants complete a task that was so difficult that they were very likely to fail—in one variation, college students were asked to execute a speed-reading task in which sentences were exposed for ever briefer moments of time until the students had to fail; in another, eighth graders were given a very difficult math test. Many of the tasks involved performing in front of a group or an "expert", thus confounding social evaluation anxiety with *n* Achievement and FF.

The resulting coding system was named *Hostile Press* because the stories written either displayed characteristics of being in hostile conditions or cited environmental influences that had to be avoided. However, as Schultheiss and Brunstein (2005) pointed out, the HP system, rather than examining the *motivation* to avoid failure, actually highlights the unwelcome elements in the *environment* that exert a pressure on the person to not fail. This might have been caused by the use of arousal conditions that included an element of social evaluation. If the fear of criticism is taken as a predominant criterion for assessment, then the construct being measured is more likely to represent a fear of social evaluation than the fear of failure per se. Given the very likely possibility that the HP measure is contaminated by one or more motives other than *n* Achievement (such as need to conform), it has not been used much except by those who devised the measure.

McClelland's Continuing Legacy; Building on the McClelland-Atkinson Theory and

Assessment Tradition

Since McClelland, Koestner, and Weinberger's (1989) paper and increasingly in recent years, researchers have focused on the distinction between implicit and explicit motivation. Recent research which has respected this distinction between implicit and explicit motivation has added meaningfully to the development of *n* Achievement literature in both theory-building and assessment techniques:

The Role of Feedback—Diagnostic Value or Incentive Value

There is a controversy behind why feedback is rewarding to and continually sought-after by achievement motivated individuals. Trope (Trope, 1975; Trope & Brickman, 1975; Trope & Neter, 1994) argues that individuals who are achievement motivated value tasks of intermediate difficulty not because these maximize the incentive value of success but because these maximize the informational value of the outcome. His argument is based on the assumption that self-evaluation is an essential goal for achievement motivated people; tasks of intermediate difficulty maximize the extent to which people can infer their own ability, based on their relative success or failure on a task.

In a series of experiments (e.g., Trope & Brickman, 1975; Trope & Ben-Yair, 1982; Trope & Neter, 1994), Trope arranged for participants to choose between tasks of varying difficulty levels and diagnosticity. He theorized that difficulty levels could be dissociated from diagnosticity of the task. A difficult task would be a task that carried very low percentages of success across all participants while an easy task would carry very high percentages of success across all participants. However, even within tasks of similar difficulty (i.e., with equally high or low percentage of success across participants), the degree of diagnosticity differs according to how well a task differentiates between high-performers versus low-performers.

In a typical study, Trope and Brickman (1975) administered tests that participants believed were measures of intellectual accomplishment. They were given percentages of successes and failures by high performing peers as well as percentages of successes and failures by low performing peers. Trope and Brickman contrasted very difficult and very easy tasks that had high diagnostic value (large difference in success rates between low and high performers) with moderately difficult tasks that had low diagnostic value (comparable rates of success between high and low performers). The authors found that across all

difficulty levels, high diagnosticity tests were preferred over low diagnosticity tests. However, among tests of equal diagnosticity, easier tests were preferred over more difficult ones. Trope claimed that his findings showed that moderately difficult tasks are selected more frequently by achievement motivated people mainly because these tasks carry greater informational value for achieving rather than because they carry greater incentive value of success.

There are some criticisms to Trope's conclusions: First, although Trope challenges Atkinson's theory regarding task difficulty preferences for achievement motivated individuals, he did not typically measure achievement motivation; instead he assumed that individuals performing an achievement task would already have their achievement motive engaged. When he did measure motivation (e.g., Trope, 1980) he used self-report measures which tap into self-attributed achievement motives. Trope's (1980) finding that self-attributed achievement motivation does not predict people's preferences for tasks actually corroborates McClelland et al.'s (1989) theory that self-attributed motives and implicit motives predict different classes of behavior.

Second, the use of explicit declaration of choice by participants is problematic because such declarative measures are partly based on factors other than motivational drive, such as self-efficacy and demand characteristics (c.f. McClelland, Koestner, & Weinberger, 1989; Schultheiss & Brunstein, 2005). Trope's findings are at best relevant to self-attributed achievement motivation and people's need to make task decisions that maintain their self-consistency. When implicit achievement motivation is studied, incentive value rather than diagnosticity should be the main factor in determining task preference.

Accordingly, more recent research by Brunstein and Meier (2005) has challenged Trope's argument about the value of feedback in *n* Achievement motivated behaviour. In a sophisticated study, Brunstein and Meier (2005) measured both *n* and *san* achievement and

asked participants to complete a mental concentration task. They measured participants'

performance on the task and asked participants to choose whether they would continue with

the task or switch to another task unrelated to achievement. Brunstein and Meier theorized

that while task performance is considered a spontaneous behavior that should be energized by

implicit motives, task continuation is an example of a choice behavior that should be

predicted by self-attributed motivation. Additionally, Brunstein and Meier argued that since

implicit achievement motivation is related to self-improvement concerns, *n* Achievement

motivated people should respond more strongly to self-referenced performance feedback (i.e.,

feedback about how well they are doing now in comparison to how well they were

performing previously). Conversely, they argued that since self-attributed Achievement is

derived from the self-concept, *san* Achievement motivated people would react more strongly

to norm-referenced feedback (i.e., feedback about how well they are performing in

comparison to their peers).

Generally, Brunstein and Maier (2005) point out that when participants received self-

referenced feedback, *n* Achievement was linked to task performance but not linked to task

continuation (Study 1). Specifically, *n* Achievement was linked to better task performance

after exposure to (unfavourable) self-referenced but not to norm-referenced feedback (Study

1). Moreover, *n* Achievement was related to better task performance after exposure to

unfavourable norm-referenced feedback only when *san* Achievement was also high (Study 3).

Finally, although *san* Achievement was not linked to task performance, it was linked to task

continuation after exposure to norm-referenced feedback (Studies 1 and 2) but not to self-

referenced feedback (Studies 1 and 2). These findings indicate that *n* Achievement is

activated by self-referenced feedback to direct effortful performance, but is not activated by

norm-referenced feedback. Brunstein and Maier (2005) explain that the interaction that

occurred between *n* and *san* Achievement suggests that the *san* Achievement plays a

channelling role by directing *n* Achievement energy into better performance when ongoing

task pursuits fit normatively defined standards.

Brunstein and Meier's findings clarify Trope's claims about the diagnostic value of

feedback. *N* Achievement is related to self-improvement and is aroused by task incentives

such as self-referenced feedback, thus it is unconcerned with performance relative to others.

Social comparison related information such as norm-referenced feedback is relatively more

useful for people who are motivated by *san* Achievement. Trope's claim—that the value of

feedback lies in its ability to provide accurate information for assessment of one's abilities—

only applies in a context when a person's ranking vis-à-vis her peers is more significant than

her individual performance on the task.

However, since they did not make the distinction between HS and FF, the implications of

Brunstein and Meier's findings should extend only to traditional approach-oriented notions of

n Achievement, i.e., HS.

