5

An Attributional Approach for Educational Psychology

BERNARD WEINER

University of California, Los Angeles

The social psychology of education, now more than ever, is a promising area of research and theory (see Bar-Tal & Saxe, in press). The ascendance of attribution theory in social psychology has contributed to the recent advances, for attributional conceptions are particularly useful in the explanation of classroom behaviors.

No specific body of knowledge fits neatly into one unique attribution "theory." Nonetheless, there are some central problems that guide the thoughts of all investigators in this field (e.g., Heider, 1958; Jones, Kanouse, Kelley, Nisbett, Valins, & Weiner, 1972; Kelley, 1967; Weiner, 1974). Attribution theorists are concerned with perceptions of causality, that is, the perceived reasons for the occurrence of a particular event. Three general programs of research have emerged from the analysis of perceived causality. First, there has been a classification of the perceived causes of behavior, with special attention given to the distinction between internal or personal causality as opposed to external or environmental causality. Second, general laws have been developed which relate antecedent information and cognitive structures to causal inferences. And third, causal inferences have been linked with various indexes of overt behavior. For example, assume that one's toes are stepped upon while riding the subway. Attribution theorists are likely to ask:

1. What are the perceived causes of this event? (An intentional, aggressive act; an accident; a result of standing too near the door?)

2. What information influenced this causal inference? (Repetition of the action, the knowledge that other people's toes are being stepped upon, the observation that only people standing near the door are being stepped upon?)
3. What are the consequences of the causal ascription? (Hitting the aggressor, deriding the transportation system, moving away from the door?)

Attribution theory thus has the framework of an S–C–R model, where C symbolizes a causal cognition and S and R represent stimulus-response or antecedent-consequent relationships. The linkage between incoming information and the cognitive (causal) representation of one's environment (the S–C union) is part of the broader study of epistemology. The linkage between causal inferences and action (the C–R union) is part of the broader study of the functional significance of cognitions and involves a clarification of the mind-body relationship. Thus, attribution theory stands at the crossroads of two of the most fundamental problems in psychology.

Included within the general rubric of attribution theory are a number of models that more precisely account for circumscribed sets of empirical data. The model most pertinent to educational psychology was formulated to explain achievement-related thoughts and actions.

ATTRIBUTION THEORY AND ACHIEVEMENT MOTIVATION

In achievement-related situations, four causes are most often used to interpret and to predict the outcome of an achievement-related event. These four causes are ability, effort, task difficulty, and luck. That is, in attempting to explain the prior success or failure of an achievement-related action, the individual estimates his or her own or the performer's level of ability, the amount of effort that was expended, the difficulty of the task, and the magnitude and direction of experienced luck. In a similar manner, future expectations of success and failure are based upon the assumed level of ability in relation to the perceived difficulty of the task (referred to by Heider, 1958, as "can"), as well as an estimate of intended effort and anticipated luck. Of course, other causes of success and failure are reported, such as fatigue, mood, illness, and the bias of others. But it has been repeatedly found that ability, effort, task difficulty, and luck are perceived as the most general and salient causes of achievement outcomes (see Frieze, 1973; Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971).

The causes of success and failure have been comprised within a three-dimensional taxonomy (see Weiner, 1974). One dimension is the familiar internal-external description of causes identified with Rotter (1966). Ability and effort are properties internal to the person, whereas task difficulty and luck are external or environmental causes. A second dimension characterizes causes on a stable-unstable continuum. Ability and the difficulty of the task are relatively stable or invariant, while luck and effort are more unstable—luck

implies random variability, and effort may be augmented or decreased from one moment to the next. Thus, among the four main perceived causes of success and failure, ability is internal and stable, effort is internal and relatively unstable, task difficulty is external and stable, and luck is external and unstable. A third dimension of causality, intentionality, is not discussed in the present context.

Antecedents

The main antecedent cues used for causal judgments are specific information, such as past success history, social norms, patterns of performance, and time spent at the task (see Weiner, 1974). For example, ability inferences primarily are determined by past history information. Consistent success or failure, or person-outcome covariation over time, in part indicates whether or not an individual is able. Outcome information considered in conjunction with social norms (or task-outcome covariation across people) especially is used by adults to infer ability level (see Frieze & Weiner, 1971; Weiner & Kukla, 1970). For example, one who succeeds at a task at which all others fail is likely to be perceived as very able. This is consistent with the general notion that we learn most about others when their behavior is not attributable to role prescriptions or other external factors that lead to uniformity (conformity) of action between persons. Adults can combine and synthesize numerous informational cues and reach reliable causal judgments (see Frieze, 1973; Frieze & Weiner, 1971).

In addition to covariation information, cognitive structures such as causal schemata also influence the judgment process. The term "causal schema" refers to a relatively permanent relationship which an individual perceives between an observed event (the effect) and the causes of that event (Kelley, 1972). For example, one may believe that either high ability *or* hard work will produce success. This disjunctive causal relationship is referred to as a sufficient causal schema; each cause in and of itself is capable of producing the effect. Among adults, a sufficient schema is elicited by typical events such as success at an easy task (Kun & Weiner, 1973). Conversely, one may believe that both ability *and* effort are required for success. This conjunctive relationship is referred to as a necessary causal schema. Among adults, a necessary schema is elicited by unusual events such as success at a difficult task (Kun & Weiner, 1973). These schemata are important because they permit deductions about causes, given information about an effect. For example, if someone accomplishes a goal perceived as difficult, both ability and effort are typically inferred. Inasmuch as teachers often have limited information about their pupils, causal schemata are essential determinants of their judgments.

Included among the many other determinants of causal inferences are individual differences. It has been demonstrated that the motive to strive for success, or what is known as the need for achievement, markedly influences

causal ascriptions (see Weiner et al., 1971). Given success, persons high in achievement needs perceive that the internal factors of ability and effort were the responsible causes. Persons low in achievement needs display no clear attributional preferences for success. On the other hand, given failure, persons high in achievement needs ascribe the outcome to a lack of effort, while individuals low in achievement needs tend to attribute the outcome to a lack of ability. Hence, the motive groups differ in the *internality* of their attributions for success and in the *stability* of their attributions for failure.

Gender is another individual difference variable that appears to be related to causal attributions. There is suggestive evidence that females are more likely to invoke luck explanations than are males (see, for example, Feather, 1969) and perceive themselves as lower in ability. In addition, in an investigation of what pupils think teachers believe about them, it was found that females believe teachers perceive lack of ability as the cause of their failure, while male students infer that teachers attribute their failure to a lack of motivation (Dweck & Bush, 1976).

Consequences

The principles of causal inference briefly outlined above have been integrated with an expectancy-value conception of motivation (see Atkinson, 1964; Weiner, 1972, 1974). Expectancy-value theorists maintain that the intensity of aroused motivation is determined jointly by the expectation that the response will lead to the goal and the attractiveness of the goal object. The greater the perceived likelihood of goal attainment and the greater the incentive value of the goal, the more intense is the presumed degree of positive motivation. This model is in part derived from decision theory, which specifies that utility is the perceived value of a goal multiplied by the subjective probability of goal attainment.

Causal attributions for success and failure influence both the expectancy of success and the affective consequences (incentive value) of achievement performance (see Weiner, 1974). Thus, given the postulates of expectancy-value theory, causal ascriptions also should influence motivated behavior.

Expectancy of Success. Considering expectancy of success, it has been found, for example, that failure ascribed to low ability or the difficulty of the task decreases the expectancy of future goal attainment more than failure that is ascribed to bad luck or a lack of effort. In a similar manner, success ascribed to good luck results in lesser increments in the subjective expectancy of future success at that task than success ascribed to high ability or to the ease of the task. More generally, ascription of an outcome to a stable factor, such as ability, increases expectancy or confidence of success after a success and decreases expectancy or confidence of success after a failure more than does an ascription to an unstable cause, such as luck. Stated somewhat differently, if one anticipates that conditions will remain unchanged, then the prior outcome at a task will be anticipated again with an increased degree of certainty. But

if conditions are perceived as changeable, then there is some doubt that the prior success or failure will be repeated. The well-documented "gambler's fallacy" is one instance of this general principle. The relationships between causal attributions and expectancy of success have been confirmed in many studies (see Weiner, 1974; Weiner, Nierenberg, & Goldstein, 1976).

Affect. In addition to influencing expectancy of success, causal attributions in part determine the affective consequences of success and failure. Pride and shame as well as interpersonal evaluation are absolutely maximized when achievement outcomes are ascribed internally and are minimized when success and failure are attributed to external causes. Thus, success attributed to high ability or hard work produces more pride and external praise than success that is perceived as due to the ease of the task or good luck. In a similar manner, failure perceived as caused by low ability or a lack of effort results in greater shame and external punishment than failure that is attributed to the excessive difficulty of the task or bad luck. In sum, locus of causality influences the affective or emotional consequences of achievement outcomes. Of course, failures ascribed to external factors such as teacher or supervisor bias are likely to produce strong emotional reactions, including anger and frustration. But external attributions minimize *achievement-related* affects. The proposed relationships between locus of control and affect also have been confirmed in many investigations (see Weiner, 1974).

Performance. Finally, numerous investigations in the motivational literature have demonstrated that both expectancy and affect influence a variety of behaviors (see Atkinson, 1964; Weiner, 1972). Because of their influence on expectancy and affect, causal attributions influence motivational indexes such as speed of performance, choice, and persistence of behavior (see Weiner, 1974; Weiner & Sierad, 1975).

