The Development of Achievement-Related Attributions:  
A Critical Review

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Abstract

In this paper the literature on the development of achievement-related attributions, and the potential psychological consequences of those attributions for achievement motivation, expectations for future success, achievement behavior, and both achievement value and affect is reviewed. It is argued that stronger age differences are obtained in studies of inferential judgements about ability and effort than in studies of children's direct attributions for performance. Aspects of the school setting which could lead even older children to believe ability is not stable and implications of these points for current models of children's understanding of ability are discussed. Certain critical problems in the attribution model, such as whether attributions do cause subsequent behavior and the influence of various biases on attributions, are pointed out. Finally, a broader expectancy x value model of achievement motivation is proposed, which pays particular attention to the importance of task value in determining achievement motivation and behavior.
The Development of Achievement-Related Attributions: A Critical Review

Achievement motivation has interested psychologists for several decades. Generally, achievement motivation has been defined as the extent to which one is willing to engage in tasks in which standards of excellence are applicable, in situations where one has some control over the outcome, and some degree of uncertainty is involved (Maehr, 1974). In early theoretical accounts, (e.g., McClelland, 1961; McClelland, Atkinson, Clark & Lowell, 1953) the achievement motive was described as a relatively enduring personality trait. Since individual differences in this trait were thought to result from child rearing practices, early investigators assessed how parent-child interaction influenced the development of achievement motivation (e.g., Rosen & D'Andrade, 1959; Winterbottom, 1958). Subsequent theorists (e.g., Atkinson, 1964) adopted an expectancy x value approach to achievement motivation, in which the tendency to engage in an achievement activity was said to be a joint function of the expectancy one has of attaining that goal, and the value one places on attaining it, as well as on the strength of two motivational processes: the motive to approach success and the motive to avoid failure. This model generated a great deal of research, focusing primarily on the relation of achievement motivation to the kinds of achievement related tasks individuals choose to do.

Recent views of achievement motivation have emphasized the role of cognition in achievement motivation (e.g., Weiner, 1972, 1974, 1979, 1980; Weiner, Frieze, Kukla, Reed, Rest & Rosenbaum, 1971). Weiner and his colleagues have argued that beliefs or attributions about the causes of outcomes in achievement situations exert a strong influence on subsequent achievement motivation and behavior. Like Atkinson, Weiner adopts an expectancy x value approach to achievement motivation. However, in contrast to Atkinson, Weiner emphasizes that it is the beliefs about causes of outcomes rather than motivational states that determine achievement motivation.

The attribution model of achievement motivation has had a tremendous impact on the field, and has, at least until recently, been accepted widely as a powerful explanation of achievement motivation. In this paper we review this model from a developmental perspective, point out the problems in the attribution approach, and suggest a broader theoretical framework for understanding motivation in the school context. We begin with a brief overview of the attribution model, focusing on the relationships between attributions and certain achievement-related processes, and between attributions and actual achievement behavior. In Part II we discuss the development of achievement attribution processes. In Part III we evaluate the attribution model and discuss certain critical problems such as whether attributions are causally related to achievement behavior, and whether results based on laboratory studies are actually generalizable to "real-life" achievement situations. We argue that these problems are magnified when developmental issues are taken into account. In the final section, we offer an alternative perspective on children's achievement motivation, based on the expectancy x value model of human behavior.

Weiner's Attribution Model

Weiner et al. (1971), building on Heider's distinction between ability or "can" and effort or "try" and Rotter's (1954, 1966) distinction between external and internal locus of control, initially proposed a two
dimensional scheme for understanding causal attributions in the achievement domain. One dimension, locus of control, distinguishes between causes believed to be personal or internal and causes believed to be environmental or external. Stability, the other dimension, distinguishes between the causes perceived as changeable over time and causes perceived as more stable. Weiner et al. (1971) classified ability as an internal, stable cause; effort as an internal, unstable cause; task difficulty as an external, stable cause; and luck as an external, unstable cause. Each cause, and the two causal dimensions, are postulated to have different psychological consequences.

That people use these causes to evaluate performance outcomes has been demonstrated by Frieze & Weiner (1970) and Frieze (1976). However several studies indicate that people use other causes as well, some of which do not fit easily into the original Weiner et al. taxonomy. Consequently, new dimensions have been added to the model. One, labeled controllability by Weiner (1979) and intentionality by Frieze (1980) and Rosenbaum (Note 1), distinguishes between the internal factors of mood and effort and between external factors of teacher bias and task difficulty. For instance, effort is controllable, and mood is not, though both are internal. Globality, a second new dimension (first suggested by Abrahamson, Seligman & Teasdale, 1978), distinguishes between attributions that are task specific and ones that are more global; for instance, "I failed because I'm not good at geometry" versus "I failed because I'm stupid." According to Abrahamson et al. (1978), global attributions of failure to lack of ability are associated with general negative motivational patterns, such as learned helplessness. More specific attributions for failure may affect motivation in one subject area (e.g., math) but not in others (e.g., social studies, English). Learned helplessness will be discussed more completely later.

