

MOTIVATIONAL DETERMINANTS OF RISK-TAKING BEHAVIOR

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There are two problems of behavior which any theory of motivation must come to grips with. They may finally reduce to one; but it will simplify the exposition which follows to maintain the distinction in this paper. The first problem is to account for an individual's selection of one path of action among a set of possible alternatives. The second problem is to account for the amplitude or vigor of the action tendency once it is initiated, and for its tendency to persist for a time in a given direction. This paper will deal with these questions in a conceptual framework suggested by research which has used thematic apperception to assess individual differences in strength of achievement motivation (1, 14, 15).

The problem of selection arises in experiments which allow the individual to choose a task among alternatives that differ in difficulty (level of aspiration). The problem of accounting for the vigor of response arises in studies which seek to relate individual differences in strength of motivation to the level of performance when response output at a particular task is the dependent variable. In treating these two problems, the discussion will be constantly focused on the relationship of achievement motivation to risk-taking behavior, an important association uncovered by McClelland (14) in the investigation of the role of achievement motivation in entre-

preneurship and economic development.²

Earlier studies have searched for a theoretical principle which would explain the relationship of strength of motive, as inferred from thematic apperception, to overt goal-directed performance. The effect of situation cues (e.g., of particular instructions) on this relationship was detected quite early (1), and subsequent experiments have suggested a theoretical formulation similar to that presented by Tolman (21) and Rotter (20). It has been proposed that *n* Achievement scores obtained from thematic apperception are indices of individual differences in the strength of achievement motive, conceived as a relatively stable disposition to strive for achievement or success. This motive-disposition is presumed to be latent until aroused by situation cues which indicate that some performance will be instrumental to achievement. The strength of *aroused* motivation to achieve as manifested in performance has been viewed as a function of both the strength of motive and the *expectancy* of goal-attainment aroused by situation cues. This conception has provided a fairly adequate explanation of experimental results to date, and several of its implications have been tested (1, 2).

The similarity of this conception to the expectancy principle of performance developed by Tolman, which also takes account of the effects of a third variable, *incentive*, suggested the need for experiments to isolate the effects on motiva-

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² McClelland, D. C. Interest in risky occupations among subjects with high achievement motivation. Unpublished paper, Harvard University, June, 1956.

tion of variations in strength of expectancy of success and variations in the incentive value of particular accomplishments. The discussion which follows was prompted by the results of several exploratory experiments. It represents an attempt to state explicitly how individual differences in the strength of achievement-related motives influence behavior in competitive achievement situations. A theoretical model will be presented first, then a brief summary of some as yet unpublished experimental evidence will be introduced in order to call the reader's attention to the kinds of research problems it raises and the scope of its implications.

Three variables require definition and, ultimately, independent measurement. The three variables are *motive*, *expectancy*, and *incentive*. Two of these—expectancy and incentive—are similar to variables presented by Tolman (21) and Rotter (20). An expectancy is a cognitive anticipation, usually aroused by cues in a situation, that performance of some act will be followed by a particular consequence. The strength of an expectancy can be represented as the subjective probability of the consequence, given the act.

The incentive variable has been relatively ignored, or at best crudely defined, in most research. It represents the relative attractiveness of a specific goal that is offered in a situation, or the relative unattractiveness of an event that might occur as a consequence of some act. Incentives may be manipulated experimentally as, for example, when amount of food (reward) or amount of shock (punishment) is varied in research with animals.

The third variable in this triumvirate—motive—is here conceived differently than, for example, in the common conception of motivation as nondirective but energizing *drive* (3). A motive is conceived as a disposition to strive for

a certain kind of satisfaction, as a capacity for satisfaction in the attainment of a certain class of incentives. The names given motives—such as achievement, affiliation, power—are really names of classes of incentives which produce essentially the same kind of experience of satisfaction: pride in accomplishment, or the sense of belonging and being warmly received by others, or the feeling of being in control and influential. McClelland (13, pp. 341–352 and 441–458; 15) has presented arguments to support the conception of motives as relatively general and stable characteristics of the personality which have their origins in early childhood experience. The idea that a motive may be considered a *capacity for satisfaction* is suggested by Winterbottom's (15, 22) finding that children who are strong in achievement motive are rated by teachers as deriving more pleasure from success than children who are weak in achievement motive.

The general aim of one class of motives, usually referred to as appetites or approach tendencies, is to maximize satisfaction of some kind. The achievement motive is considered a disposition to approach success.