Summary

It has been stated that causal ascriptions for success and failure are inferred from a variety of antecedents, such as specific cues, causal schemata, and individual differences. The perceived causes of success and failure include ability, effort, task difficulty, and luck, as well as less common ascriptions such as mood, illness, fatigue, and bias. Causes can be subsumed within two primary dimensions of causality, labeled stability (stable versus unstable) and locus of control (internal versus external). The two causal dimensions respectively influence the subjective expectancy of success and the affective reactions to success and failure. Expectancy and affect, in turn, determine a wide range of motivated behaviors. Hence, in this analysis, self-perception and social perception are linked with motivational processes.

The attributional model of achievement-related behavior sketched above is depicted in Figure 1. Selected aspects of this model are examined in closer detail in this chapter. The discussion will focus upon the cognition-behavior

Antecedents →	Causal →	Causal →	Dimensional →	Behavioral
	ascriptions	dimensions	consequences	consequenc

Specific cues ⎫　Ability ⎫
Causal　　　　　Effort
　schemata　　　　　　　　Stability　→　Expectancy ⎫　Various
Individual　⎬ →Task difficulty ⎬ →　　　　　　　　shifts　⎬ →　indices of
　differences　　　　　　　　　Locus of　→　Affect　　　　performanc(
　　　　　　　Luck　　　　　control
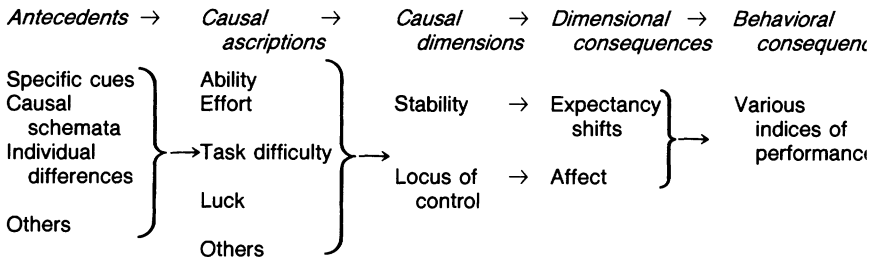Others　　⎭　　　　　　⎭
　　　　　　　Others

Figure 1. An attributional (expectancy-value) model of achievement motivation

linkages, or the relationship between causal ascriptions and action. More specifically, I will consider evaluation in achievement contexts, subjective expectancy of success, achievement strivings, and attempts to alter achievement motivation. Thus, the "how do we know" questions, or antecedents of causal ascriptions, are neglected in favor of an exploration into the consequences of attributions. In addition, throughout the chapter promising areas of research are indicated.

ACHIEVEMENT EVALUATION

Achievement evaluation is influenced by a plethora of "nonobjective" psychosocial factors. That is, feedback given to students concerning their performance in achievement-related situations, as well as feelings of pride and shame, are not simply determined by an exam score. Rather, grades appear to be a variable function of a number of factors, including objective test outcomes and subjective inferences about level of ability and degree of trying. In particular, causal inferences about effort expenditure modify the performance evaluation that is given by teachers to their pupils.

One reference experiment has demonstrated the evaluative influence of perceived causation with unusual clarity (see Eswara, 1972; Kaplan & Swant, 1973; Rest, Nierenberg, Weiner & Heckhausen, 1973; Weiner & Kukla, 1970; and Zander, Fuller, & Armstrong, 1972). In the experimental paradigm under consideration, subjects are asked to pretend that they are teachers and must provide "evaluative feedback" to their grade school pupils. The pupils have just taken an exam and received one of five possible outcomes: excellent, fair, borderline, failure, and clear failure. In addition, the pupils are described in terms of ability (high or low) and effort expenditure (high or low). Each subject evaluates all 20 possible experimental combinations (5 levels of outcome × 2 levels of ability × 2 levels of effort). Thus, for example, one pupil is characterized as high in ability and low in effort and as having a borderline performance. Evaluation frequently is indicated by giving each pupil a score from +5 (highest reward) to −5 (highest punishment).

The results of a representative experiment (Weiner & Kukla, 1970) are

depicted in Figure 2. Figure 2 reveals that outcome, the nonpsychological factor often thought to affect evaluation singularly, indeed influences feedback in the expected manner: the greater the success, the more favorable is the feedback. But causal attributions also affect evaluation. First, high effort results in a more positive evaluation than does low effort at all outcome levels. And, to our initial surprise, low ability produces higher evaluation than does high ability. The latter finding is due to the particular constellation of information provided in this experiment. Low ability coupled with high effort and success is especially rewarded. For example, the handicapped person who completes a marathon race, or the retarded child who persists to complete a task, elicits great social approval. On the other hand, high ability coupled with low effort and failure is maximally punished. For example, the gifted athlete who refuses to practice and performs poorly, or the bright "dropout" generates great social disapproval. Because low ability coupled with high effort and success is so rewarded, while high ability linked with low effort and failure
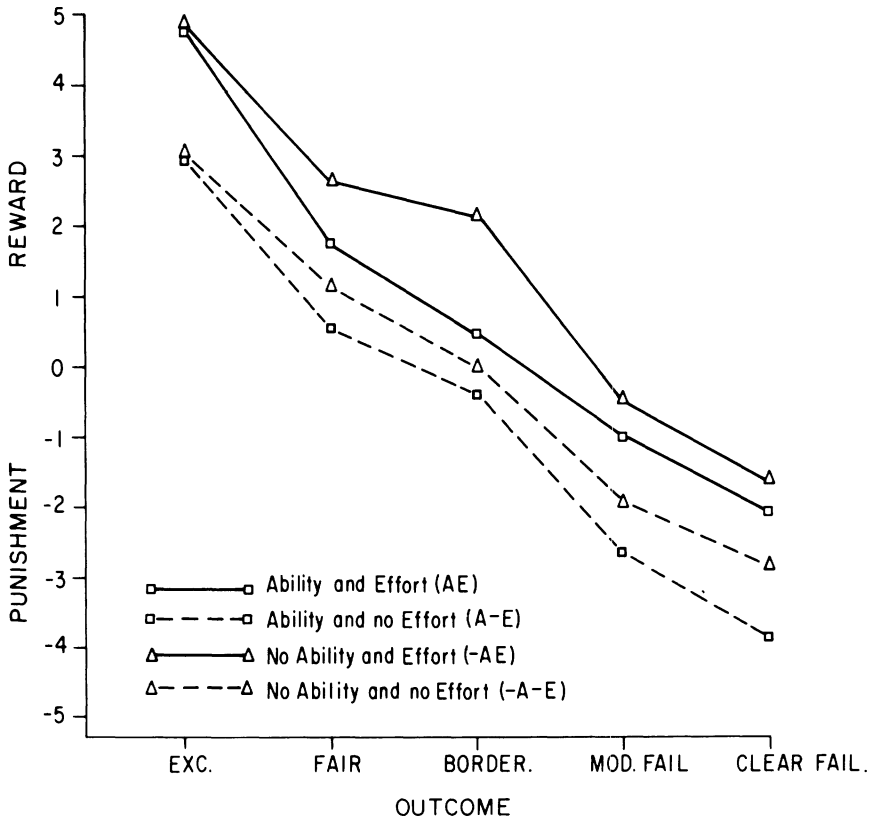

Figure 2. Evaluation (reward and punishment) as a function of pupil ability, motivation, and examination outcome. (From Weiner & Kukla, 1970, p. 3.)

is so punished, lack of ability emerges as a beneficial attribute in this achievement context.

One interesting extrapolation from these findings has been intimated by Gold (1975). Gold suggests that if one highly rewards another for success at an easy task, then the rewarded individual might infer that he or she is perceived as having low ability. That is, reward for success and the building of a positive self-concept may at times be negatively related (assuming, of course, that the communication is accepted). Consider, for example, your own reaction to being highly praised for good performance at a very simple task! The general implication of this discussion is that self-concept in part depends upon the perceived attributions made by others.

There also is an abundance of evidence that causal ascriptions influence self-evaluation. However, the great importance of effort ascriptions that is exhibited in other-perception is less prevalent in self-perception. There is evidence that when outcomes are related to long-term goals, personal ascription of success to high ability results in greater positive affect than ascription to hard work (Nicholls, in press). This might explain why students seem reluctant to admit that they studied hard! On the other hand, if the task is unrelated to future success, then effort is personally valued as a cause of success more than is ability (Nicholls, in press).

Implications for Grading Practices

The fact that a variety of objective and subjective factors influence evaluation makes one wonder if teachers should be forced to assign a single, overall grade to their students. Perhaps there should be a grade for effort or trying, a grade for quality of the product (outcome), and even a judgment about capacity (although, as already intimated, inferences about causality are fraught with danger). Nevertheless, by requiring a final overall judgment from teachers, a number of causes become intermixed in an unsystematic manner, and evaluators are likely to differ in the determinants they believe should be most heavily weighted.

Maturity

Figure 2 shows the evaluations made by *adult* subjects. It is reasonable to anticipate that the judgments of children will differ in some important respects from those of adults. It has been found, for example, that in the moral domain children primarily use outcome information to determine their judgments, while adults often use information about intent to decide moral evaluation. If this pattern in part characterizes achievement judgments, then among the younger children perceived effort expenditure would not affect achievement evaluation.