Weiner and others have catalogued the different kinds of information used in making causal attributions (see Frieze, 1980, 1981; Weiner, 1974; Weiner et al., 1971). Attributions to ability are influenced by the consistency of one's successes or failures on similar tasks, and also the performances of others on the task. For example, performing better or worse than everyone else predisposes an attribution to ability level while performing about the same as everyone else predisposes an attribution to task difficulty. Effort attributions depend upon whether the outcome is similar to previous outcomes on the task, and the degree of success of the outcome. If an individual succeeds on a task he or she usually do poorly on, then the success will likely be attributed to high effort. Task difficulty judgements are influenced by attribution to task difficulty. Effort attributions depend to some extent upon task outcome; success is attributed more to trying hard than failure is attributed to not trying hard. The probability of effort attributions is also influenced by the consistency of the outcome and social comparison information. If one succeeds on a task that few people succeed on and if the high levels of success are not typical for this individual then the success is likely to be attributed to unusually high effort. Task difficulty judgements are influenced by social norm information (i.e., information about how others do on the same task, and by stereotypes regarding the nature of the task. Luck attributions occur when outcomes appear to be random or out of control of the individual. Finally, successful outcomes are attributed more to internal factors than failure outcomes, while failure outcomes tend to be attributed more to external factors.

There are several key issues here to consider when a developmental
perspective is taken. First, people must integrate information from a variety of sources in making attributions. These sources include past history information, social comparison information, information about the task, and the degree of consistency, generality and distinctiveness of these different sources of information. People also must relate events together over time. As we will see, young children often have difficulty integrating these different sources of information to make "logical" attributions.

Second, a given meaning is assumed for each cause in the model. For example, ability is assumed to be a stable characteristic. As Parsons and Ruble (1977) and Dweck and Elliott (in press) have pointed out, not everyone thinks of ability as a stable construct. Young children may be especially likely to think of intellectual abilities as skills acquired through practice rather than stable characteristics of the individual.

Third, Weiner's model begins with a given outcome, either success or failure. Attributional processes are assumed to begin at this point. Several investigators (Frieze, 1980, 1981; Maehr & Nicholls, 1980) have argued that the distinction between success and failure is not such a clear-cut issue. Success and failure depend upon subjective interpretations; one person's success is another person's failure. Subjective definitions of success and failure as well as the subjective experience of success and failure may well vary with the age of the child. These three issues will be discussed in more detail later.

Psychological Consequences of Attributions

Weiner et al. (1971) specified that the causal attributions individuals make have consequences for their achievement motivation and self-concept of ability, expectations for future success, achievement behavior, and achievement affect. Each of these will be considered in more detail.

Attributions, Achievement Motivation and Self-Concept of Ability.
Weiner and Kukla (1970) assessed the relationship need-achievement motivation and causal attributions. While no significant relationship existed for females, the predicted relationships emerged among male subjects; high achievement motivation was related to attributing success to ability and failure to lack of effort while low achievement motivation was related to attributing failure to lack of ability and success to factors other than ability. Other work has yielded similar results (Ickes & Layden, 1978).

Covington and Beery (1976) predicted a similar relationship between attributional patterns and self-concept of ability. Furthermore, they suggested that self-concept of ability is the essence of achievement motivation. Students with high self-concepts will have high motivation. In their view, students attempt to maintain a high self-concept of ability by attributing success but not failure to their ability. In support of this view, Covington and Omelich (1979b,c) found that college students showed a strong preference for attributing success to ability and effort, and failure to lack of effort rather than low ability.

Thus achievement motivation and positive self-concept of ability are associated with attributing success to ability and failure to lack of effort. The evidence, however, is rather sparse, and the direction of
causality is still a contested issue. It is also unclear what the consequences of attributing success to the other major internal cause, effort, are. Some investigators have suggested that this pattern is less ego-enhancing because it does not contribute to the acquisition of a stable and high ability concept. But this prediction needs further testing.

Attributions and Expectations for Future Success. Weiner et al. argued that differences in expectations for future success can be traced to attributional stability. If outcomes are attributed to stable factors, then comparable performance will be expected on similar tasks in the future. For example, attributing success to ability will result in high expectations. If success is attributed to an unstable factor (e.g., effort), then expectations for future success will be less sure. This prediction has received support in several studies (e.g., Fontaine, 1974; McMahon, 1975; Valle & Frieze, 1976; Weiner, Nierenberg & Goldstein, 1976). However, other investigations have questioned the causal direction of the link between attributions and expectations (Covington & Omelich, 1979; Feather & Simon, 1971; Eccles (Parsons), Adler, & Meece, in press). Initial expectations of success influence attributional patterns and may be causally prior to both attributions and subsequent expectations.

Attributions and Behavior. Both Weiner (1979) and Dweck (1975) discussed how different attribution patterns influence persistence in achievement situations. School children who attribute failure to lack of ability are more likely to give up in the face of failure than school children who attribute their failures to lack of effort (Dweck, 1975). There is some evidence that training students who attribute failure to lack of ability to attribute failure to lack of effort leads them to persist more in achievement situations (Andrews & Debus, 1978; Chapin & Dyck, 1976; Dweck, 1975). We will discuss this issue in more detail later.

Attributions and Affect. Initially, Weiner (1972) linked affective reactions to the locus of control dimension, finding that stronger affective reactions occurred when outcomes were attributed to internal factors, especially effort (Weiner & Kukla, 1970; see Nicholls, 1976; and Sohn, 1977, for critiques of this view). More recently, Weiner, Russell and Lerman (1978, 1979) have shown that there are unique affective responses associated with each attribution. For instance, attributing success to ability yields feelings of pride and competence. In contrast attributing failure to lack of ability leads to unhappiness, resignation, and feelings of incompetence. While these studies have produced some interesting results, the variability in reported affective reactions makes it difficult to determine any clear or consistent pattern in those reactions.