The Heckhausen Assessment Tradition

Heckhausen (1963) expanded on McClelland's and Atkinson's model by developing

two independent PSE measures of HS and FF. He corrected two of the major shortcomings

of the McClelland et al. (1953) measure. Specifically, he resolved the issue of using mixed

self-report (e.g., TAQ) and PSE methods to measure motives and designed a separate

measurement procedure for HS and FF respectively. Heckhausen developed his PSE-based

scoring system by reviewing of the protocols of people who either did or did not use

defensive goal-setting strategies.

Moreover, Heckhausen built on McClelland et al.'s (1953) scoring system by adopting

most of their original *n* Achievement coding categories but defining them separately for HS

and FF and adding more relevant coding categories to make the HS/FF distinction the

centrepiece of his system. Heckhausen also streamlined the original *n* Achievement

categories by dropping some categories (e.g., Nurturant press, or *Nup*) that were relatively infrequent and did not discriminate well between individuals high and low in *n* Achievement. Specifically, Heckhausen retained the original *n* Achievement system themes of *need*, *instrumental activity*, *unsuccessful achievement outcomes*, positive *and negative affect*, and *anticipatory affect*, but discarded categories that were of questionable validity, such as *blocks*, *successful achievement outcomes*, and *nurturant press*. For instance, imagery containing references to *blocks* and *nurturant press* could be invoked because of other motives, such as *n* Power and *n* Affiliation. Finally, he added some categories (such as *praise* and *criticism*) that he thought were theoretically relevant to the hope and fear aspects of *n* Achievement. Tables 3a and 3b present an abbreviated summary of Heckhausen's coding categories for HS and FF respectively.

Historically, Heckhausen's system has not been used very frequently by McClelland, his colleagues, or other U.S. researchers interested in achievement motivation because Heckhausen's measure was written in German (however, see a recent translation of the system into English by Schultheiss, 2001). Nonetheless, Heckhausen's measure has gained respectability because it is to date the most systematic and comprehensive, theory-driven need achievement scoring system available.

The validity of the system has been displayed in extensive studies conducted in Germany. The FF measure was associated with marked avoidance of tasks of moderate difficulty, thus lending support to Atkinson's expectancy-value model (Schneider, 1978). Research conducted using the Heckhausen system presents a coherent picture of the person motivated by FF. Compared to those who score lower in FF, high scoring participants tend to recall tasks that they have completed better than those that they have failed to complete, take longer to do their homework, perform worse under time pressure, and perform better after success feedback (Heckhausen, 1980). Taken together, these findings show that FF motivates

individuals to work harder, longer, and more carefully than others to ensure that they will not fail at the present task, especially when it is obvious that their hard work will help them to avoid the *implications* of failure. That is, FF not only causes individuals to work harder to avoid failure, it also causes them to dismiss or discount past failures, and it disrupts their concentration and attention when failure on a present task is possible and impending.

Although Heckhausen developed a very efficient and theoretically-sound coding system, there is one major shortcoming in his research. He developed his coding categories through deductive reasoning and literature review instead of using McClelland's recommended procedure of experimentally arousing HS and FF in participants first and then deriving coding categories by observing differences between protocols from the arousal conditions and from the neutral condition.

The method of experimental arousal has an advantage over a theoretically derived coding system because it is based on the actual effects of the motive of interest on fantasy. For this reason, it can be argued that empirically derived coding systems have greater construct validity than theoretically derived coding systems. Heckhausen's method of rational inquiry may have missed out some content categories that were not obvious to him but would emerge from protocols collected in an experimental arousal condition.

Introducing a Revised Measure of Hope of Success and Fear of Failure

In an effort to correct the shortcomings of previous research in assessing HS and FF, I (Pang, 2006) have built on the McClelland-Atkinson and Heckhausen lines of research by using arousal procedures to develop separate PSE-based measure content-coding systems for HS and FF.

The main goal of this research is to rectify the shortcomings of previous measures by (a) experimentally arousing HS and FF in participants in a way that does not prime the affiliation and power motives or the social evaluative element, and (b) developing a PSE-type

content coding system that <u>focuses on the HS/FF distinction</u> by constructing separate coding systems for the two orientations.

Previous research (e.g., Brunstein & Meier, 2005; Brunstein & Schmitt, 2004) has demonstrated the effectiveness of self-referenced feedback as an incentive for achievement motivated individuals. The use of self-referenced feedback as opposed to other- or norm-referenced feedback is based on previous evidence that shows that (a) achievement motivation is only activated in situations where there are intrinsic reasons for succeeding (e.g., Brunstein & Schmitt, 2004), and (b) socially-evaluative information tends to arouse other motives such as *n* Affiliation or *n* Power (e.g., Birney, Burdick, & Teevan, 1969). Hence, the general principle of my arousal method was to vary *self-referenced* feedback received by participants in order to increase the salience of either success or failure.

Following the basic premise of McClelland et al.'s (1953) conditioning theory of motivation and Schultheiss and Brunstein's (2005) elaboration of this theory, we would expect people motivated by HS to be in an active-approach mode, hence, they are actively seeking to increase the amount of positive incentives. Thus, in my arousal procedure, participants in an "intermittent success" condition were given intermittent positive self-referenced performance feedback (e.g., calculating trial performance and flashing a message on later trials, "You performed significantly better than on your previous trials!") while they executed a mental concentration task. It was expected that intermittent success feedback would arouse HS in participants, who would work harder to improve their performance on subsequent trials in order to receive the positive incentives provided by the encouraging flashing messages.

However, we would expect those people who are motivated by FF to be in an active-avoidant mode; hence they actively seek to decrease the amount of disincentives. Thus, participants in an "intermittent failure" condition were given intermittent negative self-

referenced performance feedback (e.g., "You performed significantly worse than on your previous trials!") during the same task. It was expected that intermittent failure feedback would arouse FF in participants, who would work harder to improve their performance on subsequent trials in order to avoid the disincentives provided by the discouraging flashing messages.

Participants in a neutral condition were not given feedback during the actual task but were told that they would receive some form of feedback on their performance only after having completed the experiment. Thus, these participants would have received no particular positive or negative incentives to improve on their performances.

Table 4a represents the coding categories that were developed for HS after analyzing and comparing post-arousal protocols in the intermittent success condition with protocols from the neutral condition; Table 4b represents coding categories that were developed for FF after analyzing and comparing post-arousal protocols in the intermittent failure condition with protocols from the neutral condition.

As an illustration of the different content of the HS and FF scoring systems, the following is an excerpt of a protocol written by a participant in the intermittent success condition that would receive high scores in HS. Wherever they occur, coding categories are indicated in [*italics and square brackets*]:

All the training had built up to this one moment. If Cari could overtake her opponent

on the last lap, she could win her country gold. Cari pushed herself as hard as she

could, passing those competitors who were becoming more and more tired [*others

failed or gave up*]. Although she felt intense pain and exhaustion [*physical strain*],

competition was intense and she strove to overtake the person in front of her

[competition] while concentrating on her technique [*quality control*]. With the last of

her energy [*strong energizing emotion*], Cari pushed herself over the finish line. She

had won the Gold medal [*unique accomplishment*].

The following is an excerpt of a protocol written by a participant in the intermittent

failure condition that would receive high scores in FF:

Bonnie woke up in Salt Lake City and felt excited about the day's events. Today was

the speed skating finals. She arrived early at the venue and mentally prepared herself

by visualizing the events that were to come [*preparation and training*]. Race Time.