To ascertain whether achievement judgments vary with age, the experiment already described was administered to children and young adults ranging from

4 to 18 years old (Weiner & Peter, 1973). Some of the pertinent results of this investigation are depicted in Figures 3 and 4. Figure 3 reveals that the use of effort information changes with age. Reward for positive effort increases with maturity, while punishment for a lack of effort increases until the age of twelve and then decreases. Thus, the resultant effort curve (reward for effort minus punishment for a lack of effort) indicates that effort ascriptions are most important among children aged 10-12.
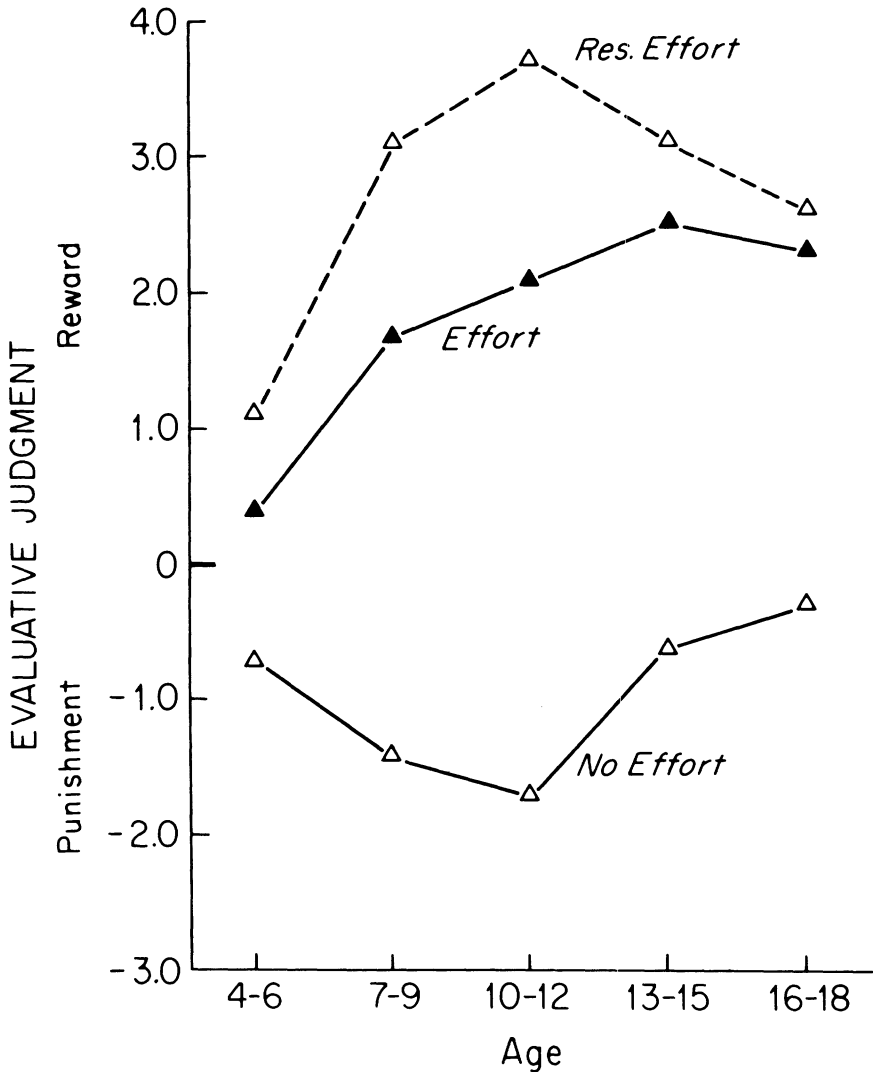

Figure 3. Reward for positive achievement effort, punishment for a lack of effort, and the resultant of reward for effort miñus punishment for a lack of effort, as a function of age. (From Weiner & Peter, 1973, p. 300.)

Figure 4 depicts the evaluative effects of effort and outcome as a function of the age of the subjects. The figure indicates that among younger children evaluation primarily is determined by outcome—success is rewarded, while failure is punished. Perceived effort initially plays only a minor role in determining judgments. However, the differential effects of outcome versus effort gradually recede, and among the 10-12-year-olds effort is a more influential evaluative determinant than is outcome. Among the older subjects, however, the order of importance of these two factors again is reversed, although effort does remain an important judgmental dimension. Ability had only a minor influence upon reward and punishment in this study (see Weiner & Peter, 1973) and is not discussed here.

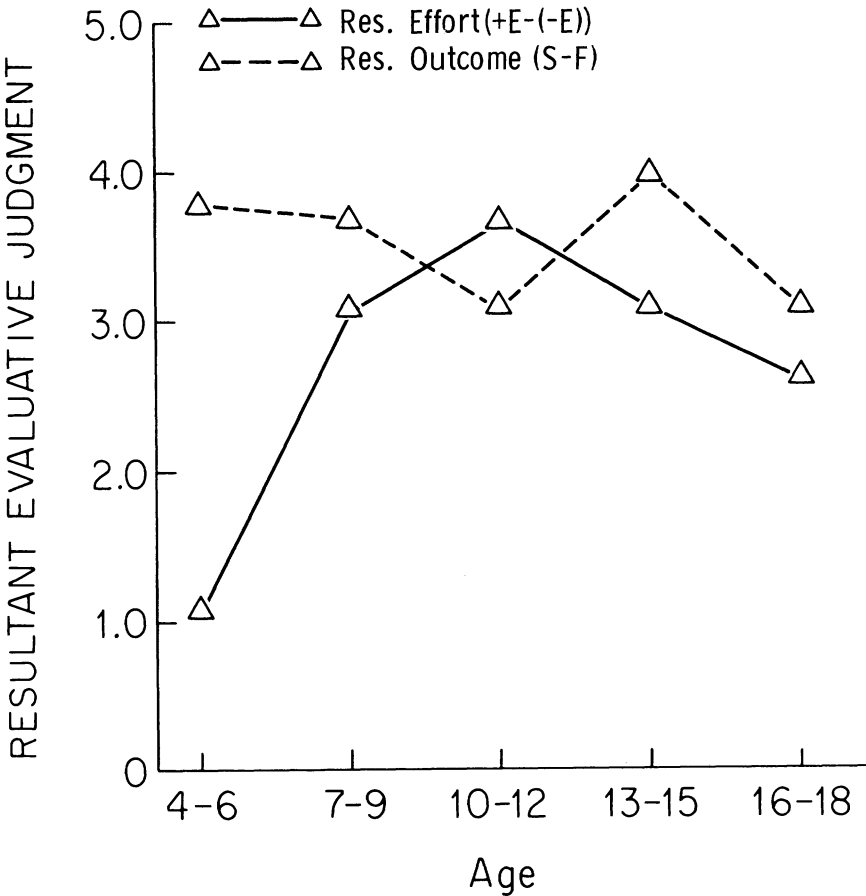One interesting implication of these data is that achievement evaluation by

Figure 4. Resultant outcome (reward for success minus punishment for failure) and resultant effort judgments as a function of age. (From Weiner & Peter, 1973, p. 301.)

adults (teachers) may not be congruent with the value placed upon achieve-
ment performance by younger age groups. While adults primarily use outcome
to determine reward and punishment, the 10-12-year age group employs effort
as the main determinant of appraisal. And although adults do believe that
effort expenditure should influence evaluation, the youngest children do not
perceive "trying" as an evaluative dimension. I wonder if these discrepancies
are a source of dissatisfaction in school that could interfere with academic
performance. The general point being made is that the "fit" between teacher
and student dimensions of evaluation could be an important classroom varia-
ble.

Cultural Influence

Figures 2-4 illustrate the achievement evaluation of *American* children and
adults. It is reasonable to anticipate that achievement judgments also are
influenced by the culture of the evaluator. Specific culture-based learning
experiences are likely to produce differences in values that are evidenced in
interpersonal evaluations.

To determine whether cultural learning experiences influence achievement
judgments, Salili, Maehr, and Gillmore (1976) administered the experiment
under consideration to 291 Iranian children and young adults. Again the
teacher-pupil situation was described, with some slight procedural modifica-
tions to accommodate cultural differences.

Figure 5 shows that among the Iranian students the use of effort informa-
tion changes with maturity. The rewards given for positive effort steadily
increase, while punishment for a lack of effort decreases from the first to the
second age group and then remains relatively constant. Thus, the resultant
effort curve reveals that effort becomes more important as a determinant of
evaluation with increasing maturity. The outcome effect did not change with
age; for all subjects positive outcomes were rewarded more than negative
outcomes.

Comparison of Figure 3 with Figure 5 reveals a fundamental difference
between the evaluative determinants of Americans versus Iranians. Effort
decreases in importance among the relatively older Americans, while it con-
sistently increases in importance among the Iranians. This accounts for the
finding that among the adult Iranians effort is a more important judgmental
factor than is outcome, while among the American adults outcome is weighted
more than is effort.