This situation is further complicated since there are at least two different sources of affect in the achievement setting (see Weiner, 1979). First, there is affect associated with success or failure itself; people feel good about success and bad about failure. Second, there are the more distinct emotions that arise out of the particular attributions made for the outcome. These two sources are not always consistent with one another, yielding complex affective reactions, especially for failure. Despite these complexities, however, Weiner still believes the affective reactions linked to self-esteem are associated with the internality dimension.

Attributions and Task Value. We believe Weiner has neglected
achievement values in his model. Though Weiner takes an expectancy x value approach, he has reduced the concept of task value to the affective reactions to success and failure we have just discussed. We will argue later that values involve more than affective reactions, and that they play a critical role in children's achievement behavior and choice. The treatment of both achievement values and affect in attribution theory has been too limited even for models of adult achievement orientation. This problem is even more critical for understanding children's achievement orientation.

The Issue of Sex Differences

Sex has been a problematic variable in this field for two reasons. First, attribution theory, like earlier achievement theories of Atkinson and McClelland, predict better for males that females (see Weiner & Kukla, 1970). Second, there has been debate over sex differences in attributions. Some studies appear to show that there are consistent, predictable sex differences, with females attributing failure more to lack of ability (see Dweck & Goetz, 1978; Frieze, 1980, 1981; Ickes & Layden, 1978; Lenny, 1977). Other studies have not found this pattern (see Frieze et al., 1982; Parsons, Meece, Adler, & Kaczala, 1982). Close inspection of the studies purportedly showing sex differences in attributions shows that such differences are neither as strong nor as clearcut as was once believed. We will discuss the topic of sex differences in attributions here in the context of learned helplessness; for a broader perspective we refer interested readers to the papers by Frieze et al. (1982) and Parsons et al. (1982).

The Development of Attribution Processes

In this section we first consider the information processing strategies needed to make "logical" attributions, and how children use those strategies. Then the literature on the development of achievement-related attributions, and on the potential psychological consequences of those attributions, is reviewed.

Kassin (1980) has distinguished between the structure and content of attributional processes. Structure refers to the general principles or rules underlying causal attribution. Since Kelley (1967, 1971, 1973) has discussed these structural principles in detail, and Heckhausen (1982), Kassin (1980), and Sedlak and Kurz (1981) have reviewed the studies assessing how children use the various principles, we discuss them only briefly here. Content refers to how the actual information in a given situation is used to make particular attributions. We will focus on how children use achievement-related information to make achievement attributions.

The structural principles can be ordered in terms of their complexity. They range from simple notions such as causes precede effects, which seem well-understood even by preschool children, to more complex schemata used to judge which of several causes produced an effect, which older children sometimes have difficulty using (see Heckhausen, 1982; Kassin, 1980; Sedlak & Kurz, 1981). Kelley formulated a number of these causal schemata. One, the multiple sufficient schemata (MSC), is used when more than one possible cause is present, and either of the causes is sufficient to produce the effect. An important corollary of this principle is the discounting
principle, which is that the perceived role of a particular cause in producing an effect is moderated if other plausible causes are present. Though research findings on children's use of this principle are somewhat contradictory, Kassin (1980) concluded that in simple situations, children in kindergarten or first grade can use the discounting principle.

Kelly proposed a second shemata, the multiple necessary schemata (MNC), which is used when more than one cause must be present for an event to occur. Kelley (1972) suggested that this schemata is used to explain unusual or extreme events, such as succeeding on a very difficult task. Young children appear to have difficulty understanding that an event may need to be explained by more than one cause. Understanding of this schemata does not appear to develop until middle childhood, after children understand the MSC (see Kassin, 1980; Kun, 1977).

Kun (1977) argued that the MSC and MNC are limited, in that they imply "all or none" causation; that is, causes are either present or absent in a given situation. Following Kelley (1972), Kun discussed a graded effects schemata, which involves distinguishing among several levels of strength of causes and effects. Her research (discussed more fully below) shows that elementary aged children do make use of the graded effects schema.

In achievement situations, generally there are several plausible causes for outcomes, and so one of the more complex schemata must be used to decide among the causes. Which schemata will be used depends upon the specific situation; for instance, in unusual situations (doing very well on a hard task), perhaps the MNC would be used. The attribution would be that the person has high ability, but also tried hard. Since younger elementary school children have difficulty using these schemata effectively, they may not make attributions in the way predicted by Weiner's model.

This point becomes clearer when the content aspect of the information processing demands are considered. As we discussed earlier, there are many sources of information used to make achievement attributions, including information about the task itself, the performer's ability, performance of others on the same task, the performer's effort and mood, and information about the performer's past performance. There is evidence that young children do not integrate accurately these different sources of information. For instance, Ruble, Feldman, and Boggiano (1976) and Veroff (1969) have shown that before second grade (age 7 or 8) children do not make use of information about the performance of others (social comparison information) to evaluate their own performance. Other researchers (e.g., Nicholls, 1978; 1980; Nicholls & Miller, in press) have shown that young elementary school children, especially five and six year olds, do not understand which of a set of tasks is normatively more difficult, or that difficult tasks require more ability or more effort (see also Veroff, 1969).

Parsons and Ruble (1977) have shown that young children tend to maintain higher expectations after failure than do older children. These results suggest that younger children do not use the task performance information to revise their expectations as do older children, perhaps because they are less able to integrate temporally the information from different trials. Nicholls (1978, 1979a) demonstrated that young children overestimate their attainment in school, whereas older children more accurately estimated their attainment. This finding further indicates that
young children may not be integrating the information they receive about their performance into an accurate view of their attainment (see also Stipek, 1981). These studies all show that young children do not use or use differently some of the information the adults use in making achievement attributions, either because they cannot or because the pieces of information have different subjective meaning for children and adults.