The aim of another class of motives is to minimize pain. These have been called aversions, or avoidant tendencies. An avoidance motive represents the individual's capacity to experience pain in connection with certain kinds of negative consequences of acts. The motive to avoid failure is considered a disposition to avoid failure and/or a capacity for experiencing shame and humiliation as a consequence of failure.

The principle of motivation. The strength of motivation to perform some act is assumed to be a multiplicative function of the strength of the motive, the expectancy (subjective probability) that the act will have as a consequence the attainment of an incentive, and the

value of the incentive: $Motivation = f(Motive \times Expectancy \times Incentive)$. This formulation corresponds to Tolman's (21) analysis of performance except, perhaps, in the conception of a motive as a relatively stable disposition. When both motivation to approach and motivation to avoid are simultaneously aroused, the resultant motivation is the algebraic summation of approach and avoidance. The act which is performed among a set of alternatives is the act for which the resultant motivation is most positive. The magnitude of response and the persistence of behavior are functions of the strength of motivation to perform the act relative to the strength of motivation to perform competing acts.

Recent experiments (2) have helped to clarify one problem concerning the relationship between measures of the strength of a particular motive (*n* Achievement) and performance. Performance is positively related to the strength of a particular motive only when an expectancy of satisfying that motive through performance has been aroused, and when expectancies of satisfying other motives through the same action have not been sufficiently aroused to confound the simple relationship. This is to say no more than that, when expectancies of attaining several different kinds of incentives are equally *salient* in a situation, the determination of motivation to perform an act is very complex. Performance is then overdetermined in the sense that its strength is now a function of the several different kinds of motivation which have been aroused. The *ideal situation* for showing the relationship between the strength of a particular motive and behavior is one in which the only *reason* for acting is to satisfy that motive.

The theoretical formulation which follows pertains to such an *ideal achievement-related situation*, which is at best

only approximated in actual experimentation or in the normal course of everyday life. The discussion will deal only with the effects of the two motives, to achieve and to avoid failure, normally aroused whenever performance is likely to be evaluated against some standard of excellence.

Behavior directed toward achievement and away from failure. The problem of selection is confronted in the level-of-aspiration situation where the individual must choose among tasks which differ in degree of difficulty. The problem of accounting for the vigor of performance arises in the situation which will be referred to as *constrained performance*. Here there is no opportunity for the individual to choose his own task. He is simply given a task to perform. He must, of course, decide to perform the task rather than to leave the situation. There is a problem of selection. In referring to this situation as constrained performance, it is the writer's intention to deal only with those instances of behavior in which motivation for the alternative of leaving the situation is less positive or more negative than for performance of the task that is presented. Hence, the individual does perform the task that is given. The level of performance is the question of interest.

Elaboration of the implications of the multiplicative combination of motive, expectancy, and incentive, as proposed to account for strength of motivation, will be instructive if we can find some reasonable basis for assigning numbers to the different variables. The strength of expectancy can be represented as a subjective probability ranging from 0 to 1.00. But the problem of defining the positive incentive value of a particular accomplishment and the negative incentive value of a particular failure is a real stickler.

In past discussions of level of aspiration, Escalona and Festinger (see 12)

have assumed that, within limits, the attractiveness of success is a positive function of the difficulty of the task, and that the unattractiveness of failure is a negative function of difficulty, when the type of activity is held constant. The author will go a few steps farther with these ideas, and assume that degree of difficulty can be inferred from the subjective probability of success (P_s). The task an individual finds difficult is one for which his subjective probability of success (P_s) is very low. The task an individual finds easy is one for which his subjective probability of success (P_s) is very high. Now we are in a position to make simple assumptions about the incentive values of success or failure at a particular task. Let us assume that the incentive value of success (I_s) is a positive linear function of difficulty. If so, the value $1 - P_s$ can represent I_s , the incentive value of success. When P_s is high (e.g., .90), an easy task, I_s is low (e.g., .10). When P_s is low (e.g., .10), a difficult task, I_s is high (e.g., .90). The negative incentive value of failure (I_f) can be taken as $-P_s$. When P_s is high (e.g., .90), as in confronting a very easy task, the sense of humiliation accompanying failure is also very great (e.g., $-.90$).

However, when P_s is low (e.g., .10), as in confronting a very difficult task, there is little embarrassment in failing (e.g., $-.10$). We assume, in other words, that the (negative) incentive value of failure (I_f) is a negative linear function of difficulty. It is of some importance to recognize the dependence of incentive values intrinsic to achievement and failure upon the subjective probability of success. One cannot anticipate the thrill of a great accomplishment if, as a matter of fact, one faces what seems a very easy task. Nor does an individual experience only a minor sense of pride after some extraordinary feat against what seemed to him overwhelming odds. The implications of the scheme which follows rest heavily upon the assumption of such a dependence.