Describing the Iranian culture, Salili et al. (1976) state:

On the one hand, the most achievement-oriented American could not help but be
impressed with the continued, methodical, and persistent hard work exhibited by a
sizable share of the Iranian citizenry. On the other hand, he may be distressed with
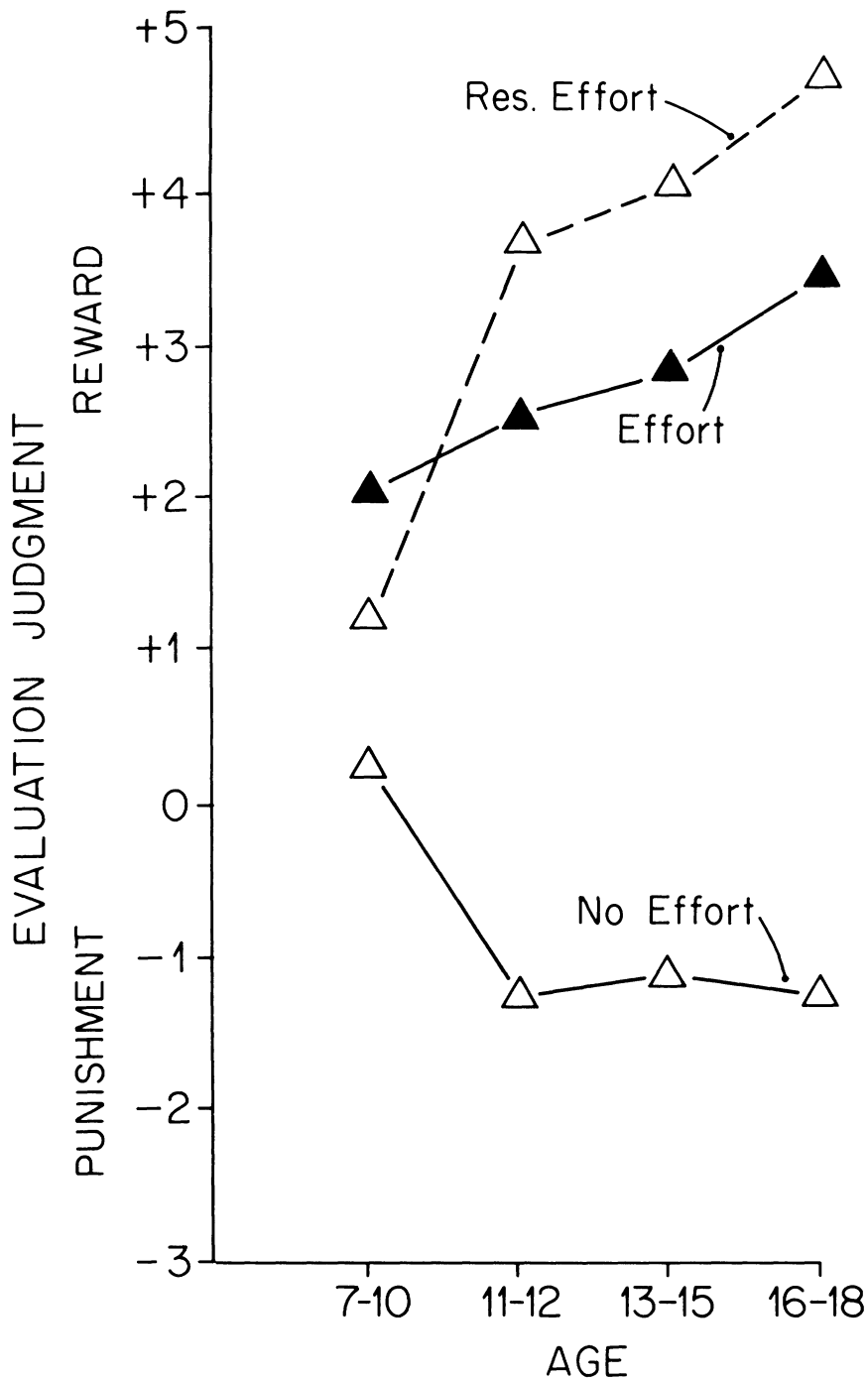the lack of care for product or outcome. Thus, when a customer or employer complains

Figure 5. Reward for positive achievement effort, punishment for a lack of effort, and the resultant of reward for effort minus punishment for a lack of effort, as a function of the age of Iranian students. (Adapted from Salili, Maehr, & Gillmore, 1976, p. 331.)

about the quality of *outcome,* the Iranian employee or merchant is likely to emphasize the hard work (effort) involved. One may summarize the differences by suggesting that in the U.S. it is not sufficient merely to try. You must also produce—you are judged by your product. (p. 336)

Salili et al. then go on to speculate:

. . . the findings with the U.S. and Iranian subjects suggest that a major difference in achievement in the two societies does exist. Moreover, it may be that this is represent-ative of a more general pattern. Thus, the dual effort and outcome orientation (U.S. subjects) might be characteristic of societies in which status is more typically accorded as the result of achievement (producing an outcome or product), whereas the effort orientation is more characteristic of societies in which status is *ascribed* and where, consequently, there is less interest in whether trying gets one anywhere. (pp. 336-337)

Just as the "fit" between teacher and children may be a source of school dissatisfaction, these data suggest that being a teacher or a pupil in a foreign culture may lead to conflict and confusion because of contrasting evaluative systems.

Motivational Systems and Evaluative Schemata

In most social situations it is unclear what motivational system or evalua-tive rule should be elicited by an action. For example, how shall the individual be judged who puts forth great effort to commit the perfect crime? Is he or she to be evaluated positively because of the great achievement, or negatively because of the aggressive, antisocial nature of the act? Consider further the evaluation of a lazy scientist who happens to discover a cure for cancer, as opposed to the dedicated scientist who works day and night for the betterment of mankind but does not make any substantial discovery. Which of these individuals should be more highly evaluated, more admired, and/or more rewarded?

The essence of the conflict concerning the scientists is what evaluative determinant, intent (effort) or outcome, is to be more highly weighted in one's judgment. In situations that elicit moral concerns, among adults intent typi-cally overrides outcome information. On the other hand, in achievement con-texts, American adults tend to consider outcome information more important than knowledge about effort (Weiner & Peter, 1973). Thus, if an achievement rule is elicited, then the lazy, successful scientist is likely to receive the higher evaluation, while if a moral set is aroused, then the dedicated, unsuccessful scientist may receive the higher appraisal.

It is often unclear which motivational system or evaluative set, achievement or moral, will be called forth in a given situation. In sports, for example, some feel that the only thing that matters is that one perform to the best of one's capability—"It is not whether you win or lose, but how you play the game."

But if coaches followed this principle, there would be widespread unemployment in the coaching profession, for among many spectators sports elicit achievement (outcome-oriented) evaluative rules. Of course, the achievement (outcome) versus moral (effort) conflicting values also exist in the classroom, as well as in Little League baseball.

At this time it is not evident what situational characteristics or cues call forth achievement, as opposed to moral, evaluative sets. The social nature of the situation, the possibility of winning or losing, and the presence or absence of competition intuitively appear to be dimensions along which achievement and moral situations might be distinguished (Parsons, 1974).

I turn now from the affective (evaluative) consequences of causal attributions to the influence of ascriptions on the subjective expectancy of success. It has been contended that affect and expectancy are the main determinants of action (see Figure 1). Thus, these sections provide the foundation for the later discussion of achievement strivings and achievement change programs.

SUBJECTIVE PROBABILITY OF SUCCESS

Inasmuch as the concept of expectancy or subjective probability of success plays such a central role in academic performance, it is disappointing that so little is known about its antecedents. Among adults, it has been demonstrated many times that prior success or failure at a task influences the future expectancy of success, with expectancy increasing after a success and decreasing following failure (see Diggory, 1966). Thus, successful students have higher expectancies of success in academic settings than pupils who have performed poorly. In addition, it is known that among adults the magnitude of expectancy shifts is influenced by causal attributions. Ascriptions of an outcome to stable causes augment expectancy shifts, whereas attributions to unstable causes minimize changes in expectancy of success (see the earlier discussion of attribution theory in this chapter, as well as Weiner, 1974; Weiner et al., 1976).

Two general experimental procedures have been extensively used to examine the relationship between causal ascription and expectancy change. One procedure, exemplified by Meyer (1973, reported in Weiner, Heckhausen, Meyer, & Cook, 1972) and McMahan (1973), is correlational. Subjects repeatedly succeed or fail at a task and make causal attributions for their performance following each trial. In addition, expectancy for future success is reported. The second type of research paradigm is experimental, in that subjects are placed within various causal attribution conditions, typically manipulated via task instructions. Probability reports following success and failure are then related to the experimental manipulation (see Fontaine, 1974; Rosenbaum, 1972; Valle & Frieze, 1976). In both correlational and experimental procedures it is unequivocally found that the perceived stability of causes is directly linked to the magnitude of probability shifts.

There is a vast and prominent literature generated by the ubiquitous concept of locus of control (Rotter, 1966) which reports that expectancy shifts are related to internal versus external perceptions of causality (e.g., Phares, 1957). In these experiments, expectancy changes are compared between skill (ability) versus luck (chance) instruction conditions. The data clearly reveal that typical expectancy shifts (an increase in the expectancy of success following a success and a decrease in expectancy after a failure) are greater given skill than chance instructions. These findings apparently support the locus-of-control position. However, skill and luck differ not only in locus of control (ability is internal while luck is external), but also in their stability (ability is stable whereas luck is unstable). Hence, comparisons of expectancy shifts between tasks that elicit skill (internal and stable) versus chance (external and unstable) perceptions of responsibility confound two dimensions of causality. This makes it impossible to determine whether the differential expectancy shifts are to be attributed to differences in locus of control or to disparate beliefs about stability. Research in the attribution area, however, has separated the locus of control from the stability causal dimension and shown that expectancy shifts are unrelated to locus of control but are related to perceived causal stability.

A recent study has directly pitted the locus-of-control versus causal-stability explanations of expectancy change. Weiner et al. (1976) gave subjects 0, 1, 2, 3, 4, or 5 success experiences at a block-design task. In contrast to prior studies, different subjects were placed in the various experimental conditions. Following the success trial(s), expectancy of success and causal ascriptions were obtained.

To assess perceptions of causality, subjects were required to mark four rating scales that were identical with respect to either the stability or the locus-of-control dimensional anchors, but which differed along the alternate dimension. For example, one attribution question was: "Did you succeed on this task because you are always good at these kinds of tasks or because you tried especially hard on this particular task?" "Always good" and "tried hard," the anchors on the scale, are identical on the locus-of-control dimension (internal), but they differ in perceived stability. In a similar manner, judgments were made between "lucky" versus "tried hard" (unstable causes differing in locus of control), "these tasks are always easy" versus "lucky" (external causes differing in stability), and "always good" versus "always easy" (stable causes differing in locus of control). Thus, the judgments were made within a single causal dimension, permitting a direct test of the locus of control versus stability interpretations of expectancy change.