Bonnie is anxious enough she could jump out of her skin. She can't stop thinking

about how this has been her life goal [*life dream*], to win the Olympics gold medal.

She has been getting up at 5am and training for 10 hours a day for the last six months

[*hard work*]. As she skates, Bonnie thinks back to a time when she was unable to

compete because she had been injured by a cruel old woman that hit her leg with her

walking stick [*obstacle in the environment*]. Bonnie will keep on thinking about this

sad event [*distraction*] and will lose the race [*failure outcome*].

Interestingly, the revised HS and FF systems included some subcategories that

traditionally have not been associated with either motive. Specifically, the revised FF coding

system included such subcategories as *instrumental activity*, which are almost identical to

subcategories in Heckhausen's system for hope of success, and not fear of failure.

Additionally, there are also some content categories that are completely new, which have not

been identified by either McClelland or Heckhausen, or which have been given only cursory

mention by previous coding systems. Examples of such categories are *competition*[1], and

those categories that indicate the costs, either physical or emotional, associated with pursuing

an achievement goal—*physical strain* and *extreme personal sacrifice*. Table 5 summarizes

the similarities, additions, and subtractions in coding categories between Pang's (2006)

revised measure and the coding categories contained in Heckhausen's (1963) and McClelland et al.'s (1953) measures.

Taken together, the subcategories for HS suggest a profile of the prototypical HS-motivated individual as a person who pays greater attention to positive achievement standards as well as to any indications that a positive achievement goal has been obtained (as indicated by the emergence of the themes of *positive achievement goal*, *successful outcome*, significant *accomplishment*, and *praise*). She assesses the situation for cues about the performance of relevant peers and competitors (*competition*, *others failed/gave up*, *others' expectation of failure*) as well as the physical demands of the activity (*strain*, *sacrifice*). This is an indication that the achievement tasks are evaluated for their potential challenges, which she overcomes by exerting effortful control (*quality control*, *compensatory effort*) as well as a high level of determination (*strong, energizing emotion*).

Conversely, subcategories for FF depict a person who is focussed on negative achievement goals and outcomes, as well as potential obstacles that lead to these negative outcomes (*failure*, *expectation of failure*, *obstacles*). This focus on potentially negative outcomes leads to some defensive goal-directed behaviour (*quality control*) to the extent that it potentially prevents her from focussing on the goal-directed activity (*distraction*). The goal, although negatively framed, is a personally important one (*life dream*). The combination of a personally meaningful goal and an attentional focus on potentially negative outcomes causes the individual to experience conflicting emotions (*positive emotion*, *strong inhibiting emotion*) while engaging frenetically in instrumental activity (*basic instrumental activity*, *hard work*, *preparation and training*) that is undertaken in order to ensure that the negative outcomes do not come to fruition.

There are some possible reasons for the different themes and patterns of coding categories represented in the present study compared to those found by Heckhausen and McClelland.

First, McClelland et al. (1953) aroused achievement motivation in their participants by suggesting success or failure at a norm-setting task. Specifically, subjects were given the impression that they were completing intelligence and aptitude tests for which norms had already been established, and then were quoted norms that were either low enough to arouse a sense of success in most participants, or high enough to arouse a sense of failure in most participants. In contrast, the arousal procedure in the present study was based on an individual's performance on previous trials of the task, and was indicative only of speed and accuracy at responding to computer-based visual stimuli, rather than of general leadership abilities. For this reason, the present study may evoke more task-oriented imagery, such as those associated with the costs of engaging in the achievement act, and of intensity of competition—two content categories that are absent in McClelland's coding system.

Furthermore, the participants in McClelland's studies were competing against a pre-established norm, while participants in the present studies were competing against standards set by their own previous performance, which could explain why participants in the present study were more likely to consider the personal costs associated with pursuing an achievement goal.

Second, the coding categories that McClelland et al. (1953) obtained were probably influenced by the fact that they were based on experimental procedures that all involved failure arousal (McClelland, Clark, Roby, & Atkinson, 1949). The emphasis on failure in McClelland et al.'s arousal procedure was a result of their assumption that motivation arises from either physiological or psychological deprivation of condition or object that is necessary for growth and survival. However, while the deprivation principle would apply for basic

needs such as hunger and thirst, psychological needs such as achievement motivation tend to possess more complicated origins involving the internalization of social and cultural standards of achievement. Additionally, as illustrated by the conditioning theory of motivation, approach-oriented HS motives develop through conditioning of behavioural-response contingencies for obtaining positive affective experiences. Hence, success is a more obvious positive incentive for those motivated by HS, and experimental conditions designed to arouse HS should also include intermittent success arousal.

Third, the number and type of achievement associations in an imaginative story is partly dependent on the evocative characteristics of the picture cues used in the assessment. Picture cues used in McClelland et al. (1953), Heckhausen (1963), and Pang (2006) were not consistent with each other, and it is possible that certain themes emerged in the revised HS and FF categories because they were strongly associated with certain picture cues. For instance, the picture set in Pang (2006) contained a picture of a figure climbing a snow-covered mountain. The categories *physical strain* and *extreme personal sacrifice* could both have been primed by the mountain climber picture, which may have resonated with the participants in the intermittent-success arousal group in a particular way. Since neither McClelland et al. (1953) nor Heckhausen (1963) used a picture with similar content, there is a valid concern that the differences in resulting imagery may be uniquely elicited by this picture rather than a general effect of motivational arousal. Future work would benefit from an examination of whether and the extent to which themes evoked by common picture cues produce imagery that is idiosyncratic to this set of cues.

Finally, the main difference between the arousal procedure of the present study and the procedure through which Heckhausen (1963) constructed his coding systems is one between empirical and theoretical derivation. Heckhausen's main objective was to construct a measure of theoretically relevant differences between HS and FF. Thus, he ended up with

two sets of coding categories that were meaningfully and functionally diametrically opposed. Logically, Heckhausen's HS coding system contained positive goal and goal-relevant imagery, such as *instrumental activity* and *positive affect*, while the FF coding contained negative goal and goal-relevant imagery, such as *expectation of failure*. The fact that *instrumental activity* and *positive affect* are more prevalent in the FF arousal group of the present study while *expectation of failure* is more prevalent in the HS arousal group, suggests that fear of failure is not merely a convenient theoretical opposite to hope of success, but that FF is functionally and behaviourally more similar to HS than traditional achievement motivation theory has suggested.

Validation of Pang's (2006) Revised Coding System for HS and FF

The revised coding system was validated in the following ways: (a) HS and FF scores were used to predict decisions on the Iowa Gambling Task (IGT; Bechara et al., 1994), a behavioural measure of risky- and risk-averse decision making, (b) HS and FF scores were correlated with scores on *san* achievement motivation measures to investigate discriminant validity, (c) convergent and discriminant validity were explored by comparing the scores of the revised HS and FF measure to that of Winter's (1994) coding system for scoring motive imagery in running text, finally, (d) predictive validity was investigated by using revised-system HS and FF scores to predict performance on a computer-based reaction time task of attention and concentration (adapted from Brickenkamp & Zillmer's, 1998, D2 Test of Attention).