In Table 1, values of 1 have been arbitrarily assigned to the achievement motive (M_s) and the motive to avoid failure (M_f). Table 1 contains the strength of motivation to approach success ($M_s \times P_s \times I_s$) and motivation to avoid failure ($M_f \times P_f \times I_f$) through performance of nine different tasks labeled A through I. The tasks differ in degree of difficulty as inferred from the subjective probability of success (P_s). The incentive values of success and fail-

TABLE 1

AROUSED MOTIVATION TO ACHIEVE (APPROACH) AND TO AVOID FAILURE (AVOIDANCE) AS A JOINT FUNCTION OF MOTIVE (M), EXPECTANCY (P), AND INCENTIVE (I),
WHERE $I_s = (1 - P_s)$ AND $I_f = (-P_s)$

	Motivation to Achieve				Motivation to Avoid Failure			Resultant Motivation (Approach—Avoidance)	
	$M_s \times P_s \times I_s = \text{Approach}$				$M_f \times P_f \times I_f = \text{Avoidance}$				
Task A	1	.10	.90	.09	1	.90	-.10	-.09	0
Task B	1	.20	.80	.16	1	.80	-.20	-.16	0
Task C	1	.30	.70	.21	1	.70	-.30	-.21	0
Task D	1	.40	.60	.24	1	.60	-.40	-.24	0
Task E	1	.50	.50	.25	1	.50	-.50	-.25	0
Task F	1	.60	.40	.24	1	.40	-.60	-.24	0
Task G	1	.70	.30	.21	1	.30	-.70	-.21	0
Task H	1	.80	.20	.16	1	.20	-.80	-.16	0
Task I	1	.90	.10	.09	1	.10	-.90	-.09	0

ure at each of the tasks have been calculated directly from the assumptions that incentive value of success equals $1 - P_s$ and that incentive value of failure equals $-P_f$; and P_s and P_f are assumed to add to 1.00.

Table 1 may be considered an extension of ideas presented in the *resultant valence* theory of level of aspiration by Escalona and Festinger (12). The present formulation goes beyond their earlier proposals (a) in making specific assumptions regarding the incentive values of success and failure, and (b) in stating explicitly how individual differences in strength of achievement motive and motive to avoid failure influence motivation.³

When the achievement motive is stronger ($M_s > M_f$). The right-hand column of Table 1 shows the resultant motivation for each of the tasks in this special case where achievement motive and motive to avoid failure are equal in strength. In every case there is an approach-avoidance conflict with resultant motivation equal to 0. This means that if the achievement motive were stronger than the motive to avoid failure—for example, if we assigned M_s a value of 2—the resultant motivation would become positive for each of the tasks and its magnitude would be the same as in the column labeled *Approach*. Let us therefore consider only the strength of

approach motivation for each of the tasks, to see the implications of the model for the person in whom the need for achievement is stronger than his disposition to avoid failure.

One thing is immediately apparent. Motivation to achieve is strongest when uncertainty regarding the outcome is greatest, i.e., when P_s equals .50. If the individual were confronted with all of these tasks and were free to set his own goal, he should choose Task E where P_s is .50, for this is the point of maximum approach motivation. The strength of motivation to approach decreases as P_s increases from .50 to near certainty of success ($P_s = .90$), and it also decreases as P_s decreases from .50 to near certainty of failure ($P_s = .10$).

If this person were to be confronted with a single task in what is here called the constrained performance situation, we should expect him to manifest strongest motivation in the performance of a task of intermediate difficulty where P_s equals .50. If presented either more difficult tasks or easier tasks, the strength of motivation manifested in performance should be lower. The relationship between strength of motivation as expressed in performance level and expectancy of success at the task, in other words, should be described by a bell-shaped curve.

When the motive to avoid failure is stronger ($M_f > M_s$). Let us now ignore the strength of approach motivation and tentatively assign it a value of 0, in order to examine the implications of the model for any case in which the motive to avoid failure is the stronger motive. The resultant motivation for each task would then correspond to the values listed in the column labeled *Avoidance*.