How do younger and older children differ in their causal attributions? Nicholls (1978) investigated children's use of effort and ability information to judge the achievement performance of other children. Five to 13-year-old subjects watched films of two children working arithmetic problems, with one child working continuously and the other intermittently. Subjects were also told how well the children in the films had done; sometimes the child working continuously was said to have done well, and sometimes the other child was. After viewing the films, subjects answered questions concerning the effort and ability of the children. From subjects' responses, Nicholls distinguished four qualitatively different levels of reasoning about the causes of outcomes were distinguished. Children at Level 1 (five and six year olds) did not systematically distinguish effort, ability and outcome. They focused on effort; people who try harder are smarter. At Level 2 (ages seven and eight) children understood that effort causes outcomes, but the concept of ability as a cause was not understood. That is, children could not use ability to explain how the same outcome resulted from unequal effort. At Level 3 (nine to eleven year olds), children began to use ability to explain how equal outcomes could result from unequal effort, but the reasoning was not used consistently. At Level 4, effort and ability became clearly distinguished as interdependent causes of outcomes. This occurred at ages 12 and 13.

It is clear from this study that young children do not make attributions in the same way as adults. The study's procedure required children to use the MSC and the discounting principle, since they had to judge how two different causes interact to produce an outcome. In addition, they had to understand the compensatory or inverse relationship between effort and ability, and draw inferences about ability based on information given about effort and outcome. Because of these demands, Nicholls' study may underestimate children's understanding of effort and ability as separate causes.

However, Kun (1977), using a different methodology, found a somewhat similar developmental pattern. In her study, children were provided with information about an actor's outcome and either his/her ability or effort. They were then asked to estimate the level of the other cause (i.e. ability if effort information had been provided). So rather than making inferences about two causal factors, subjects were given specific information about one cause and made inferences about the other. The first grade children used what Kun called a halo scheme; if told the actor possessed high ability (tried hard), subjects inferred that they also tried hard (had high ability). Thus young children treated ability and effort as if they were positively correlated, as was the case in Nicholls' study. By third grade children understood that if the actor had high ability and succeeded, less effort was required than if the actor had low ability and succeeded. Inferences about ability still conformed to the halo scheme. So like the Nicholl's results, effort was understood more clearly (and earlier) than ability. However, in contrast to the Nicholl's results, even the oldest children in the Kun study did not use the inverse scheme in making ability
inferences from effort cues.

Recent work by Blumenfeld and her colleagues has yielded comparable results. Blumenfeld, Pintrich, Meece, & Wessels (1982) found that even as late as sixth grade children still assumed that children who work hard are able. In fact children who work hard in sixth grade do indeed get the best grades, so the apparently less mature inferential judgements are being reinforced by the ecological reality of their classroom experiences. So children do not seem to differentiate between effort and ability, either because they do not view effort and ability as inversely related, or because they do not view ability as a stable entity. We will discuss both of these possibilities in more detail later.

Kun, Parsons, and Ruble (1974) investigated age differences in use of the graded effects schema. Subjects from first, third, or fifth grades, and college, were given information about an actor's puzzle-solving ability (either high, medium or low) and degree of effort expended (high, medium or low). Each level of ability was crossed with each level of effort. Subjects were asked to guess how many puzzles each child would solve. While all subjects used both sources of information to make outcome judgements, younger and older subjects differed in how they combined the information. The youngest children used an additive model. Fifth graders and college students used a multiplicative model. The third graders used a combination of the two models. All subjects weighted effort more than ability in their judgements.

Using an even simpler design, Shaklee (1976) and Shaklee and Tucker (1979) provided children with a picture story about four other children differing in their performances across four trials of a carnival-type task. The children were asked to judge each stimulus child's ability and the difficulty of the task each stimulus child had performed. While all the children responded to the outcome manipulation, preschool children clearly differentiated less than did the older children, especially when judging the difficulty of the task.

Recently, Nicholls and Miller (in press) have shown that there is a three stage sequence in children's understanding of task difficulty. Initially, children (aged four or less) think of difficulty in terms of their certainty of achieving success on a given task; the judgement is subjective. In the second stage, children define task difficulty more objectively, based on characteristics of the task. However, they do not use social norm information to define difficulty, and do not distinguish between their ability and task difficulty. In the third stage, beginning after age 7, children use social norm information to define task difficulty, and begin to understand that tasks are hard if only a few people can do them, and that only smart children can do hard tasks.

Together, these results suggest that children of varying ages respond to ability, effort, task difficulty and outcome information differently. Despite major procedural differences, these studies clearly show that young children's achievement judgements do not reflect the same inferential rules used by older children and adults. Young children do not clearly differentiate conceptually among the different causal factors. These studies also demonstrate that the magnitude of the apparent developmental differences clearly varies with the demands being placed on the children by the experimental task.
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There are some important limitations to these studies, however. First, none of the studies assessed effort, ability and task difficulty inferences together. While conclusions can be drawn concerning the developmental understanding of each type of inference, it would be useful to have more direct assessment of the attributional categories considered together.

Second, the judgements obtained in most of the studies were for the performance of other children. Attributions for self are often quite different than attributions for others (see Jones & Nisbett, 1971; Watson, 1982). Self attributions tend to be more situational, whereas attributions about others' performance tend to emphasize person factors. In addition young children may use intentionality in self-evaluation before they do so in evaluating others (Keasey, 1977). These findings suggest that children may distinguish effort and ability as causes of their own performance before they do so in evaluating the performances of others. However, recent evidence indicates that young children are somewhat more accurate in judging other children's ability than they are in judging their own (see Ruble & Rholes, 1981). Children 9 and under are particularly reluctant to infer lack of ability from their own experiences with failure (Parsons & Ruble, 1977). This self-serving bias will be discussed in more detail later. These studies clearly show the importance of distinguishing between attributional judgements made regarding one's own or someone else's performance in interpreting results of developmental attributional studies.