The IGT and preference for moderate risk. As its name suggests, the IGT presents the participant with a gambling scenario in which she makes card choices from four separate decks of playing cards. Two of the card decks are manipulated so that they consistently present opportunities to win large amounts of money but are likely to cause significant monetary losses in the long run (a result of big wins and big losses). On the other hand, the

other two decks consistently provide opportunities to win moderate amounts of money and are likely to cause moderate monetary gains in the long run (a result of small wins and small losses).

Typically, a rational participant starts off during the IGT by taking more risky, high-reward bets, thus preferring the disadvantageous, high-win/high-loss decks. By the final block however, most participants tend to develop more risk- and punishment-averse tactics of switching their preference to the more advantageous, small-win/small-losses, decks that possess moderate risk (Denburg, Tranel, & Bechara, 2005). Because it requires participants to choose between options of varying relative risk, the IGT represents a modern version of the kind of risk-taking tasks that Atkinson and others used to test the predictions from the expectancy-value theory about achievement motivated people's preferences for moderately challenging or moderately risky achievement goals. One key difference between the IGT and say, a ring-toss or a volleyball dunking game, is that participants have no initial information about the most advantageous strategy at the outset, but through participating in a number of trials, figure out the best strategy intuitively. Nonetheless, Bechara, Damasio, Tranel, and Damasio (1997) has found that anticipatory psychophysiological responses occur in participants when they are selecting cards from the advantageous decks even before the participants have conscious awareness of the strategic value of their choices. Thus, the IGT provides a unique opportunity to assess moderate-task preference using a non-declarative, behavioural measure.

In the present study, HS scores as assessed by the categories in Table 4a predicted more risky choice behavior (as indicated by a preference for the riskier, disadvantageous decks) in earlier blocks and more risk-averse choice behavior (as indicated by a preference for moderate risk, more advantageous decks) towards the final blocks of the IGT. This pattern of behavior suggests that HS is related to a hyper-rational mode of responding, where

highly achievement-motivated participants who have hope of success are more likely than low achievement-motivated participants to engage in behavior that will eventually maximize their monetary gains in the IGT.

On the other hand, participants with greater FF as assessed by the categories in Table 4b, were significantly more likely to make more risky, reward-sensitive decisions throughout the entire IGT, suggesting that FF influences early task preference in the same way as HS by encouraging more risky early decision-making, although this risky behaviour persists for those motivated by FF even after experience with more trials.

The findings of the present study seem to go against the predictions of the expectancy-value model that postulated that people motivated by FF would be most eager to minimize loss and punishment.

The above findings can be more easily explained in the context of the previous study by DeCharms and Davé (1965) that found that high HS and high FF groups were associated with taking more extreme risks than low achievement groups. As previously mentioned, there was an interaction effect of HS and FF, such that subjects with both high fear of failure and high hope of success are most likely to concentrate their efforts at a point of moderately high risk. Consistent with DeCharms and Davé's (1965) findings, participants high in HS and FF are more likely to take moderate to extreme risks in the present study. Left to their own devices, highly achievement motivated people, whether they are motivated by hope or fear, appear to maximize their satisfaction early on by taking what DeCharms and Davé described as a "calculated risk".

Correlation with related explicit and implicit motive measures. The Hope of Success and Fear of Failure scale (HSFF; Schultheiss & Murray, 2002) is a 22-item Likert-type scale with items that are based on Heckhausen's (1963) dimensions of hope of success and fear of failure. In line with previous research showing the lack of convergence between implicit and

explicit motive measures, scores on the new PSE scoring system for HS and FF did not display any significant systematic relationship with scores on the self-HS and FF motive measures (see Table 6).

Because the Winter scoring system contains simplified versions of the original *n* Achievement (McClelland et al., 1953), *n* Affiliation (Heyns, Veroff, & Atkinson, 1958; McAdams, 1980), and *n* Power (Winter, 1973) coding systems, it can be used to ascertain convergent and divergent validity for the revised coding system for HS and FF. As shown in Table 6, convergent and divergent validity was partially demonstrated with post-arousal HS scores, which were significantly positively correlated with post-arousal Winter *n* Achievement, but not with other Winter system motives. There were no significant correlations between revised-system FF scores and Winter system *n* Ach, *n* Aff, or *n* Pow scores. These results suggest that the Winter coding system *n* Achievement is more adept at measuring the active approach motive disposition of HS than the active avoidance FF disposition.

Task performance. Finally, as evidence of predictive validity, HS and FF scores were correlated with both reaction time and error rates of responding on the D2 Task of Attention (Brickenkamp & Zillmer, 1998). Revised-system HS and FF scores were associated with lower error rates on the D2 task. Specifically, while HS is related to greater accuracy in later trials of the task, FF is related to greater accuracy on earlier trials.

Taken together, the IGT and D2 mental concentration task findings and correlations with related *n* and *san* motivation measures suggest that (a) performance feedback is an effective method of arousal HS and FF motivations; (b) dispositional HS and FF are related to moderately risky behavior on the IGT; (c) functionally, HS and FF are both energizing rather than inhibiting, promoting definite goal-directed behavior such as greater accuracy on the mental concentration task. These findings suggest that both HS and FF are functionally

more similar to each other than other theorists (e.g., Atkinson et al., 1960; Heckhausen, 1963) have argued.

Discussion and Future Directions

The development of theory on *n* Achievement has been intertwined with the development of its instruments and methods. As detailed in this chapter, the methodological conventions have, in turn, affected theoretical conceptions of the motive, particularly in the distinction between hope of success and fear of failure motivation.

Recent theoretical discussion (e.g., Schultheiss & Brunstein, 2005) and empirical work (Pang, 2006; Brunstein & Meier, 2005) has made some interesting advancements from previous notions about achievement motivation, hope of success motivation, and fear of failure motivation. Specifically, the importance of self-referenced feedback and self-imposed standards of excellence has been highlighted. People motivated by implicit achievement motivation respond to situations that allow them to set their own standards of excellence, and perform better when they are working towards and given feedback on their progress in a goal that is personally relevant.

In addition, theoretical developments about the difference between implicit and self-attributed motivation has contributed to awareness of the shortcomings of previous methods of assessing fear of failure motivation. The development of better methods of measuring achievement motivation that pay respect to the implicit-explicit motive distinction is important because good measures are the first step towards theory development. For this reason, theory regarding fear of failure has never been fully developed. Specifically, predictions about fear of failure regarding effort, persistence, task choice, task performance, and task valence following Atkinson's expectancy-value theory of motivation has received mottled investigation and support. The revised HS and FF coding systems presented in this chapter represent a first step towards improving theory and measurement of *n* Achievement.

Specifically, when self-referenced rather than norm-referenced feedback is given, people motivated by hope of success and those motivated by fear of failure appear to be functionally more similar than previous theory would expect. Pang's (2006) findings corroborate Halisch and Heckhausen's (1989) study that showed that high HS and FF, as assessed by a PSE-based measure rather than self-reports or the difference score measure, predicted similarly steeper valence gradients for success outcomes than for failure outcomes. This implies that the behavioral similarities between those motivated by HS and FF could be due to the fact that both groups receive equally stronger emotional reinforcements when they obtain positive achievement outcomes.