What should we expect of the person in whom the disposition to avoid failure is stronger than the motive to achieve? It is apparent at once that

³ In the resultant valence theory of level of aspiration, the resultant force (f^*) for a particular level of difficulty equals probability of success (P_s) times valence of success (Va_s) minus probability of failure (P_f) times valence of failure (Va_f). It is assumed that the valence of a goal [$Va(G)$] depends partly on the properties of the activity and specific goal (G) and partly on the state of need [$t(G)$] of the person, [$Va(G) = F(G, t(G))$] (11, p. 273). In the present conception, the relative rewarding or punishing properties of specific goals (i.e., incentives) and the more general disposition of the person toward a class of incentives (i.e., his motive) are given independent status.

the resultant motivation for every task would be negative for him. This person should want to avoid all of the tasks. Competitive achievement situations are unattractive to him. If, however, he is constrained (e.g., by social pressures) and asked to set his level of aspiration, he should *avoid* tasks of intermediate difficulty ($P_s = .50$) where the arousal of anxiety about failure is greatest. He should choose either the easiest ($P_s = .90$) or the most difficult task ($P_s = .10$). The strength of avoidant motivation is weakest at these two points.

In summary, the person in whom the achievement motive is stronger should set his level of aspiration in the intermediate zone where there is moderate risk. To the extent that he has any motive to avoid failure, this means that he will voluntarily choose activities that *maximize* his own anxiety about failure! On the other hand, the person in whom the motive to avoid failure is stronger should select either the easiest of the alternatives or should be extremely speculative and set his goal where there is virtually no chance for success. These are activities which *minimize* his anxiety about failure.

How does the more fearful person behave when offered only a specific task to perform? He can either perform the task or leave the field. If he chooses to leave the field, there is no problem. But if he is constrained, as he must be to remain in any competitive achievement situation, he will stay at the task and presumably work at it. But how hard will he work at it? He is motivated to avoid failure, and when constrained, there is only one path open to him to avoid failure—success at the task he is presented. So we expect him to manifest the strength of his motivation to avoid failure in performance of the task. He, too, in other words, should

*try hardest*⁴ when P_s is .50 and less hard when the chance of winning is either greater or less. The 50–50 alternative is the last he would choose if allowed to set his own goal, but once constrained he must try hard to avoid the failure which threatens him. Not working at all will guarantee failure of the task. Hence, the thought of not working at all should produce even stronger avoidant motivation than that aroused by the task itself.

In other words, irrespective of whether the stronger motive is to achieve or to avoid failure, the strength of motivation to perform a task when no alternatives are offered and when the individual is constrained should be greatest when P_s is .50. This is the condition of greatest uncertainty regarding the outcome. But when there are alternatives which differ in difficulty, the choice of level of aspiration by persons more disposed to avoid failure is diametrically opposite to that of persons more disposed to seek success. The person more motivated to achieve should prefer a moderate risk. His level of aspiration will fall at the point where his positive motivation is strongest, at the point where the odds seem to be 50–50. The fearful person, on the other hand, must select a task even though all the alternatives are threatening to him. He prefers the least threatening of the available alternatives: either the task which is so easy he cannot fail, or the task which is so difficult that failure would be no cause for self-blame and embarrassment.

The tendency for anxious persons to set either extremely high or very low aspirations has been noted over and over

⁴I do not mean to exclude the possibility that the very anxious person may suffer a performance decrement due to the arousal of some "task-irrelevant" avoidant responses, as proposed in the interpretation of research which has employed the Mandler-Sarason Measure of Test Anxiety (16).

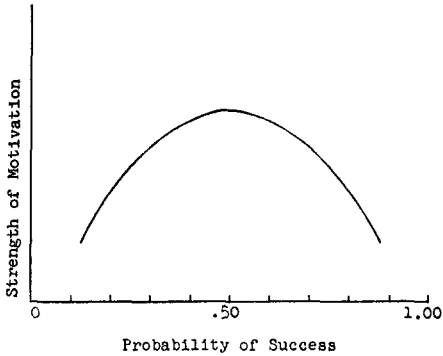


FIG. 1. Strength of motivation to achieve or to avoid failure as a function of the subjective probability of success, i.e., the difficulty of the task.

again in the literature on level of aspiration (12). Typically, *groups* of persons for whom the inference of greater anxiety about failure seems justified on the basis of some personality assessment show a much greater variance in level of aspiration than persons whose motivation is inferred to be more normal or less anxious. When the details of behavior are examined, it turns out that they are setting their aspiration level either *defensively* high or *defensively* low.

Without further assumptions, the theory of motivation which has been presented when applied to competitive-achievement activity implies that the relationship of constrained performance to expectancy of goal-attainment should take the bell-shaped form shown in Fig. 1, whether the predominant motive is to achieve or to avoid failure. Further, the theory leads to the prediction of exactly opposite patterns for setting the level of aspiration when the predominant motivation is approach and when it is avoidant, as shown in Fig. 2.