Third, most of these studies assessed attributional inferences, not causal attributions. Children were asked to infer level of ability, effort or potential outcome from a set of information provided by the experimenter. They were not asked to make a causal attribution for either their own or someone else's performance. The Weiner et al. (1971) model is a 2 stage attributional model. At the first stage, causal attributions are made for an outcome. Inferences regarding one's level of ability and the probability for future success are made at the second stage. Since children's understanding at both of these stages are undoubtedly subject to developmental changes, age related changes in competence at both of these stages need to be studied. It also is likely that children can make causal attributions before drawing the stage 2 inferences.

Indeed, recent studies assessing causal attributions directly, rather than assessing effort, ability or outcome inferential judgements, suggest that the actual causal attributions made by younger and older children may not be all that different (e.g., Falbo, 1975; Karabenick & Heller, 1976; Frieze & Snyder, 1976). For instance, Frieze and Snyder (1976) presented first-, third-, and fifth-grade children with stories about other children's good or poor performance in four different situations (school test, school art project, playing football, catching frogs), and asked the children to explain why the outcome had occurred. Children of all ages used the same general categories of causal attributions with about the same frequency.

Wigfield (Note 2) obtained children's attributions for their own performance on a memory task. Second-, third-, fifth-, and sixth-grade children listened to a story and attempted to recall it. Following performance they were given arbitrary success or failure feedback, and then were asked to explain their performance. They rated the causal importance of each of the four attributions originally defined by Weiner, plus task interest. Younger and older children's attributions were relatively
similar, though younger children attributed success less to ability. The largest age difference occurred for the luck attribution; older children saw luck as irrelevant to both success and failure, whereas the younger children rated luck as being a somewhat important in determining both success and failure. This finding could mean that younger children may be less sure about the kinds of causes that are relevant to performance in achievement situations, since luck has little to do with story recall. However, since overall age differences were small, it appears that younger and older children had similar notions about the importance of the other causes. The procedures used in this study were quite different than in the studies showing greater age differences; most notably, the children were asked to make attributions, not inferential judgements, for their own performance.

But, even if children of different ages make similar causal attributions, they may not understand the attributional categories in the same ways, even though they use the same labels. Some of the lab studies just discussed show that young children infer that ability is a combination of ability and effort. Studies done on school-related attributions show that young children see ability as being able to follow directions and complete assignments (Stipek, '81). Even sixth graders cite "working hard" as the reason for knowing someone is smart (Blumenfeld, Pintrich, et al., 1982; Harari & Covington, 1981). Clearly these are not the stable notions of ability implied in the original Weiner model. Young children may also believe that ability is malleable, especially since they tie effort and ability together, but also because they have had extensive experiences with changing abilities. For example, because they have been acquiring physical skills so rapidly, they have had frequent experiences of failure or incompetence followed by subsequent, often dramatic improvement. Consequently, their own experiences should provide them with little reason to assume either that lack of ability is a stable state or that poor performance today is predictive of poor performance tomorrow.

If children of different ages attach different subjective meanings to the various attributional constructs, then they should differ in their stage 2 inferential judgements even if they appear to make similar stage 1 attributions. Support for this hypothesis is provided by results of studies by Shaklee and Tucker (1979) and Eccles (Parsons), Moses, and Yulish (1982). Shaklee and Tucker presented children with varying outcome information and asked the children to rate each actor's ability and to summarize the outcome information. While there was an age difference in the impact of the outcome information on the children's ability judgements, it did not result from a developmental differences in outcome recall. Instead, the children appeared to weight the outcome information differently.

Using a more complicated procedure, Parsons, Moses and Yulish (1982) obtained a similar pattern. They asked children at three age levels (three to five, six to eight, and nine to 12) to make causal attributions for their performance on a figure matching task. Children received either bogus success or bogus failure feedback following each trial of the task. They then rated ability, effort, and the difficulty of the task, and also made forced choice attributions of their performance to either ability, effort, task difficulty, or luck. The attributional ratings revealed few age differences; younger children did however rate the task as easier than the older children. This occurred even though they were failing at the same rate as the older children, perhaps reflecting the problems young
children seem to have in understanding task difficulty.

On the forced-choice causal attribution measure, there were no age differences in the failure group. In the success group, the older children tended to choose effort more than the younger children while the younger children tended to choose luck more than the older children (similar to the results of the Wigfield study). But even these differences were very small. Thus, once again, when children are asked to make attributions for their own performance, few age differences emerged, and those that did emerge were quite small. Age differences emerged primarily on the children's predictions of their future performance. The younger children continued to be optimistic about their future performances to a much greater extent than the older children, even though they were failing on the task and were lowering their estimates of their ability to the same degree as the older children. Apparently, young children's attributions do not relate to their inferential judgements about their ability level in the manner predicted in Weiner et al's. model.

Results of the Nicholls (1978), Kun (1977) and Kun et al. (1974) studies must be interpreted in a qualified manner, given the results just reviewed. Age differences in attributions seem more likely when children have to draw inferences about different causal factors based on information about the outcome and/or other causal factors. Moreover, such differences appear more likely when children make attributions for the performance of others, especially when they have to draw complicated inferences about that performance. When making attributions for the performance of others in a relatively simple situation, fewer age differences emerge. When rating the importance of different attributions for one's own performance, age differences are also less pronounced.