Table 1 shows the mean expectancy of success judgments for the groups of subjects as a function of the number of success experiences. The data indicate that the expectancy of future success is directly related to the stability of the perceived cause of the prior positive outcome(s). Individuals classified

TABLE 1
Mean Expectancy Scores for Subjects Classified as High (Upper Third), Medium (Middle Third) and Low (Lower Third) in Perceived Stability and Perceived Locus of Control

Causal Dimension	Number of Successes [a]						
	0	1	2	3	4	5	$\bar{X}$
Stability							
High...................		8.43	8.86	8.86	8.86	9.14	8.83
Medium................		7.43	6.43	8.57	8.86	8.86	8.03
Low...................		6.86	7.00	7.86	8.14	8.86	7.74
$\bar{X}$...................	7.09 [b]	7.57	7.43	8.43	8.62	8.95	8.20
Locus of control (internal)							
High...................		7.71	7.43	8.86	8.71	9.28	8.40
Medium................		8.81	7.14	8.14	8.71	8.71	8.08
Low...................		7.28	7.53	8.28	8.43	8.86	8.08
$\bar{X}$...................	7.09 [b]	7.57	7.43	8.43	8.62	8.95	8.20

[a] $n = 7$ in each cell.
[b] $n = 21$.
Source: Adapted from Weiner, Nierenberg, & Goldstein (1976).

as high in their attribution of success to stable factors have more positive overall expectancies than individuals relatively medium or low in their attribution of success to stable causes. Table 1 also reveals that perceptions of control are not systematically related to the stated expectancies of success.

On the basis of the general findings reviewed above, McMahan (1973) offered the following formula to predict subjective expectation of success:

$$\text{Exp}_1 = \text{Exp}_0 + O(S - U)$$

where Exp_1 = the expectancy of success for the future, Exp_0 = initial expectation of success, O = outcome, and S and U respectively symbolize stable and unstable causal ascriptions. Valle and Frieze (1976) elaborated this formula and concluded that "there is some value for the difference between the initial expectations and the actual outcome that will maximally change a person's predictions for the future." (p. 581) This follows because unexpected outcomes generate unstable attributions, while sure outcomes result in a similar future expectation. The principle articulated by Valle and Frieze could serve an important function in the development of programs designed to change "self-confidence," or the subjective expectancy of future goal attainment.

Expectancy of Success and Self-Concept

Self-concepts are relatively stable because of their direct linkage with expectancy of success. Assume that an individual with a low expectancy of academic success performs well on an exam. Because this outcome is not

anticipated, the success is ascribed to an unstable factor, such as good luck (see Feather, 1969). Hence, the expectancy of future success is not increased. On the other hand, failure at the exam is anticipated and, when it occurs, is ascribed to a stable factor, such as low ability. This causal attribution decreases the subsequent expectancy of success even further. Inasmuch as success does not increase future expectations, while failure lowers estimates of future success, a low self-concept is maintained. It has been reported that just such a "low expectancy cycle" is especially prevalent among females (Jackaway, 1974).

On the other hand, if an individual with a high expectancy of doing well succeeds, then that outcome is ascribed to a stable factor, such as high ability. Conversely, this person does not anticipate failure, and a failure experience tends to be attributed to an unstable cause, such as bad luck. In this manner, a high self-concept and high subjective likelihood of success are maintained.

In sum, causal attributions clarify the apparent stability of achievement-related self-concepts. This conceptual analysis paves the way for programs that attempt to change maladaptive self-perceptions. Increasing subjective expectancy of success (self-confidence) should be anticipated to be a slow process among individuals with initial high expectations of failure.

Causal Stability and Selection

Inasmuch as the stability of causes influences expectancy of success, this dimension of causality plays an important role in selection decisions. I am sure, for example, that many readers have faced the problem of whether or not to admit a student with a relatively poor recent record to a more advanced or different program of study. The student contends that the poor past performance was due to unstable causes, such as illness, lack of interest in the subject matter, or interpersonal problems. Thus, he or she expects to do well in the future, for it is argued that this state no longer exists. But the administrator or decision maker is not convinced and is inclined to ascribe the past performance to stable personality factors such as a lack of ability or general character deficiencies (see Jones & Nisbett, 1971). Hence, poor future performance is anticipated.

In matters of selection, an ability estimate often is considered to be of greater importance than perceived effort expenditure. This is due to the belief that effort is modifiable, while ability is considered relatively fixed and as defining performance potential. Thus, one infers that an individual described as high in ability but low in effort and performing poorly could exhibit a very high level of attainment, given the proper environmental conditions. And teachers and trainers frequently believe they indeed know how to establish the environment that will increase motivation (witness the frequent trading of skilled athletes who are labeled as "attitude" problems). Unfortunately, it also is the case that effort expenditure (achievement motivation) has some stable

properties, for the need for achievement is often conceptualized as a trait. Furthermore, it certainly is possible that high effort can compensate for short-comings in ability. It therefore may not be the best procedure to select on the basis of ability rather than motivation.

The comparative importance assigned to ability and effort in evaluation and selection, and the perceived underlying causes of these causal factors, are essential areas of investigation. Included among the many educational procedures relevant to these issues is the concentration of early educational programs on intellective, as opposed to affective (motivational), development (see Weiner, 1973).

ACHIEVEMENT STRIVINGS

The most widely known theory of achievement motivation was formulated by Atkinson (1957, 1964). Atkinson assumes that achievement-oriented behavior emerges out of a conflict between approach and avoidance tendencies. Associated with every achievement-related action is the possibility of success, with the consequent emotion of pride, and the possibility of failure, with the consequent emotion of shame. The strengths of these anticipated emotions determine whether an individual will approach or avoid achievement-related activities. That is, achievement behavior is viewed as the resultant of an emotional conflict between hopes for success and fears concerning failure. Furthermore, one subset of individuals is more hope- than fear-oriented, while other individuals are more motivated by fear than by hope. Atkinson specifies that the behavior of individuals with differing personality dispositions (emotional anticipations) will be quite disparate.

More specifically, Atkinson (1964) has contended that individuals who are highly motivated to succeed (more concerned with hope than with fear) voluntarily initiate achievement actions, work at tasks with great intensity, persist in the face of failure, and prefer tasks of intermediate difficulty. On the other hand, persons who are low in achievement motivation (more motivated by fear than by hope) do not undertake achievement activities unless such actions are in the service of nonachievement-related goals. These persons work with little intensity, quit in the face of failure, and prefer tasks that are very easy or of great difficulty.

An Attributional Analysis of Achievement Strivings

As indicated in Figure 1, attribution theory proposes that achievement motivation is mediated by perceptions of causality which, in turn, influence affective responses, subjective expectancy of success, and subsequent achievement behaviors. Individual differences in achievement needs are conceived as causal biases or causal predispositions that influence the magnitude, direction, and persistence of both thought and overt behavior (see Weiner et al., 1971).

Concerning free-choice behavior, it has been reported that individuals high in achievement needs are more likely to ascribe success to internal factors than are persons low in achievement needs (see Weiner et al., 1971). Internal attributions for success augment pride in accomplishment and thus magnify the reward for goal attainment. This internalized reward system is believed to increase the probability of future achievement-related actions in the following manner:

High achievement motivation	Increased response probability
↘	↗
Personal responsibility	Augmented pride in
for success ⟶	goal attainment

The tendencies for individuals high in achievement needs to persist in the face of failure and to expend great effort in achievement-related contexts also are readily amenable to explanations with attributional language. Persons highly motivated to achieve success attribute failure to a lack of effort. Ascription of failure to this unstable factor results in the maintenance of a high expectancy of success and thus accounts for persistence, given initial nonattainment of a goal. On the other hand, persons low in achievement needs attribute failure to a lack of ability. Ability level is perceived as being relatively stable and thus gives rise to a cessation of behavior in the face of failure, inasmuch as the goal becomes perceived as unattainable. The contrasting perceptions of the efficacy of effort expenditure in achievement contexts also explain the differential intensity of performance that is displayed by individuals who are high rather than low in achievement needs.

Risk Preference

Task selection, or the choice between tasks that differ in perceived difficulty, has been the main testing ground or research site of Atkinson's theory of achievement motivation. As previously indicated, Atkinson's model leads to the prediction that individuals highly motivated to succeed will select tasks of intermediate difficulty, while persons low in achievement motivation prefer to undertake tasks that are very easy or very difficult. These opposing motive-group preferences theoretically maximize positive affect for the highly achievement motivated, hope-oriented person and minimize negative affect for the fear-oriented individual who is low in achievement needs.

There is widespread belief that these predictions have been confirmed (see Atkinson, 1964). However, close inspection of the relevant literature reveals that the data are not entirely supportive (see Meyer, Folkes, & Weiner, in press). It is clear that individuals highly motivated to achieve success do select tasks at or near the level of intermediate difficulty. And, in general accordance with Atkinson's predictions, the attraction for intermediate difficulty at times

is more pronounced among individuals high than low in achievement needs. But persons classified as low in achievement motivation definitely do not avoid tasks of intermediate difficulty, thus contradicting Atkinson's model, which is based on the pleasure-pain principle. Rather, they frequently exhibit a preference for intermediate tasks, although they also have displayed linear probability preferences.