Both of these hypotheses have been supported in recent experiments. The writer⁵ offered female college students

⁵ Atkinson, J. W. Towards experimental analysis of human motivation in terms of

a modest monetary prize for good performance at two 20-minute tasks. The probability of success was varied by instructions which informed the subject of the number of persons with whom she was in competition and the number of monetary prizes to be given. The stated probabilities were $\frac{1}{20}$, $\frac{1}{3}$, $\frac{1}{2}$, and $\frac{3}{4}$. The level of performance was higher at the intermediate probabilities than at the extremes for subjects having high thematic apperceptive *n* Achievement scores, and also for subjects who had low *n* Achievement scores, presumably a more fearful group.

McClelland⁶ has shown the diametrically opposite tendencies in choice of level of aspiration in studies of children in kindergarten and in the third grade. One of the original level-of-aspiration experiments, the ring-toss experiment, was repeated with five-year-olds, and a non-verbal index of the strength of achieve-

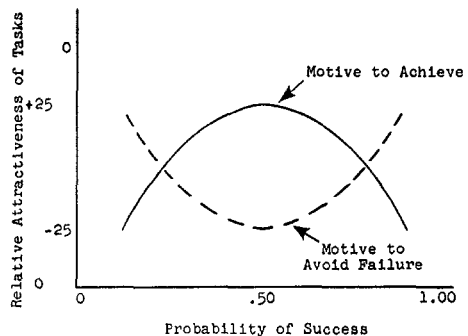


FIG. 2. Relative attractiveness of tasks which differ in subjective probability of success (i.e., in difficulty). The avoidance curve has been inverted to show that very difficult and very easy tasks arouse less fear of failure and hence are less unattractive than moderately difficult tasks.

motives, expectancies, and incentives. To appear in *Motives in fantasy, action, and society*. Princeton: Van Nostrand (in preparation).

⁶ McClelland, D. C. Risk-taking in children with high and low need for achievement. To appear in *Motives in fantasy, action, and society*. Princeton: Van Nostrand (in preparation).

ment motive was employed. Children who were high in n Achievement more frequently set their level of aspiration in the intermediate range of difficulty. They took more shots from a modest distance. Children who were low in n Achievement showed a greater preponderance of choices at the extreme levels of difficulty. They more often stood right on top of the peg or stood so far away that success was virtually impossible. The same difference between high and low n Achievement groups was observed on another task with children in the third grade. McClelland views these results as consistent with his theoretical argument concerning the role of achievement motivation in entrepreneurship and economic development (14). He has called attention to the relationship between achievement motivation and an interest in enterprise which requires moderate or calculated risks, rather than very safe or highly speculative undertakings.

In an experiment designed for another purpose, Clark, Teevan, and Ricciuti (4) have presented results with college students comparable to those of McClelland. Immediately before a final examination in a college course, students were asked a series of questions pertaining to grade expectations, affective reactions to grades, and the grades they would *settle for* if excused from taking the exam. A number of indices were derived from responses to these questions, by which the students were classified as: *hopeful of success*, i.e., if the *settle-for* grade was near the maximum grade the student thought he could possibly achieve; *fearful of failure*, i.e., if the *settle-for* grade was near the minimum grade the student thought he might possibly drop to; and *intermediate*, i.e., if the *settle-for* grade fell somewhere between these two extremes. Previously obtained n Achievement scores were significantly higher for

the *intermediate* group than for the two groups who set either extremely high or low levels of aspiration.

In terms of the model presented in Table 1, the two extreme patterns of aspirant behavior which are here designated *hope of success* and *fear of failure* are to be considered two *phenotypically* dissimilar alternatives that are *genotypically* similar. That is, they both function to avoid or reduce anxiety for the person in whom the motive to avoid failure is stronger than the motive to achieve.

A question may arise concerning the legitimacy of inferring relatively stronger motive to avoid failure from a low n Achievement score in thematic apperception. The inference seems justified on several counts. First, the kind of learning experience which is thought to contribute to the development of a positive motive to achieve (15, 22) seems incompatible with the kind of experience which would contribute to the development of an avoidant motive. In any specific early learning experience in which successful independent accomplishment is encouraged and rewarded, it seems impossible for incompetence, at the same time, to be punished. Second, even if it is assumed that high and low n Achievement groups may be equal in the disposition to be fearful of failure, the fact that one group does not show evidence of a strong motive to achieve (the group with low n Achievement scores) suggests that fear of failure should be *relatively* stronger in that group than in the group which does show evidence of strong n Achievement (high n Achievement scores). Finally, Raphelson (19) has presented evidence that n Achievement, as measured in thematic apperception, is *negatively* related to both scores on the Mandler-Sarason Scale of Test Anxiety and a psychogalvanic index of manifest anxiety obtained in a test situation. Test

anxiety scores and the psychogalvanic index of manifest anxiety were *positively* correlated, as they should be if each is an effective measure of fear aroused in a competitive situation.