Much research is needed to clarify the theoretical quandaries and controversies regarding *n* Achievement, hope of success, and fear of failure. Future work should pay particular attention to a) ways of arousing *n* Achievement (perhaps using self-referenced feedback) that do not tap into confounding concepts such as *n* Power and self-evaluation anxiety, b) distinguishing between HS and FF in measurement methods in order to achieve greater clarity in mapping out each motive's developmental and behavioral correlates, and c) validating such measures using behavioral approaches (such as task performance, intuitive decision-making, and physiological affect changes), rather than self-report and declarative outcomes.

References

Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. Psychological Review, 64, 359.

Atkinson, J. W. (1958). Motives in fantasy, action, and society: a method of assessment and study. Oxford, England: Van Nostrand.

Atkinson, J. W., & Litwin, G. H. (1960). Achievement motive and test anxiety conceived as motive to approach success and motive to avoid failure. Journal of Abnormal and Social Psychology, 60, 52.

Bartmann, T. (1965). Denkerziehung im Programmierten Unterricht. Munich: Manz.

Bechara, A., Damasio, A. R., & Damasio, H. (1994). Insensitivity to future consequences following damage to human prefrontal cortex. Cognition, 50, 7-15.

Bechara, A., Damasio, H., Tranel, D., & Damasio, A. R. (1997). Deciding advantageously before knowing the advantageous strategy. *Science, 275*, 1293-1294.

Bellak, L. (1975). The Thematic Apperception Test: The Children's Apperception Test and the Senior Apperception Technique in clinical use (3rd ed.). New York: Grune & Stratton.

Birney, R. C., Burdick, H., & Teevan, R. C. (1969). Fear of failure. NY: Van Nostrand-Reinhold Company.

Breckler, S. J., & Greenwald, A. G. (1986). Motivational facets of the self. In R. M. Sorrentino & E. T. Higgins (Eds.), Handbook of motivation and cognition: Foundations of social behavior (pp. 145-164). New York: Guilford Press.

Brickenkamp, R., & Zillmer. (1998). *d2 Test of Attention*. Seattle, WA: Hogrefe International.

Brunstein, J. C., & Maier, G. n. W. (2005). Implicit and Self-Attributed Motives to Achieve: Two Separate but Interacting Needs. Journal of Personality and Social Psychology, 89(2), 205-222.

Cicchetti, D., & Sroufe, L. A. (1976). The relationship between affective and cognitive development in Down's syndrome infants. Child Development, 47, 920-929.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis in behavioural sciences*. Hillsdale, NJ: Erlbaum.

Collins, C. J., Hanges, P. J., & Locke, E. A. (2004). The Relationship of Achievement Motivation to Entrepreneurial Behavior: A Meta-Analysis. *Human Performance, 17*, 95-117.

Cooper, W. H. (1983). An achievement motivation nomological network. Journal of Personality and Social Psychology, 44(4), 841-861.

Covington, M. V., & Omelich, C. L. (1985). Ability and effort valuation among failure-avoiding and failure-accepting students. *Journal of Educational Psychology, 77*, 446-459.

Cramer, P. (1991). Anger and the use of defense mechanisms in college students. Journal of Personality, 59, 39-55.

de Charms, R., & Dave, P. N. (1965). Hope of success, fear of failure, subjective probability, and risk-taking behavior. Journal of Personality and Social Psychology, 1, 558-568.

deCharms, R., & Carpenter, V. (1968). Measuring motivation in culturally disadvantaged children. . In H. J. Klausmeirer & G. T. O'Hearn (Eds.), Research and development toward the improvement of education. . Madison, Wis: Educational Research Services.

Denburg, N. L., Tranel, D., & Bechara, A. (2005). The ability to decide advantageously declines prematurely in some normal older persons. Neuropsychologia, 43, 1099-1106.

Entwisle, D. R. (1972). To Dispel Fantasies About Fantasy-Based Measures of Achievement Motivation. Psychological Bulletin, 77, 377-391.

Feather, N. T. (1962). The study of persistence. Psychological Bulletin, 59, 94-115.

Feather, N. T. (1967). Valence of outcome and expectation of success in relation to task

    difficulty and perceived locus of control. Journal of Personality and Social

    Psychology, 7, 372-386.

Fleming, J., & Horner, M. S. (1992). The motive to avoid success. In C. P. Smith (Ed.),

    Motivation and personality: Handbook of thematic content analysis (pp. 179-189).

    New York, NY, US: Cambridge University Press.

Fodor, E. M., & Carver, R. A. (2000). Achievement and power motives, performance

    feedback, and creativity. Journal of Research in Personality, 34, 380-396.

French, E. G. (1955). Some characteristics of achievement motivation. Journal of

    Experimental Psychology, 50(4), 232-236.

French, E. G. (1958). The interaction of achievement motivation and ability in problem

    solving success. Journal of Abnormal & Social Psychology, 57(3), 306-309.

Griffin, D., Murray, S., & Gonzalez, R. (1999). Difference score correlations in relationship

    research: A conceptual primer. *Personal Relationships. Special issue:*

    Methodological and Data Analytic Advances, 6, 505-518.

Halisch, F., & Heckhausen, H. (1989). Motive-dependent versus ability-dependent valence

    functions for success and failure. In F. Halisch & J. H. L. van den Bercken (Eds.),

    International perspectives on achievement and task motivation (pp. 51-67). Lisse,

    Netherlands: Swets & Zeitlinger Publishers.

Hamilton, J. O. (1974). Motivation and risk-taking behavior: A test of Atkinson's theory.

    Journal of Personality and Social Psychology, 29, 856-864.

Heckhausen, H. (1963). Hoffnung und Furcht ub der Leistungsmotivation [Hope and fear

    components of achievement motivation] Meisenheim am Glam: Anton Hain.

Heckhausen, H. (1980). Motivation und Handeln. New York: Spriner-Verlag.

Heckhausen, H. (1991). Motivation and action. Berlin: Springer.

Heyns, R. W., Veroff, J., & Atkinson, J. W. (1958). A scoring manual for the affiliation motive. In J. W. Atkinson (Ed.), *Motives in fantasy, action, and society* (pp. 205-218). Princeton, NJ: Van Nostrand.

Kagan, J., & Moss, H. A. (1962). Birth to maturity: A study in psychological development: John Wiley.

Karabenick, S. A. (1972). Valence of success and failure as a function of achievement motives and locus of control. Journal of Personality and Social Psychology, 21, 101-110.

Karabenick, S. A. (1977). Fear of success, achievement and affiliation dispositions, and the performance of men and women under individual and competitive conditions. *Journal of Personality, 45*, 117-149.

Karabenick, S. A., & Yousseff, Z. I. (1968). Performance as a function of achievement motive level and perceived difficulty. Journal of Personality & Social Psychology, 10, 414-419.

Kukla, A. (1974). Performance as a function of resultant achievement motivation (perceived ability) and perceived difficulty. *Journal of Research in Personality, 7*, 374-383.

Litwin, G. H. (1966). Achievement motivation, expectancy of success, and risk-taking behavior. In J. W. Atkinson & N. T. Feather (Eds.), A theory of achievement motivation. New York: Wiley.

Lowell, E. L. (1952). The effect of need for achievement on learning and speed of performance. Journal of Psychology: Interdisciplinary and Applied, 33, 31-40.