These different results undoubtedly reflect variations in the information processing demands imposed by the different methods. As discussed earlier, in the Nicholls' (1978) procedure, children must use more complex schemata, which develop relatively late. When children are given different causes and rate the importance of each, this advanced information processing knowledge is not required and fewer age differences emerge. Also, the degree to which children have to make stage 1 or stage 2 attributional judgments is important. The most consistent age differences are found on children's stage 2 inferential judgements, and on predictions of future performance. These results suggest that either the cognitive processes underlying stage 2 judgements are changing with age, or that the meaning of the various causal attributions are changing with age. Clearly, more research on how children's achievement attributional schemas change across age is needed before we can fully resolve the discrepancies in the studies discussed so far. In the meantime, we must be very cautious in drawing conclusions regarding the cognitive processes underlying any of these developmental differences. We turn next to discussion of potential psychological consequences of attributions.

Children's Attributions, Achievement Motivation and Behavior

Weiner and Kukla (1970) found that male subjects high in achievement motivation attributed success to ability and failure to lack of effort, whereas males low in achievement motivation attributed failure to lack of ability and success to factors other than ability. Some researchers, in particular Dweck and her colleagues, have begun to assess whether children's causal attributions relate to their achievement motivation and
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Behavior in a similar manner.

Dweck's research has been concerned with the effects of failure on subsequent performance (see Dweck & Goetz, 1978 for a review). In particular, she has been interested in learned helplessness, or the perception that failure is insurmountable. In one study (Dweck & Repucci, 1973), fourth to sixth grade children worked on both soluble and insoluble problems, with each kind of problem given by a different experimenter. After several trials the experimenter administering insoluble problems began to administer soluble ones. Some children could not solve these problems, even though they had performed well on quite similar problems given by the other experimenter. Dweck and Repucci concluded that these children were showing learned helplessness in response to failure. Using Crandall, Katkovsky, and Crandall's (1965) Intellectual Achievement Responsibility (IAR) scale, Dweck and Repucci assessed the children's attribution tendencies for success and failure. Those children who persisted even though they were failing emphasized motivational factors like effort as determining the failure outcome. Those children who gave up emphasized more uncontrollable factors.²

Dweck argues that children who blame failure on lack of ability will give up quickly when they encounter failure in school; if one lacks ability, trying hard will not overcome the problem. In support of this suggestion, Diener and Dweck (1978) found that children categorized as learned helpless on the IAR effort scale (that is, children who were more likely to stress external factors rather than effort as the cause of their achievement outcomes) were more likely than other children (labelled mastery oriented) to give up when confronted with failure and to attribute their failure to lack of ability. Mastery oriented children responded to a difficult task quite differently. They tried to analyze the problems and to come up with more effective strategies for solving the problems. They were also less likely than learned helpless children to make lack of ability attributions spontaneously, to engage in task irrelevant behaviors, and to express negative affect. While these data clearly point to the importance of attributional processes in mediating the performance of some children, they also suggest that other cognitive and affective responses to feedback are equally, if not more, important mediators of children's behaviors than causal attributions.

Dweck and others also have investigated how learned helplessness develops. Rholes, Blackwell, Jordan, and Walters (1980) showed that younger children are less likely to exhibit helplessness following failure. Possible explanations for their results are that children do not show learned helplessness before they differentiate ability and effort, view ability as relatively stable, or perceive the contingency between outcome information and ability level. However, Rholes et al. did not directly assess any of these explanations. Dweck and Goetz (1978) have argued that the pattern of evaluative feedback children receive from different evaluative agents (parents, peers, teachers) is what shapes their attributional responses to failure.

To assess this view, Dweck, Davidson, Nelson and Enna (1978) observed teacher-student interactions in three upper elementary classrooms to analyze the kinds of feedback children receive from teachers in elementary school. Unfortunately, rather than relating these observations directly to learned helplessness versus mastery orientation, they focused on sex differences because they believed that girls are more likely to respond to
failure in a learned helpless manner. Overall, boys received more negative feedback than girls, a finding that has been reported elsewhere (see Brophy & Good, 1974). However, in comparison to girls, a higher proportion of the negative feedback boys received was directed toward conduct and neatness rather than the intellectual quality of their work. While there was no absolute difference between boys and girls in the amount of criticism they received regarding intellectual quality of their work, girls received less criticism for conduct problems and neatness. As a consequence nearly all the criticism the girls received was directed at the quality of their work. When teachers did criticize boys for work quality, they were eight times as likely to attribute boys' problems to lack of effort as they were for girls' academic problems.

Dweck et al. (1978) followed up their observational study with a study in which the observed classroom feedback patterns were reproduced in a laboratory setting. Both boys and girls who received criticism for correctness and neatness on one task were more likely to attribute failure on a second task to lack of effort. Both boys and girls who received the criticism for response correctness only were more likely to attribute their failures to lack of ability. This finding suggests that children who receive negative feedback specific to correctness will blame their failures on lack of ability.

Dweck and Goetz (1978) discussed how this feedback pattern might lead boys and girls to make different kinds of attributions. Boys could believe teachers simply are biased against them, since they receive so much more negative feedback. Also since teachers emphasized lack of effort when criticizing the intellectual quality of boys' work, boys should learn to attribute academic failures to lack of effort. Since teachers criticize girls much less than boys, girls cannot attribute criticism to teacher bias. Also, since teachers believe girls are trying, the criticism girls receive cannot be attributed to lack of effort. Thus girls should learn to attribute the criticism they receive to lack of ability.