Although a low *n* Achievement score can hardly be viewed as a direct index of the disposition to avoid failure, there seems good presumptive evidence that fear of failure is *relatively* stronger than the achievement motive in such a group. And this presumption is all the theory demands to explain the pattern of goal setting which focuses upon the extremes in the range of difficulty among persons low in *n* Achievement.

The details of the exploratory experiments suggest that one further assumption be made. In both experiments, the high *n* Achievement groups showed evidence of maximum motivation when the observed or stated probability of success was approximately .33. At this point, the high *n* Achievement group showed the highest level of constrained performance. And this point was most favored by the high *n* Achievement group in setting level of aspiration in the McClelland experiment. The assumption to be made seems a reasonable one: the relative strength of a motive influences the subjective probability of the consequence consistent with that motive—i.e., biases it upwards. In other words, the stronger the achievement motive relative to the motive to avoid failure, the higher the subjective probability of success, given stated odds. The stronger the motive to avoid failure relative to the achievement motive, the higher the subjective probability of failure, given stated odds or any other objective basis for inferring the strength of expectancy. Some evidence from two earlier studies is pertinent. When subjects stated the score that they *expected* to make on a test with very ambiguous or conflicting cues from past performance (15, p. 247) or when faced with a novel task at

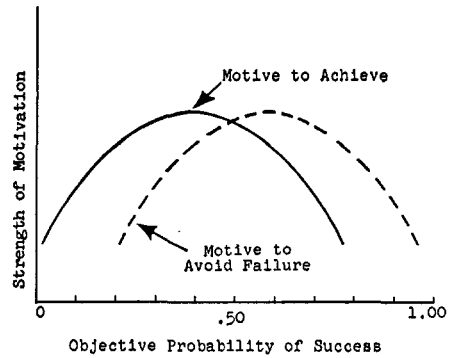


FIG. 3. Strength of motivation to achieve and to avoid failure as a function of the *objective* probability of success. It is assumed that the subjective probability of the consequence consistent with the stronger motive is biased upwards.

which they had no experience (18), the stated level of *expectation* was positively related to *n* Achievement. The biasing effect of the motive on subjective probability should diminish with repeated learning experience in the specific situation.

When this assumption is made, the point of maximum motivation to achieve now occurs where the stated (objective) odds are somewhat *lower* than .50; and the point of maximum motivation to avoid failure occurs at a point somewhat higher than stated odds of .50, as shown in Fig. 3. The implications of this assumption for constrained performance in somewhat novel situations are evident in the figure. When the achievement motive is stronger than the motive to avoid failure, there should be a tendency for stronger motivation to be expressed in performance when the objective odds are long, i.e., below .50. When the motive to avoid failure is stronger than the achievement motive, there should be greater motivation expressed when the objective odds are short, i.e., above .50.

The effects of success and failure. Let us return to the model and ask, What are the effects of success and fail-

ure on the level of motivation? We may refer back to Table 1 to answer this question. First, let us consider the effects of success or failure on the level of motivation in a person whose motive to achieve is stronger than his motive to avoid failure. In the usual level-of-aspiration situation, he should initially set his goal where P_s equals .50. In Table 1, this is Task E. If he succeeds at the task, P_s should increase. And, assuming that the effects of success and failure generalize to similar tasks, the P_s at Task D which was initially .40 should increase toward .50. On the next trial, P_s at Task E is now greater than .50, and P_s at Task D now approaches .50. The result of this change in P_s is diminished motivation to achieve at the old task, E, and increased motivation to achieve at Task D, *an objectively more difficult task*. The observed level of aspiration should increase in a step-like manner following success, because there has been a change in motivation.

A further implication of the change in strength of motivation produced by the experience of success is of great consequence: given a single, very difficult task (e.g., $P_s = .10$), the effect of continued success in repeated trials is first a gradual increase in motivation as P_s increases to .50, followed by a gradual decrease in motivation as P_s increases further to the point of certainty ($P_s = 1.00$). Ultimately, as P_s approaches 1.00, satiation or loss of interest should occur. The task no longer arouses any motivation at all. Why? Because the subjective probability of success is so high that the incentive value is virtually zero. Here is the clue to understanding how the achievement motive can remain insatiable while satiation can occur for a particular line of activity. The strength of motive can remain unchanged, but interest in a particular task can diminish com-

pletely. Hence, when free to choose, the person who is stronger in achievement motive should always look for new and more difficult tasks as he masters old problems. If constrained, the person with a strong achievement motive should experience a gradual loss of interest in his work. If the task is of intermediate difficulty to start with ($P_s = .50$), or is definitely easy ($P_s > .50$), his interest should begin to wane after the initial experience of success.