Mahone, C. H. (1960). Fear of failure and unrealistic vocational aspiration. Journal of Abnormal and Social Psychology, 60, 253-261.

McAdams, D. P. (1980). A thematic coding system for the intimacy motive. *Journal of Research in Personality, 14*, 413-432.

McClelland, D. C. (1961). The achieving society: Van Nostrand.

McClelland, D. C. (1987). Human motivation: Cambridge University Press.

McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). The achievement motive. East Norwalk, CT, US: Appleton-Century-Crofts.

McClelland, D. C., Clark, R. A., Roby, T. B., & Atkinson, J. W. (1949). The projective expression of needs. IV. The effect of the need for achievement on thematic apperception. Journal of Experimental Psychology, 39, 242-255.

McClelland, D. C., Koestner, R., & Weinberger, J. (1989). How do self-attributed and implicit motives differ? Psychological Review, 96(4), 690-702.

McKeachie, W. J. (1961). Motivation, teaching methods, and college learning. In M. R. Jones (Ed.), Nebraska Symposium on Motivation. Lincoln: University of Nebraska Press.

Morgan, C. D., & Murray, H. A. (1935). A method for examining fantasies: The Thematic Apperception Test. Archives of Neurology and Psychiatry, 34, 289-306.

Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. Psychological Review, 91, 328-346.

O'Connor, P. A., Atkinson, J. W., & Horner, M. A. (1966). Motivational implications of ability grouping in schools. In J. W. Atkinson & N. T. Feather (Eds.), A theory of achievement motivation. New York: Wiley.

Pang, J. S. (2006). A revised content-coding measure for hope of success (HS) and fear of failure (FF). Unpublished Dissertation, University of Michigan, Ann Arbor.

Raynor, J. O., & Entin, E. E. (1982). Motivation, career striving, and aging. Washington, D.C: Hemisphere.

Rosen, B. C., & D'Andrade, R. (1959). The psychosocial origins of achievement motivation. Sociometry, 22, 185-218.

Sarason, S. B., & Mandler, G. (1952). Some correlates of test anxiety. The Journal of

    Abnormal and Social Psychology, 47, 810-817.

Seligman, M. E. P. (1975). *Helplessness: On depression, development, and death*. New York:

    W H Freeman/Times Books/ Henry Holt & Co.

Schmidt, L. A., & Riniolo, T. C. (1999). The role of neuroticism in test and social anxiety.

    Journal of Social Psychology, 139(3), 394-395.

Schneider, K. (1978). Atkinson's 'Risk Preference' Model: Should It Be Revised? Motivation

    and Emotion, 2, 333-344.

Schneidman, E. S. (1999.). The Thematic Apperception Test: A paradise of psychodynamics.

    In L. Gieser & M. I. Stein (Eds.), Evocative images: The Thematic Apperception Test

    and the art of projection (pp. 87-97). Washington, DC, US: American Psychological

    Association.

Schultheiss, O. C. (2001). Manual for the assessment of hope of success and fear of failure

    (English translation of Heckhausen's need Achievement measure): Unpublished

    instrument, University of Michigan, Ann Arbor.

Schultheiss, O. C., & Brunstein, J. C. (2005). An Implicit Motive Perspective on Competence.

    In A. J. Elliot & C. S. Dweck (Eds.), Handbook of competence and motivation (pp.

    31-51). New York: Guilford Publications.

Schultheiss, O. C., & Hale, J. A. (2007). Implicit motives modulate attentional orienting to

    facial expressions of emotion. *Motivation and Emotion, 31*, 13-24.

Schultheiss, O. C., & Murray, T. (2002). Hope of success/fear of failure questionnaire.

    Unpublished instrument, University of Michigan, Ann Arbor.

Spangler, W. D. (1992). Validity of questionnaire and TAT measures of need for

    achievement: Two meta-analyses. *Psychological Bulletin, 112*, 40-154.

Thorndike, E. L. (1911). *Animal intelligence: Experimental studies*. Lewiston, NY, US: Macmillan Press.

Trope, Y. (1975). Seeking information about one's own ability as a determinant of choice among tasks. Journal of Personality and Social Psychology, 32, 1004-1013.

Trope, Y. (1980). Self-assessment, self-enhancement, and task preference. *Journal of Experimental Social Psychology, 16*, 116-129.

Trope, Y., & Ben-Yair, E. (1982). Task construction and persistence as means for self-assessment of abilities. Journal of Personality and Social Psychology, 42, 637-645.

Trope, Y., & Brickman, P. (1975). Difficulty and diagnosticity as determinants of choice among tasks. Journal of Personality and Social Psychology, 31(5), 918.

Trope, Y., & Neter, E. (1994). Reconciling competing motives in self-evaluation: The role of self-control in feedback seeking. Journal of Personality and Social Psychology, 66(4), 646-657.

Veroff, J. (1969). Social comparison and the development of achievement motivation. In C. P. Smith (Ed.), Achievement-related motives in children (pp. 46-101). New York: Russell Sage Foundation.

Winter, D. G. (1973). *Power motive*. New York: Free Press.

Winter, D. G. (1999.). Linking personality and 'scientific' psychology: The development of empirically derived Thematic Apperception Test measures. . In L. Gieser & M. I. Stein (Eds.), Evocative images: The Thematic Apperception Test and the art of projection. (pp. 107-124). Washington, DC, US: American Psychological Association.

Winter, D. G. (1994). Manual for scoring motive imagery in running text. Unpublished instrument, University of Michigan, Ann Arbor.

Winter, D. G. (1999). Linking personality and 'scientific' psychology: The development of empirically derived Thematic Apperception Test measures. In L. Gieser & M. I. Stein

(Eds.), *Evocative images: The Thematic Apperception Test and the art of projection* (pp. 107-124). Washington, DC, US: American Psychological Association.

Winterbottom, M. R. (1958). The relation of need for achievement to learning experiences in independence and mastery. . In J. W. Atkinson (Ed.), Motives in fantasy, action, and society. . Princeton, NJ, USA: Van Nostrand.

Footnotes

1. Although *Competition with a Standard of Excellence* is stated as one of the criteria for scoring *n* Achievement-related imagery, it is not elaborated in the sub-categories. Hence, in the original McClelland et al. (1953) scoring system, mention of competition would be a criterion for moving on to score sub-categories of *Need*, *Instrumental Activity*, and so on, but does not itself contribute to the motive score. In addition, while *Mention of Winning or Competing with Others* is a category in the Winter (1994) integrated system for scoring motive-imagery in running text, that category does not specifically include elaboration of degree or intensity of the competition as a criteria for scoring.

Table 1. Outline of *n* Achievement coding system.

Imagery Type	Definition/Criteria
Achievement imagery (*AI*)	Competition with a standard of excellence through
	• Competition with a standard
	• Unique Accomplishment
	• Long-term involvement in an achievement goal
If *AI* is detected, then score subcategories below:	
Need (*N*)	Story character states a desire to reach an achievement goal
Instrumental activity (*I*)	Overt or mental activity done to reach an achievement goal (*I* +), if the outcome of the activity is doubtful or unsuccessful, score (*I* -)
Anticipatory goal states (*Ga*)	Story character experiences past or present, definite or possible goal attainment (*Ga* +) or frustration or failure (*Ga* -)
Obstacles (*B*)	When the progress of goal-directed activity is hindered in some way. *B*p stands for block within the person; *Bw* stands for blocks that originate from the world, or the external environment. Only real obstacle, not apparent or imagined ones are scored
Nurturant press (*Nup*)	Personal sources in the story aid the story character
Affective states (*G*)	Emotions associated with goal attainment, active mastery (*G* +) or frustration of the goal (*G* -)
Achievement thema (*Ach Th*)	Scored when the achievement imagery is elaborated in such a manner that it becomes the central plot of the story

Note: Adapted from McClelland et al. (1953). This outline is not adequate for scoring purposes.