Attribution theory can account for the broad preference for intermediate difficulty. Attribution theorists assume that humans are rational, information-gathering beings who seek to understand the causal structure of the world (Heider, 1958). This information-striving tendency in part explains the general desirability of intermediate difficulty choice. Performance at easy or difficult tasks yields relatively little information about one's ability or effort expenditure. The lack of personal feedback is a consequence of the fact that behavior consistent with social norms leads to situational (environmental) causal inferences (Frieze & Weiner, 1971; Kelley, 1967; Weiner & Kukla, 1970, Experiment VI). That is, if one succeeds and so do all others, or fails when others also fail, then the causal inferences are that the tasks were respectively easy or hard. Thus, little is learned about the self, given typical outcomes at easy or difficult tasks. On the other hand, over a series of occasions a great deal of information about the self is gained, given the selection of intermediate difficulty tasks. Inasmuch as some of the individuals undertaking these tasks succeed while others fail, the causal attribution for success or failure is to the person. That is, there is person-outcome, rather than task-outcome, covariation (see Kelley, 1967).

A number of investigations have been undertaken that demonstrate the relationship between task selection and information seeking. Trope and Brickman (1975) gave subjects a choice between tasks that varied in difficulty as well as "diagnosticity." Diagnosticity was operationally defined as the difference in the percentage of successes at a task between individuals designated as high versus low in ability. The data indicated that individuals prefer to undertake tasks of high diagnosticity, independent of the objective difficulty level of the task. For example, a task in which 90% of the high-ability versus 70% of the low-ability individuals succeed ("20%" diagnosticity, 80% overall success rate) was preferred to a task which 52% of the high-ability and 48% of the low-ability persons solved ("4%" diagnosticity, 50% overall success rate). Hence, self-knowledge (ability feedback) was demonstrated to be a crucial determinant of risk preference. Trope (1975) subsequently replicated and extended these findings. He reported that individuals high in achievement needs particularly prefer to undertake tasks of high diagnosticity, although these tasks were not avoided by persons low in achievement needs.

In a related series of studies, Meyer et al. (in press) examined the affective and the informational determinants of risk-preference behavior. Subjects classified according to their level of achievement needs expressed a preference

among tasks varying in difficulty. In two of the experimental conditions, instructions conveyed that task selection should maximize satisfaction or maximize the information gained about one's ability and effort expenditure. It was found that the majority of all subjects preferred to undertake tasks of intermediate difficulty and that both positive affect and information gain were perceived to be optimal at or near the level of intermediate difficulty. In addition, Meyer et al. examined at what level of task difficulty individuals most desire information about their performance. Police trainees and high school students with disparate self-concepts of target-shooting and high-jumping ability were able to receive limited but self-selected performance feedback at a series of shooting and jumping tasks that varied in difficulty. The data revealed that the tasks selected for feedback became objectively less difficult as the self-perception of ability decreased and that the selected tasks were near the intermediate subjective certainty-of-success level for all subjects. Thus, information gain is perceived as maximal when engaging in tasks of subjective moderate difficulty, and individuals prefer such tasks.

In sum, there is a desire on the part of individuals to evaluate their capacities and capabilities, and this desire influences achievement-related choice behavior (also see Veroff, 1969). The implications of these research findings for classroom activities, and the best way to capitalize on sources of intrinsic motivation such as a desire for personal feedback and evaluation, remain to be articulated. Furthermore, we must specify the conditions under which individuals avoid feedback and information as a self-protecting, coping strategy. It would be naive of attribution theorists to believe that in *all* conditions we strive for self-knowledge.

ACHIEVEMENT CHANGE PROGRAMS

If causal attributions for success and failure determine achievement strivings, then it logically follows that a change in these attributions should produce a change in achievement behavior. The simple belief that alterations in thought are necessary or sufficient to give rise to behavioral change has been advocated by many psychologists (e.g., Kelly, 1955). Even within the behavioristic camp, there is now a strong movement contending that internal speech can be used to control overt behavior (see Meichenbaum & Cameron, 1974). In accordance with these views, it has been demonstrated that attributional training programs designed to change the perceived causes of success and failure do alter achievement-related behavior. The limited empirical data suggest that a powerful therapeutic technique is derivable from the attributional perspective.

Three distinct programs of research are pertinent to the efficacy of attributional training procedures. One research approach, far removed from the achievement domain, has demonstrated that misattribution of internal arousal or overt behavior influences emotional expression and the tolerance for pain

(Davidson & Valins, 1969; Nisbett & Schachter, 1966; Ross, Rodin, & Zimbardo, 1969; Schachter & Singer, 1962).

In the study by Nisbett and Schachter (1966), for example, subjects were given a placebo pill after being informed that they were about to receive a series of electric shocks. All of the subjects were told that the placebo had side effects. In one condition the side effects were described as tremors, shaky hands, pounding of the heart, and a feeling of "butterflies" in the stomach. These side effects are identical with fear-arousal symptoms. In a second condition the side effects were described as itching, headache, and other reactions unrelated to fear symptoms.

The subjects were then given a series of shocks progressively increasing in intensity. The dependent variables included the point at which pain was first experienced and the intensity at which the shock was described as unendurable. The data revealed that individuals in the fear symptom condition reported first experiencing pain at a higher level of intensity and had a higher pain tolerance level than subjects who attributed their arousal reactions to the fear of shock. That is, variations in how the individual attributed experienced, internal arousal produced variations in perceived pain as well as disparate overt reactions to shock continuation.

A second program of research bearing upon attributional training emanates from broad-gauged achievement change programs (see McClelland & Winter, 1969). These training programs generally last from four to six weeks, with the participants often sequestered in reasonably pleasant surroundings. The programs make use of a variety of techniques thought to be effective in changing behavior, including persuasion, reinforcement, and group and individual therapy (see McClelland, 1965). Participants are introduced to the thoughts and actions of individuals highly motivated to achieve success, realistic goal setting is encouraged, and the acquisition of self-knowledge about personal values is facilitated. The training course also teaches the importance of self-responsibility or internal control. Because the notion of internal control or "personal causation" (de Charms, 1968) is introduced, the programs are quite relevant to attributional approaches. However, the contribution of attributional training cannot be assessed, for the entire program is multifaceted.

The effectiveness of the training procedure introduced by McClelland and his colleagues is uncertain. Positive results with underachievers (Kolb, 1965), school teachers (de Charms, 1972), and businessmen (McClelland & Winter, 1969) have been documented. But nonsupporting data also are reported (see McClelland & Winter) and the value of these programs remains to be clearly demonstrated.

The principles of self-responsibility that are incorporated into the achievement change programs described above have many pitfalls. Persons low in achievement needs generally assume personal responsibility for failure prior to any training period. Unfortunately, their tendency to ascribe failure to low

ability impairs achievement strivings. A distinction must be made by the developers of change programs between fixed or stable internal causal factors, such as ability, and unstable or modifiable determinants, such as effort. Among the personal ascriptions, only those that are unstable and under volitional control may be positively motivating, given a failure experience. Thus, teaching that outcome is influenced by effort could facilitate achievement motivation. In addition, causal ascriptions to external factors, or the belief that one is not responsible for failure, may also augment achievement behavior among individuals placed within environments that have created special barriers against achievement. A similar point has been made by Lao (1970) and Sanger and Alker (1972), who report that external ascriptions among blacks and females are positively related to attempts at environmental change.

A few laboratory and field training experiments that make direct use of attribution theory comprise a third program of research pertinent to achievement change. In a laboratory investigation by Weiner and Sierad (1975), subjects classified according to their level of achievement needs received four failure trials at an achievement task. Prior to the failure, the subjects in an experimental condition received a placebo pill that supposedly would interfere with their performance. Compared with subjects in a control condition, ascription of failure to the pill augmented the performance of subjects low in achievement needs, while decreasing the performance of subjects high in achievement needs (see Figure 6).

The interaction depicted in Figure 6 between achievement needs and the causal manipulation was derived from the attributional interpretation of expectancy-value theory shown in Figure 1. First, consider persons low in achievement needs. Their bias to ascribe failure to low ability produces low expectancies of future success, as well as arousing personal shame, for ability is a stable, internal cause. Inducing ascription of failure to the placebo pill also generates a low expectancy of success, inasmuch as the effects of the pill were described as constant throughout the course of the experiment. But it is less shameful to fail because of an experimenter-induced external cause than to fail because of perceived low ability. Because the affective consequences of failure are lessened by the external pill attribution, Weiner and Sierad anticipated that persons low in achievement needs would perform with greater intensity in the pill than in the control condition. That is, an external "rationalization" may serve as an adaptive defense for these individuals in that an inhibiting negative affect is lowered. Note in this example how closely attributions are related to defense mechanisms.