But what of the effect of failure on the person who is more highly motivated to achieve than to avoid failure? Once more we look at the *Approach* column of Table 1. If he has chosen Task E ($P_s = .50$) to start with and fails at it, the P_s is reduced. Continued failure will mean that soon Task F (formerly $P_s = .60$) will have a P_s near .50. He should shift his interest to this task, which was *objectively less difficult* in the initial ordering of tasks. This constitutes what has been called a lowering of the level of aspiration. He has moved to the easier task as a consequence of failure.

What is the effect of continued failure at a single task? If the initial task is one that appeared relatively easy to the subject (e.g., $P_s = .80$) and he fails, his motivation should increase! The P_s will drop toward .70, but the incentive value or attractiveness of the task will increase. Another failure should increase his motivation even more. This will continue until the P_s has dropped to .50. Further failure should then lead to a gradual weakening of motivation as P_s decreases further. In other words, the tendency of persons who are relatively strong in achievement motive to persist at a task in the face of failure is probably attributable to the relatively high subjective probability of success, initially. Hence, failure has the effect of increasing the strength of their motivation, at least for a time. Ultimately,

however, interest in the task will diminish if there is continued failure. If the initial task is perceived by the person as very difficult to start with ($P_s < .50$), motivation should begin to diminish with the first failure.

Let us turn now to the effect of success and failure on the motivation of the person who is more strongly disposed to be fearful of failure. If the person in whom the motive to avoid failure is stronger has chosen a very difficult task in setting his level of aspiration (e.g., Task A where $P_s = .10$) and succeeds, P_s increases and his motivation to avoid the task is paradoxically increased! It would almost make sense for him deliberately to fail, in order to keep from being faced with a stronger threat on the second trial. If there are more difficult alternatives, he should raise his level of aspiration to avoid anxiety! Fortunately for this person, his strategy (determined by the nature of his motivation) in choosing a very difficult task to start with protects him from this possibility, because P_s is so small that he will seldom face the paradoxical problem just described. If he fails at the most difficult task, as is likely, P_s decreases further, P_f increases further, and the aroused motivation to avoid failure is reduced. By continued failure he further reduces the amount of anxiety about failure that is aroused by this most difficult task. Hence, he should continue to set his level at this point. If he plays the game long enough and fails continuously, the probability of failure increases for all levels of difficulty. Sooner or later the minimal motivation to avoid failure at the most difficult task may be indistinguishable from the motivation to avoid failure at the next most difficult task. This may ultimately allow him to change his level of aspiration to a somewhat less difficult task without acting in gross contra-

dition to the proposed principle of motivation.

If our fearful subject has initially chosen the easiest task (Task I where $P_s = .90$) and if he fails, P_s decreases toward .80, and his motivation to avoid the task also increases. If there is no easier task, the most difficult task should now appear least *unattractive* to him, and he should jump from the easiest to the most difficult task. In other words, continued failure at a very easy task decreases P_s toward .50; and, as Table 1 shows, a change of this sort is accompanied by increased arousal of avoidant motivation. A wild and apparently irrational jump in level of aspiration from very easy to very difficult tasks, as a consequence of failure, might be mistakenly interpreted as a possible effort on the part of the subject to gain social approval by seeming to set high goals. The present model predicts this kind of activity without appealing to some extrinsic motive. It is part of the strategy of minimizing expected pain of failure after one has failed at the easiest task.

If our fear-disposed subject is successful at the most simple task, his P_s increases, his P_f decreases, and his motivation to avoid this task decreases. The task becomes less and less unpleasant. He should continue playing the game with less anxiety.

Table 1, when taken in its entirety, deals with the special case of the person in whom the two motives are exactly equal in strength. The implications are clear. In the constrained-performance situation, he should work hardest when the probability of success is .50, because motivation to achieve and motivation to avoid failure will summate in the constrained instrumental act which is at the same time the pathway toward success and away from failure. (This summation should also occur in the cases where one motive is stronger.) But in the level-of-aspiration setting

where there is an opportunity for choice among alternatives, the avoidance motivation exactly cancels out the approach motivation. Hence, the resultant motivation for each of the alternatives is zero. His choice of level of aspiration cannot be predicted from variables intrinsic to the achievement-related nature of the task. If there is any orderly pattern in this conflicted person's level of aspiration, the explanation of it must be sought in extrinsic factors, e.g. *the desire to gain social approval*. Such a desire can also be conceptualized in terms of motive, expectancy, and incentive, and the total motivation for a particular task can then be attributed to both achievement-related motives and other kinds of motives engaged by the particular features of the situation.