However, several recent studies have obtained results inconsistent with Dweck et al.'s findings concerning sex differences in attributions and classroom socialization (Blumenfeld, Hamilton, Bossert, Wessels, & Meece, 1982; Eccles (Parsons), Adler, & Meece, in press; Parsons, Kaczala, & Meece, 1982; Parsons, Meece, et al., 1982). The results of Eccles' (Parsons) work are different than Dweck's in several ways. First, her studies do not support the view that girls are more likely to exhibit the attributitional pattern associated with learned helplessness. Parsons, Meece et al. (1982) obtained fifth through eleventh grade students' attributions for success and failure in mathematics. Students gave open ended attributions, and also rank ordered a set of attributions. On the open ended measure, girls and boys attributed both success and failure more to internal than external causes. Girls were more likely than boys to attribute both success and failure to skill, whereas boys were more likely than girls to attribute success and failure to effort. Neither mentioned ability very frequently. On the rank order measure, girls rated consistent effort as a more important cause of success than did boys, while boys rated ability as a more important cause of success than did girls. In contrast, girls rated lack of consistent effort as a less important reason for failure that did boys, while boys rated lack of ability as a less important cause of failure than did girls. However, especially for failure attributions, ability was rated as a rather unimportant cause by both boys and girls; causes like lack of immediate effort and task difficulty were
judged much more important. There were no sex differences for these attributions. These results show that even for a subject that is sex typed as a male activity (Stein, 1971), there are few major differences between boys and girls in their attributions of success and failure to ability.

In another study, Eccles (Parsons), Adler and Meece (in press) investigated whether there were sex differences in learned helplessness in mathematics performance. Children did five solvable, five unsolvable, and then five more solvable math problems. Attributions were taken after the first three solvable and first three insolvable problems, and expectations for success were measured at the same time. Based on their expectancy scores and on performance on the last five solvable problems, children were classified as mastery oriented or learned helpless. Results indicated that there were few sex differences in attributions for performance. On the expectancy measure, boys maintained higher expectations during the failure trials. But girls expectancies recovered to the same level as the boys' expectancies during the final five success trials. There were no sex differences on the various performance measures. Of the children classified as learned helpless (14 of the 120 tested), only four were girls.

Second, Parsons' observational work on teacher feedback patterns has produced results quite different from those of Dweck et al. Parsons, Kaczala, and Meece (1982) observed 17 fifth through ninth grade math classrooms for 10 hours each. The observation system used included the codes used by Dweck et al. (1978), as well as the codes developed by Brophy and Good (1970) for observing dyadic teacher-student interactions. In addition, teachers' attributions and expectancy statements were recorded verbatim. The teachers gave more work-related criticism to boys than to girls. There were no differences in the amount of criticism teachers gave to boys and girls for their conduct, or for nonintellectual aspects of their work such as neatness. Higher levels of both praise and criticism related to boys' self-concepts of their ability but not to girls' self-concepts, and relative proportions of praise and criticism to work versus conduct and form did not predict students' beliefs and expectancies for either boys or girls. Thus, in contrast to Dweck et al.'s results, it was the absolute amount of praise and criticism that predicted children's expectancies, rather than its differential association with intellectual work and even then it predicted primarily for boys.

Dweck's suggestion that the distinctiveness of the praise and criticism one receives is responsible for sex differences in expectancies also was not supported. Parsons et al. found that the amount of criticism a student receives for the intellectual quality of his or her work is positively, rather than negatively, related to the student's confidence in his/her math ability. students' expectations.

Further, teachers' public attributions for student behavior were made infrequently, and there were no sex differences in the types of attributions made. In fact, the public attributions were so rare that it seems unlikely that they are a major source of teachers' effects on children's expectancies or motivation, or other achievement behaviors. Finally, multiple regression analyses indicated that the observed teacher feedback patterns were only weakly related to student attitudes toward math; hence the notion that teacher feedback is a major determinant of student attributional patterns also was not supported in this study.
Blumenfeld, Hamilton, et al. (1982) have also obtained results quite different from those of Dweck et al. They observed teacher-student interactions in 18 first- and fifth-grade classrooms. One of the variables under study was the kinds of attributions teachers gave concerning student performance. As in the Parsons et al. study, teachers did not make frequent attributions about their students' performance. Of the attributions made for students' academic performance, there were more positive than negative attributions. Teachers gave very few ability attributions for poor performance; lack of effort was the primary attribution used. Girls received more work-related criticism than did boys. Contrary to the findings of Dweck et al., teachers attributed girls' failures more often to lack of effort than they did boys' failures, and they attributed boys' failures to lack of ability more often than they did girls' failures, (though these lack of ability attributions were infrequent, occurring in only 13% and 8% of the cases, respectively).

Further work is needed to determine why the different observational studies have produced such disparate results. One reason could be the classroom settings in which the observations were done. Parsons et al. observed in math classes, Blumenfeld et al. during reading lessons and other classes, and Dweck et al. in all academic lessons in elementary school. At the very least, the different results of these studies indicate that teacher feedback varies greatly across classrooms, and that the kinds of attributions teachers give to boys and girls vary in type and frequency. However, it does not appear that learned helplessness is either especially likely to occur in girls in elementary school or that it is being created primarily by teacher feedback. Thus the results concerning the relation between classroom experiences, achievement attributions, and actual achievement behavior in the classroom are much less straightforward than once believed. We will argue below that this may be due to the relative unimportance of attributions in the classroom for most children.