Table 2. Aroused Tendency to Avoid (T_{avoid}) as a Joint Function of the Motive to Avoid

Failure (M_f), Probability of Failure (P_f), and the (Negative) Incentive Value of Failure (I_f).

Task Difficulty	Low in *FF* $M_f \times P_f \times I_f = T_{avoid}$	High in *FF* $M_f \times P_f \times I_f = T_{avoid}$
Hard	1 x 0.90 x 0.10 = 0.09	3 x 0.90 x 0.10 = 0.27
Moderate	1 x 0.50 x 0.50 = 0.25	3 x 0.50 x 0.50 = 0.75
Easy	1 x 0.10 x 0.90 = 0.09	3 x 0.10 x 0.90 = 0.27

Table 3a
Outline of Heckhausen's coding system for Hope of Success

Imagery Type	Definition/Criteria
Need for success (*NS*)	When a story character sets a positively-framed achievement goal by using * Positively framed intentions that the goal can be achieved * Wishes and hopes aimed at the achievement goal
Instrumental activity to succeed (*IS*)	Story character does or will do something that will bring her or him closer to the achievement goal, without relying on others' help
Expectation of success (*ES*)	Expectations of a story character to succeed in an achievement related activity
Praise (*P*)	Whenever a person praises, rewards, or distinguishes somebody else who has worked well or delivered a good performance
Positive Affect (*A +*)	Positive affective states that occur in an achievement context
Success theme (*ST*)	At least *NS* or *ES* has been scored and no Fear of Failure category has been scored except *A-* and *EF*

Note: Adapted from Schultheiss (2001). This outline is not adequate for scoring purposes.

Table 3b

Outline of Heckhausen's coding system for Fear of Failure

Imagery Type	Definition/Criteria
Need to avoid failure (*NF*)	A story character expresses the need or intention to avoid failure within an achievement context by: * Setting a negatively-framed goal * Wishing something is accomplished that will soften a failure * Hesitates to show her or his work for fear of scrutiny or criticism
Instrumental activity to avoid failure (*IF*)	Story character does, will do, is doing something that will soften or avoid a failure
Expectation of failure (*EF*)	Expectations of a story character to fail in an achievement related activity
Criticism (*C*)	Whenever a person openly criticizes the work, performance, or ability of somebody else
Negative Affect (*A* -)	Negative affective states that occur in an achievement context
Failure (*F*)	Whenever achievement related activities result in a failure or a past failure has not been remedied
Failure theme (*FT*)	At least *NF* or *F* has been scored and no Hope of Success category has been scored except *IS*

Note: Adapted from Schultheiss (2001). This outline is not adequate for scoring purposes.

Table 4a
Outline of Pang's (2006) Revised Coding System for Hope of Success

Imagery Type	Definition/Criteria
Positive Achievement Goal	The story character expresses or experiences an intention (desire, wish, need) to fulfill a positive achievement goal
Strong Energizing Emotion	A story character experiences positive emotions in the context of an achievement setting that is energizing and/or leads to subsequent achievement related activity
Quality Control	A story character voluntarily engages in self-scrutiny while carrying out task. The quality of the extra care paid to the task is one of vigilance, defense against potential error or failure
Praise	Whenever a person praises, rewards, or distinguishes somebody else who has worked well or delivered a good performance
Expectation of Success	Expectations of a story character to succeed in an achievement related activity
Compensatory Effort	In creased effort or increased resolve to overcome obstacles; persisting with work, despite presence of actual or potential obstacles
Lack of Progress	Temporary lack of progress during achievement pursuit; any indication that things are not going as planned

Table 4a continues

Imagery Type	Definition/Criteria
Competition	Detailed description/analysis of the dynamics/intensity of competition
Others' Expectation of Failure	Other story characters disbelieving, doubtful of protagonist's ability/potential to fulfil the achievement goal
Physical Strain	It is explicitly stated or implied that engaging in the achievement goal entails physical strain
Extreme Personal Sacrifice	Extreme personal sacrifices made in pursuit of goal, including deprivation or loss of life and limb
Others failed or gave up	A scenario in which others who attempted task either failed or gave up before bringing the task to completion is juxtaposed with that of the main story character who continues on the achievement task.
Success Outcome	Achievement goal is fulfilled, over and above simple task completion
Significant Accomplishment	Unique accomplishments; setting a social or achievement precedent, e.g., inventions, discoveries, and cures

Note: Adapted from Pang (2006). This outline is not adequate for scoring purposes.

Table 4b

Outline of Pang's (2006) Revised Coding System for Fear of Failure

Imagery Type	Definition/Criteria
Preparation and training	Physical or mental training and/or preparation that are undertaken in order to bring an achievement goal/task closer to completion/fulfilment
Basic instrumental activity	Engaging in, either in the past, present, or future, activity (whether planned or actual) in order to bring an achievement goal/task closer to completion/fulfilment
Hard work	Includes doing one's best, paying attention, being extra careful with a job, as long as the intention of the extra attention is not to be vigilant in case of error or failure
Positive Affect	Distinctly positively-valenced emotion that happens as a result of working or of a positive achievement outcome at work
Strong inhibiting emotion	Strong inhibiting emotion, e.g., feeling overwhelmed, that is experienced while pursuing the achievement goal
Quality Control by Others	Checking up on another story character's progress on the achievement goal
Distraction	Being distracted and/or mention about concern with distractions while pursuing the achievement goal

Imagery Type	Definition/Criteria
Obstacle in the environment	Elements in external environment that cause a disruption in achievement activity and/or prevent achievement goal from being fulfilled
Obstacle within Self	Elements within the protagonist that cause a disruption in achievement activity and/or prevent achievement goal from being fulfilled
Expectation of Failure	A story character expresses self-doubt (mentally, verbally, or through emotional behavior) that he or she will or could fail in the achievement task/goal. Indications of low self-efficacy are scored.
Life Dream	The achievement goal is referred to as a life-long dream or ambition. The story character undertakes the achievement task because he or she wants to prevent regret in not fulfilling the life dream or because of a feeling of being compelled by this life dream.
Failure Outcome	An unsuccessful achievement outcome—the achievement task or goal is not attained. The failure must be explicitly related to some specific achievement goal or task, and not be attributed to some general sense of malaise, disappointment, or misfortune.

Note: Adapted from Pang (2006). This outline is not adequate for scoring purposes.

Table 5. Similarities and differences between Pang's (2006) Revised Coding System for

Hope of Success (HS) and (FF) and Heckhausen's (1963) and McClelland et al.'s (1953)

coding categories.