In recent years there has been something of a rebirth of interest in the problems of level of aspiration, particularly in pathological groups. The tendency for anxious groups to show much greater variability in level of aspiration, setting their goals either very high or very low relative to less anxious persons, was noted in early studies by Sears, Rotter, and others (12). Miller (17), Himmelweit (9), and Eysenck and Himmelweit (8) have produced substantial evidence that persons with affective disorders (neurasthenia or dysthymia) typically set extremely high goals for themselves; hysterics, on the other hand, show a minimal level of aspiration, often setting their future goal even below the level of past performance. In all of these studies, normal control groups have fallen between these two extremes, as might be expected from the present model if *normals* are relatively more positive in their motivation in achievement-related situations.

In the work of Eysenck (7) and his colleagues, both dysthymics and hysterics show greater *neuroticism* than nor-

mal subjects. Eysenck's interpretation of this factor as autonomic sensitivity is consistent with the implications of the present model, which attributes the setting of extremely high or low levels of aspiration to relatively strong motivation to avoid failure. A second factor, *extraversion-introversion*, discriminates the affective disorders and hysterics where the present model, dealing only with motives intrinsic to the competitive achievement situation, does not. An appeal to some other motivational difference, e.g., in strength of *n* Affiliation, might also predict the difference in pattern of level of aspiration.

Probability Preferences

The present analysis is relevant to another domain of current research interest, that specifically concerned with the measurement of subjective probability and utility. Edwards (5, 6), for example, has reported probability preferences among subjects offered alternative bets having the same expected value. We⁷ have repeated the Edwards type experiment (e.g., 6/6 of winning 30¢ versus 1/6 of winning \$1.80) with subjects having high and low *n* Achievement scores. The results show that persons high in *n* Achievement more often prefer intermediate probabilities (4/6, 3/6, 2/6) to extreme probabilities (6/6, 5/6, 1/6) than do persons low in *n* Achievement. What is more, the same differential preference for intermediate risk was shown by these *same* subjects when they were allowed to choose the distance from the target for their shots in a shuffleboard game. In other words, the incentive values of winning qua winning, and losing qua losing, presumably developed in achievement activities early in life, generalize to the gambling

⁷ Atkinson, J. W., Bastian, J. R., Earl, R. W., and Litwin, G. H. The achievement motive, goal-setting, and probability preferences (in preparation).

situation in which winning is really *not* contingent upon one's own skill and competence.

Social Mobility Aspirations

Finally, the present model may illuminate a number of interesting research possibilities having to do with social and occupational mobility. The ranking of occupations according to their prestige in Western societies clearly suggests that occupations accorded greater prestige are also more difficult to attain. A serious effort to measure the perceived probability of being able to attain certain levels on the occupational ladder should produce a high negative correlation with the usual ranking on prestige. If so, then the present model for level of aspiration, as well as its implications for persons who differ in achievement-related motives, can be applied to many of the sociological problems of mobility aspirations. A recent paper by Hyman (10) has laid the groundwork for such an analysis.

SUMMARY

A theoretical model is presented to explain how the motive to achieve and the motive to avoid failure influence behavior in any situation where performance is evaluated against some standard of excellence. A conception of motivation in which strength of motivation is a joint multiplicative function of motive, expectancy (subjective probability), and incentive is offered to account for the selection of one task among alternatives which differ in difficulty (level of aspiration), and also to account for performance level when only one task is presented. It is assumed that the incentive value of success is a positive linear function of difficulty as inferred from the subjective probability of success; and negative incentive value of failure is assumed to be a negative linear function of difficulty. The major im-

plications of the theory are (a) that performance level should be greatest when there is greatest uncertainty about the outcome, i.e., when subjective probability of success is .50, whether the motive to achieve or the motive to avoid failure is stronger within an individual; but (b) that persons in whom the achievement motive is stronger should prefer intermediate risk, while persons in whom the motive to avoid failure is stronger should avoid intermediate risk, preferring instead either very easy and safe undertakings or extremely difficult and speculative undertakings. Results of several experiments are cited, and the implications of the theoretical model for research on probability preferences in gambling and studies of social mobility aspirations are briefly discussed.

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