Now consider persons high in achievement needs. Their bias to ascribe failure to a lack of effort maintains a high expectancy of future success. Conversely, ascription of failure to a pill results in a low expectancy of success. For these individuals future expectancy of success is believed to be the main determinant of achievement striving. It was therefore anticipated that persons
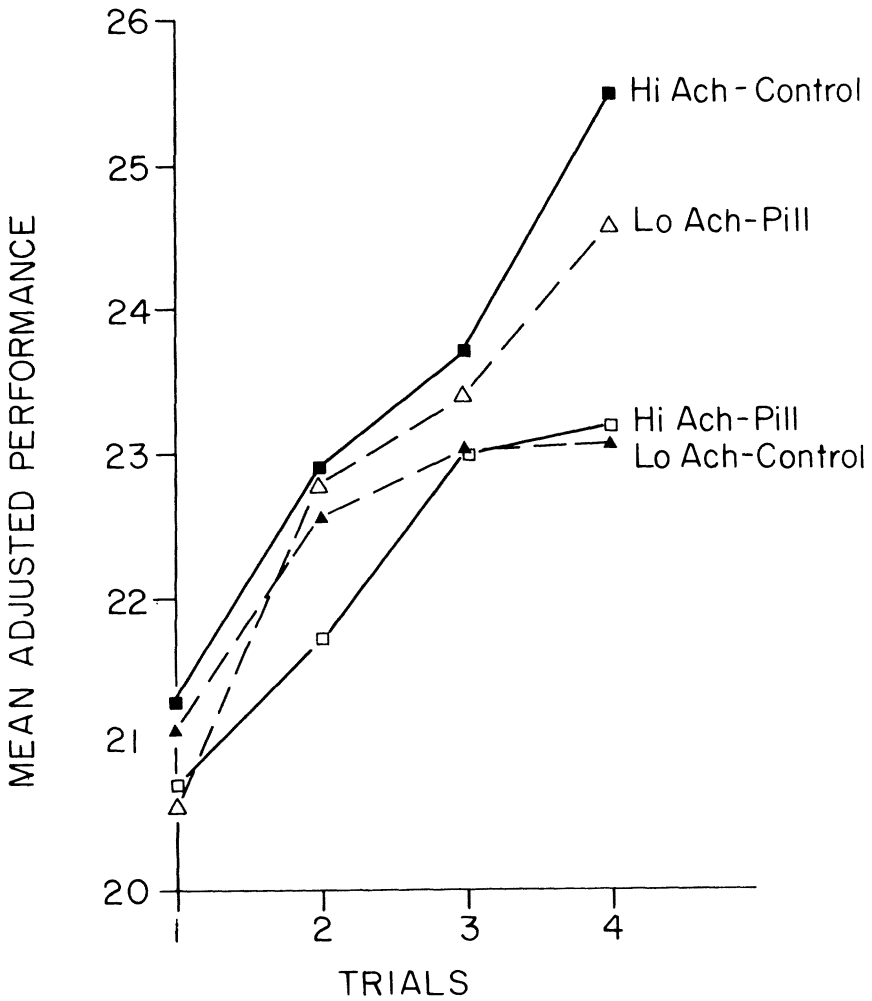
Figure 6. Mean speed of performance (number of digit-symbol substitutions), as a function of level of achievement needs (high vs. low) and the experimental condition (control vs. pill attribution). (Abbreviations are as follows: Hi Ach = high achievement; Lo Ach = low achievement.) (From Weiner & Sierad, 1975, p. 419.)

highly motivated to achieve would perform with greater intensity in the control than in the pill attribution condition (see Weiner & Sierad, 1975, for a fuller discussion of this analysis). As already indicated, the differential predictions concerning the effects of the pill attribution on persons low and high in achievement needs were confirmed.

Other attribution change procedures have been conducted in field experiments that take place over prolonged time periods. The crucial attributional change in these investigations has been to induce pupils to ascribe failure to a lack of effort rather than to low ability.

Heckhausen (1975) and his colleagues report two investigations that directly involve classroom teachers in the training procedure. In one study, underachieving, fifth-grade children who ascribed failure more to low ability than to a lack of effort were selected as the target pupils. To alter this causal bias, their teachers were first introduced to attribution theory in a number of experimenter-teacher meetings. It was then decided to provide exam and homework feedback to the pupils that conveyed the idea: "You could do better if you . . . would expend more effort" (p. 124). The experimental treatment lasted four and one-half months. Compared to subjects in control classrooms, Heckhausen found that pupils given attributional training displayed decreases in measured anxiety, improved their performance on the speed subtests of the Primary Mental Abilities test, and, as would be expected, exhibited greater ascription of failure to a lack of effort as opposed to a lack of ability.

A related field study was performed by Dweck (1975) on a more highly selected sample of school children. Dweck's subjects were 8-13-years-olds who had been identified independently by their teacher, the school psychologist, and the principal as having a high expectancy of failure and as displaying performance decrements in situations of failure. The method used by Dweck was to verbalize to the subjects that failure during a series of training sessions was due to a lack of effort. During these training trials 20% of the responses resulted in failure. The attributional training procedure was compared to the popular program of inducing 100% success without any causal ascription. Dweck's data clearly revealed the efficacy and the value of attributional training and its superiority over the "success only" treatment. Following training, only the attributional treatment group responded relatively positively in the face of failure.

Andrews (1974) also induced effort ascriptions in his training procedure. Andrews first found that among sixth-grade children there was a high positive correlation between persistence and ascription of failure to a lack of effort, and a high negative correlation between persistence and ascription of failure to the stable factors of low ability and task difficulty. He then trained male subjects who least used effort attributions to ascribe failure to a lack of effort. This was accomplished by social and token reinforcement techniques applied in both success and failure situations. Andrews reports that the attributional training was effective, for it not only increased the use of effort attributions, it also produced an increase in behavioral persistence in the face of failure.

In sum, effective attributional training procedures have been reported. Thus far, most of these programs have concentrated on changing causal ascriptions for failure, while ignoring attributions for success. Future studies are likely

to focus on both positive and negative achievement outcomes (see Andrews, 1974).

The attributional change procedures reviewed above bear close conceptual resemblance to the general therapeutic attempt to use covert thought to control overt behavior (Meichenbaum & Cameron, 1974). What are now needed are systematic developmental studies that identify the antecedents of dysfunctional attributional tendencies and an in-depth analysis of the procedures that may be used to foster more adaptive attributional strategies.

RELATED AREAS OF STUDY

There is an extensive current interest in perceived causality in the areas of social, personality, and clinical psychology. The recent flourish of research and thought in this area was stimulated, in part, by reactance theory (Brehm, 1966), Rotter's (1966) concept of locus of control, a distinction between "origin" and "pawn" (de Charms, 1968), the demonstration of "learned helplessness" (Maier, Seligman, & Solomon, 1969), the notion of "personal freedom" (Steiner, 1970), and work concerning "extrinsic" versus "intrinsic" motivation (Deci, 1975). Space does not permit a detailed analysis of these closely allied fields of study. However, I would like to point out some similarities, differences, and overlapping concerns between some of these areas and the attributional approach that has been presented in this chapter.

Locus of Control

Locus of control refers to whether or not individuals perceive that they have or have not the power to control the things that happen to them. This concept grew from Rotter's (1954) social learning theory and now primarily is sustained by correlational research that contrasts people who are "internal" with individuals who are "external" in locus of control. This work appears to be a subset of attribution theory in that one dimension of causality is examined in detail, with primary concentration upon the consequences of a causal predisposition. However, locus of control refers to forward-looking (predictive) processes, whereas attribution theory considers backward-looking (postdictive) inferences. It may be that prediction and postdiction are subject to different laws. Thus, the locus-of-control and attributional areas overlap, but they also may have unique problems.

Learned Helplessness

Learned helplessness conveys the belief that there is no association between instrumental responding and environmental outcomes. That is, the actor perceives that the likelihood of an event is independent of what he or she does (Seligman, 1975). Learned helplessness is thus conceptually similar to the belief in external control, or the causal perception that outcomes are deter-

mined by luck. It has been demonstrated that feelings of helplessness produce negative affect and a cessation of responding. These consequences also follow from an ascription of failure to low ability, which is unchangeable and internal. Indeed, in the face of failure individuals low in achievement needs act as if they are "helpless." Hence, an overlap between conceptions of helplessness and attribution is evident, although investigations of helplessness primarily have used infrahumans in aversive settings, and they report that negative affect is intensified when ascriptions are to external, rather than internal, sources. Much research is needed to disentangle the kinds of affect that are augmented by external versus internal beliefs about causality.

Intrinsic versus Extrinsic Motivation

There is a growing literature documenting that children with initial interest in a task (intrinsic motivation) lose some of that interest when external rewards are promised for performing that task (see Deci, 1975). Stated somewhat differently, it has been shown that when a goal becomes construed as only a means, that goal loses some of its value.

A number of different theoretical explanations of "undermining" have been offered. The most prevalent explanation (Bem, 1972) states that individuals infer their personal attitudes and motivations after observing their own behavior. Thus, for example, an individual performing a task without external reward can logically infer that he or she must be intrinsically interested in the task. But this conclusion does not follow given an external reward, in which case the individual can infer that he or she is working for the reward. In the language of attribution theory, in the latter situation intrinsic motivation can be "discounted" (Kelley, 1971). However, this explanation appears to be faulty, for the adverse consequences of extrinsic rewards on intrinsic interest have been reported among nursery school and kindergarten children, who are below the age at which logical inferential processes such as discounting appear to be operative (Weiner & Kun, in press).

It appears to me that the processes responsible for the undermining of intrinsic interest involve subtle, covert, and at times primitive labeling between concepts such as "work" versus "play," or "means" versus "ends," or "other-induced" versus "self-induced." These attributional labels then influence the perceived incentive value of the task, as well as later intrinsic interest. Thus, there could be a close relationship between attribution theory and this important and burgeoning research area.

SUMMARY

An attributional theory of achievement motivation has been examined. This theory is relevant to a wide array of classroom phenomena and educational

issues, including achievement evaluation and potential evaluative conflict, the relation between achievement and moral motivational systems, Headstart programs, subjective expectancy of success, self-concept maintenance, selection procedures, achievement strivings, choice among achievement tasks, desire for self-evaluation, achievement change programs, feelings of helplessness, and the undermining effect of external reward on internal interest. These topics now need to be investigated by educators and educational psychologists with primary interest in the classroom and in the educational process.

REFERENCES

Andrews, G. R.   *Persistence and the causal perception of failure: Modifying cognitive attributions.* Unpublished bachelor's thesis, University of Sydney, 1974.

Atkinson, J. W.   Motivational determinants of risk-taking behavior. *Psychological Review,* 1957, *64,* 359-372.

Atkinson, J. W.   *An introduction to motivation.* Princeton, N.J.: Van Nostrand, 1964.

Bar-Tal, D., & Saxe, L. (Eds.).   *The social psychology of education: Theory and research.* Washington, D.C.: Hemisphere, in press.