	Similarities	Additions	Dropped
HS	Positive achievement goal	+ Compensatory effort	- Instrumental activity
	Expectation of success	+ Competition	- Nurturant press
	Significant accomplishment	+ Sacrifice/strain	- Positive Affect
	Praise	+ Others failed/gave up	
		+ Lack of progress	
		+ Success outcome	
		+ Quality control by Self	
		+ Strong energizing emotion	
		+ Others' expectation of failure	
FF	Failure	+ Hard work	- Criticism
	Distraction	+ preparation/training	- Leaving playing field
	Basic instrumental activity	+ Positive affect	- Negative affect
	Quality control by Others	+ Strong inhibiting emotion	
	Obstacles		
	Expectation of failure		
	Life ambition/life dream		

Table 6. Correlations between revised model post-arousal HS$_{revised}$ and FF$_{revised}$ scores,

Winter (1994) *n* Achievement, *n* Affiliation, and *n* Power, and *san* HS and FF scores.

	Correlations	
Motive/Trait	revised model HS	revised model FF
n Ach	.38**	.23
n Aff	.06	-.06
n Pow	-.04	.03
HS scale	-.20	-.17
FF scale	.15	.07

Note: $\underline{n}$ = 96. *n* Ach = need Achievement score. *n* Pow = need Power score. *n* Aff = need

Affiliation score. HS scale = explicit HS scale. FF = explicit FF scale.

** $\underline{p}$ <.01.

Obstacle

B
w

or

The Person   I −

B_p

Goal

N

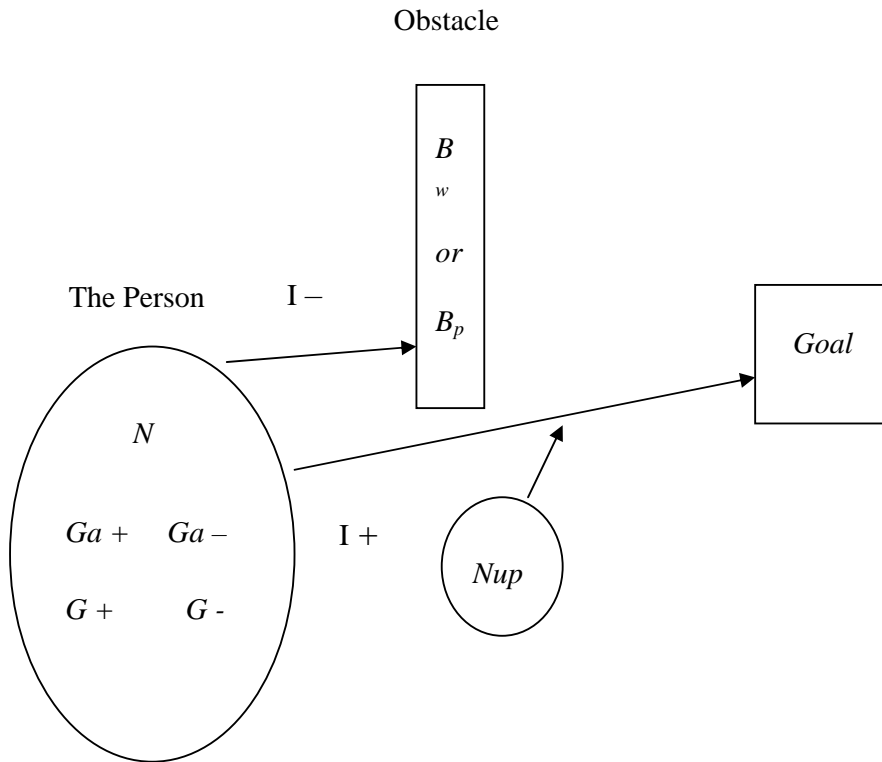$Ga +$ $Ga −$ I +

$G +$ G -

Nup

Figure 1. Placement of McClelland et al.'s (1953) n Achievement scoring categories in
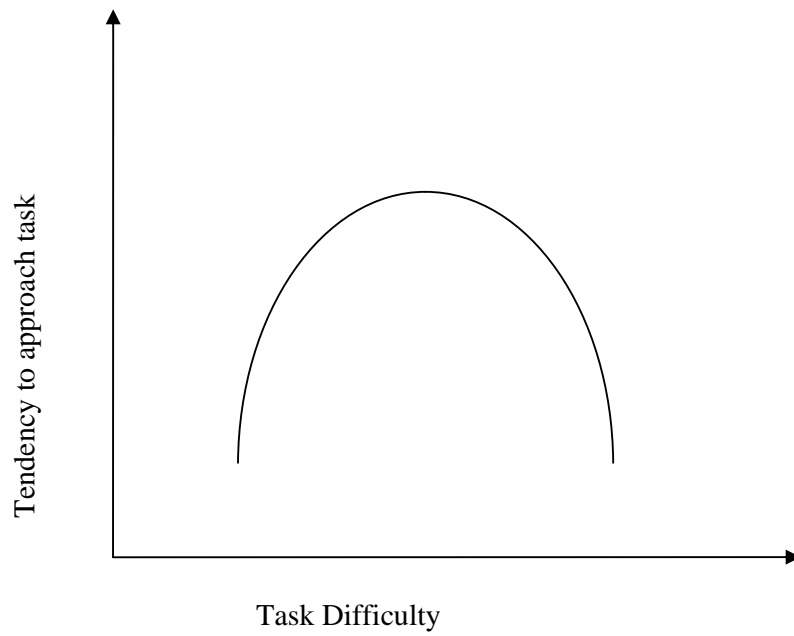
a motivation behavior sequence.

Figure 2. Predicted Preference for Achievement Tasks as a Function of Task Difficulty for Subjects with High RAM (after Atkinson, 1957).
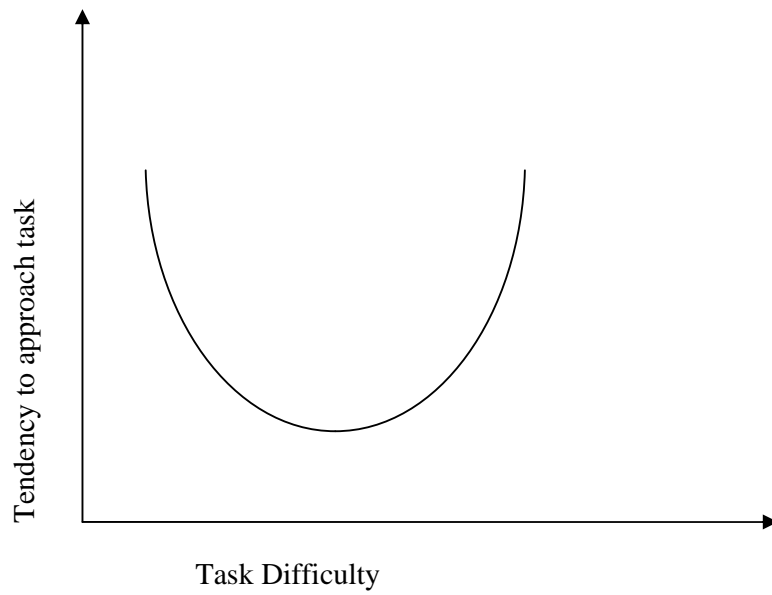
Figure 3. Predicted Preference for Achievement Tasks as a Function of Task Difficulty for Subjects with low RAM (after Atkinson, 1957).