Bem, D. J.   Self-perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 6). New York: Academic Press, 1972.

Brehm, J. W.   *Response to loss of freedom: A theory of psychological reactance.* New York: Academic Press, 1966.

Davison, G. C., & Valins, S.   Maintenance of self-attributed and drug-attributed behavior change. *Journal of Personality and Social Psychology,* 1969, *1,* 25-33.

deCharms, R.   *Personal causation.* New York: Academic Press, 1968.

deCharms, R.   Personal causation training in schools. *Journal of Applied Social Psychology,* 1972, *2,* 95-113.

Deci, E. L.   *Intrinsic motivation.* New York: Plenum, 1975.

Diggory, J.   *Self-evaluation: Concepts and studies.* New York: Wiley, 1966.

Dweck, C. S.   The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology,* 1975, *31,* 674-685.

Dweck, C. S., & Bush, E. S.   Sex differences in learned helplessness: (I) Differential debilitation with peer and adult evaluators. *Developmental Psychology,* 1976, *12,* 147-156.

Eswara, H. S.   Administration of reward and punishment in relation to ability, effort, and performance. *Journal of Social Psychology,* 1972, *87,* 139-140.

Feather, N. T.   Attribution of responsibility and valence of success and failure in relation to initial confidence and task performance. *Journal of Personality and Social Psychology,* 1969, *13,* 129-144.

Fontaine, G.   Social comparison and some determinants of expected personal control and expected performance in a novel task situation. *Journal of Personality and Social Psychology,* 1974, *29,* 487-496.

Frieze, I.   *Studies of information processing and the attributional process.* Unpublished doctoral dissertation, University of California, Los Angeles, 1973.

Frieze, I., & Weiner, B.   Cue utilization and attributional judgments for success and failure. *Journal of Personality,* 1971, *39,* 591-606.

Gold, M.   *Vocational skill functioning of the severely retarded.* Paper presented at the American Psychological Association Convention, Chicago, September 1975.

Heckhausen, H.   Fear of failure as a self-reinforcing motive system. In I. G. Sarason

and C. Spielberger (Eds.), *Stress and anxiety* (Vol. 2). Washington, D.C.: Hemisphere, 1975.

Heider, F. *The psychology of interpersonal relations.* New York: Wiley, 1958.

Jackaway, R. *Sex differences in achievement motivation, behavior, and attributions about success and failure.* Unpublished doctoral dissertation, State University of New York at Albany, 1974.

Jones, E. E., Kanouse, D. E., Kelley, H. H., Nisbett, R. E., Valins, S., & Weiner, B. *Attribution: Perceiving the causes of behavior.* Morristown, N.J.: General Learning Press, 1972.

Jones, E. E., & Nisbett, R. E. *The actor and the observer: Divergent perceptions of the causes of behavior.* Morristown, N.J.: General Learning Press, 1971.

Kaplan, R. M., & Swant, S. G. Reward characteristics in appraisal of achievement behavior. *Representative Research in Social Psychology,* 1973, *4,* 11-17.

Kelley, H. H. Attribution theory in social psychology. In D. Levine (Ed.), *Nebraska Symposium on Motivation* (Vol. 15). Lincoln: University of Nebraska Press, 1967.

Kelley, H. H. *Attribution in social interaction.* Morristown, N.J.: General Learning Press, 1971.

Kelley, H. H. *Causal schemata and the attribution process.* Morristown, N.J.: General Learning Press, 1972.

Kelly, G. A. *The psychology of personal constructs.* New York: Norton, 1955.

Kolb, D. Achievement motivation training for underachieving high-school boys. *Journal of Personality and Social Psychology,* 1965, *2,* 783-792.

Kun, A., & Weiner, B. Necessary versus sufficient causal schemata for success and failure. *Journal of Research in Personality,* 1973, *7,* 197-207.

Lao, R. C. Internal-external control and competent and innovative behavior among Negro college students. *Journal of Personality and Social Psychology,* 1970, *14,* 263-270.

Maier, S. F., Seligman, M. E. P., & Solomon, R. L. Pavlovian fear conditioning and learned helplessness: Effects of escape and avoidance behavior of *(a)* CS-US contingency and *(b)* the independence of the US and voluntary responding. In B. A. Campbell and R. Church (Eds.), *Punishment.* New York: Appleton-Century-Crofts, 1969.

McClelland, D. C. Toward a theory of motive acquisition. *American Psychologist,* 1965, *20,* 321-333.

McClelland, D. C., & Winter, D. *Motivating economic achievement.* New York: Free Press, 1969.

McMahan, I. Relationships between causal attributions and expectancy of success. *Journal of Personality and Social Psychology,* 1973, *28,* 108-114.

Meichenbaum, D., & Cameron, R. The clinical potential of modifying what clients say to themselves. In M. J. Mahoney and C. E. Thoresen (Eds.), *Self-control: Power to the person.* Monterey, Calif.: Brooks-Cole, 1974.

Meyer, W. U. *Leistungsmotiv und Ursachenerklärung von Erfolg und Misserfolg.* Stuttgart: Klett, 1973.

Meyer, W. U., Folkes, V., & Weiner, B. The perceived informational value and affective consequences of choice behavior and intermediate difficulty task selection. *Journal of Research in Personality,* in press.

Nicholls, J. G. Effort is virtuous, but it's better to have ability: Affective responses to effort and ability attributions. *Journal of Research in Personality,* in press.

Nisbett, R. E., & Schachter, S. Cognitive manipulation of pain. *Journal of Experimental Social Psychology,* 1966, *2,* 227-236.

Parsons, J. E. *Causal attribution and the role of situational cues in the development*

of children's evaluative judgments. Unpublished doctoral dissertation, University of California, Los Angeles, 1974.

Phares, E. J.   Expectancy changes in skill and chance situations. *Journal of Abnormal and Social Psychology*, 1957, *54*, 339-342.

Rest, S., Nierenberg, R., Weiner, B., & Heckhausen, H.   Further evidence concerning the effects of perceptions of effort and ability on achievement evaluation. *Journal of Personality and Social Psychology*, 1973, *24*, 187-191.

Rosenbaum, R. M.   *A dimensional analysis of the perceived causes of success and failure.* Unpublished doctoral dissertation, University of California, Los Angeles, 1972.

Ross, R., Rodin, J., & Zimbardo, P. G.   Toward an attribution therapy: The reduction of fear through induced cognitive-emotional misattribution. *Journal of Personality and Social Psychology*, 1969, *12*, 279–288.

Rotter, J. B.   *Social learning and clinical psychology.* Englewood Cliffs, N.J.: Prentice-Hall, 1954.

Rotter, J. B.   Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 1966, *80*(1, Whole No. 609).

Salili, F., Maehr, M. L., & Gillmore, G.   Achievement and morality: A cross-cultural analysis of causal attribution and evaluation. *Journal of Personality and Social Psychology*, 1976, *33*, 327-337.

Sanger, S. P., & Alker, H. A.   Dimensions of internal-external locus of control and women's liberation. *Journal of Social Issues*, 1972, *28*, 115-130.

Schachter, S., & Singer, J. E.   Cognitive, social, and physiological determinants of emotional state. *Psychological Review*, 1962, *69*, 379-399.

Seligman, M. E. P.   *Helplessness: On depression, development, and death.* San Francisco: W. H. Freeman, 1975.

Steiner, D.   Perceived freedom. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 5). New York: Academic Press, 1970.

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

Trope, Y., & Brickman, P.   Difficulty and diagnosticity as determinants of choice among tasks. *Journal of Personality and Social Psychology*, 1975, *31*, 918-925.

Valle, V. A., & Frieze, I. H.   The stability of causal attributions as a mediator in changing expectations for success. *Journal of Personality and Social Psychology*, 1976, *33*, 579-587.

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

Weiner, B.   *Theories of motivation: From mechanism to cognition.* Chicago: Rand McNally, 1972.

Weiner, B.   From each according to his abilities: The role of effort in a moral society. *Human Development*, 1973, *16*, 53-60.

Weiner, B. (Ed.).   *Achievement motivation and attribution theory.* Morristown, N.J.: General Learning Press, 1974.

Weiner, B., Frieze, I., Kukla, A., Reed, L., Rest, S., & Rosenbaum, R. M.   *Perceiving the causes of success and failure.* Morristown, N.J.: General Learning Press, 1971.

Weiner, B., Heckhausen, H., Meyer, W. U., & Cook, R. E.   Causal ascriptions and achievement behavior: A conceptual analysis of effort and reanalysis of locus of control. *Journal of Personality and Social Psychology*, 1972, *21*, 239-248.

Weiner, B., & Kukla, A.   An attributional analysis of achievement motivation. *Journal of Personality and Social Psychology*, 1970, *15*, 1-20.

Weiner, B., & Kun, A.　The development of causal attributions and the growth of achievement and social motivation. In S. Feldman and D. Bush (Eds.), *Cognitive development and social development.* Potomac, Md.: Erlbaum, in press.

Weiner, B., Nierenberg, R., & Goldstein, M.　Social learning (locus of control) versus attributional (causal stability) interpretations of expectancy of success. *Journal of Personality,* 1976, *44,* 52-68.

Weiner, B., & Peter, N.　A cognitive-developmental analysis of achievement and moral judgments. *Developmental Psychology,* 1973, *9,* 290-309.

Weiner, B., & Sierad, J.　Misattribution for failure and the enhancement of achievement strivings. *Journal of Personality and Social Psychology,* 1975, *31,* 415-421.

Zander, A., Fuller, R., & Armstrong, W.　Attributed pride or shame in group and self. *Journal of Personality and Social Psychology,* 1972, *23,* 346-352.