### Children's Attributions and Expectations for Future Success

According to Weiner et al.'s (1971) model, expectations for future success are influenced most by the stability of attributions. When outcomes are attributed to stable factors, expectancies are affected more strongly; for instance, if success is attributed to ability, then expectations for future success will be high (at least on similar tasks). If success is attributed to an unstable cause (e.g., luck), then expectations will be less sure. Studies with both older children and adults have obtained supportive results (e.g., Diggory, 1965; Montanelli & Hill, 1969). Studies of younger children's expectations have asked two questions: a) are children's expectations formed in the same way as adults', and b) do expectations relate to subsequent performance. In this section we will focus on the first question.

Expectations for future performance usually are formed after a series of successes and failures, which means that information about temporally separated events must be integrated to form expectations. Parsons and Ruble (1977) investigated how expectations for success and failure differed across three age groups of children (three and one half to five, six and one half to eight, and nine and one half to eleven). Children did a task and received either success or failure feedback. Expectations were measured before the first trial, after the first trial, and after the fifth trial. The preschool children did not use the outcome information systematically in forming their expectancies. In both older groups, the
outcome information produced changes in the predicted direction; success feedback raised expectations, while failure feedback lowered them. In addition, there was a general decline in expectations across age in both success and failure conditions; older children were more pessimistic about their future performance. This study suggests two conclusions: (1) preschool children do not weight outcome feedback in predicting future performance to the same degree as older children, and (2) younger children generally are more optimistic in their expectations than are older children. Similar results have been found in several other studies (e.g., Diggory, 1966; Heckhausen, 1967). Shaklee and Tucker (1979) have also found that preschool children do not weight outcome information as much as older children in judging both other children's ability and the difficulty of the task. Furthermore, evidence reported by both Shaklee (1976) and Shaklee and Tucker (1979) indicated that the developmental difference is not a consequence of differential recall of the outcome information.

Eccles (Parsons) et al. (1982) obtained similar results in a study that also assessed children's attributions for success and failure, and their response latencies for each success or failure trial. There were significant age X outcome effects for both future expectancies and response latency. For both measures, failure had a more extreme effect on the older children than on the preschool children. The older children in the failure condition worked longer on each successive trial. The older children also reduced their expectation for success on each successive trial. These results suggest that the older children knew they needed to try harder to overcome failure. The younger children either did not know this, or did not see the need to change their behavior in response to failure. In any event these results provide another indication that negative feedback has less impact on preschool children than on older children.

This study yielded two additional results of note. First, there were no major age X outcome interactions associated with the children's causal attributions. Second, there were no age X outcome interactions associated with the children's inferences regarding either the difficulty of the task or their own ability. All of the children used their performance feedback in making judgments regarding their ability level and difficulty of the task, suggesting that they can use the outcome information to make attributions, but then do not use the attributions to predict future success. As we discussed earlier, this may reflect an unstable view of ability and performance.

In summary, these results show that feedback information does not alter younger children's expectations greatly. Also, they tend to remain overly optimistic after receiving failure feedback even though they use the information to make judgments regarding both their ability level and the difficulty of the task. Thus the attribution-expectancy link does not appear to develop until the early elementary years; before this time children do not alter either their behavior (the response latency measure in the Eccles (Parsons) et al. (1982) study) or their expectations after receiving failure feedback. The attribution-expectancy link is better established in older children. But one must be careful interpreting the meaning of the responses of even the older children. For example, Eccles (Parsons) et al. (1982) found that older children continued to try even though their public expectations decline after they received failure feedback. That is, even though older children stated they had little chance for future success, their response latencies continued to increase, indicating they were still trying. This result suggests that both
expectations and behavior should be assessed, if we want to better understand how public expectations are related to both achievement behavior and attributions.

Children's Attributions and Affective Reactions

Weiner's analysis of attributions and affect, which postulates two sources of affect in achievement situations, has not been tested developmentally. Children's affective reactions likely are simpler, and tied less to attributions and more to outcome and anticipated rewards and punishments. For instance, Veroff (1969) found that preschool and kindergarten children experienced satisfaction following success, no matter how easy the task. In contrast, older children's affective reactions were linked more to task difficulty; they experienced satisfaction only on more challenging tasks.

Stipek (1983) recently discussed the development of children's affective reactions (pride and shame) to achievement outcomes. She argued that affective reactions to outcomes depend on: 1) the perceived contingency between the action and the outcome, 2) perceiving control over the outcome, 3) interpretation of meaning of the outcome, and 4) the implications of the outcome for the child's self-perception (see also Heckhausen, 1982). Essentially, Stipek states that outcomes have more meaning for children and greater implications for self-worths as children get older, though she does argue that young children perceive more control over outcomes (see Ruble & Rholes, 1981, for a conflicting view).

Though Stipek and Weiner provide good discussions of affect and achievement, we believe both neglect the question of values and achievement behavior, and tend to equate affect and value. We think the value children place on achievement behavior is a very important determinant in its own right, even though few studies have directly assessed this hypothesis. We will discuss our notion of achievement value in more depth later.

Implications for the Development of Achievement Motivation

The studies just reviewed suggest that Weiner's model does not explain adequately young children's attributions or expectations. Children do not appear to differentiate clearly among various causal categories, have difficulty making stage 2 inferences, and ability is relatively elastic. Also, their expectations for success are not lowered appreciably when they receive sustained failure feedback.

One key question is why young children remain so optimistic in their ability perceptions and expectations. Ruble and Rholes (1981) suggested that this may be due to biases in the attributions process, with children selectively ignoring failure feedback. Parsons and Ruble have suggested that young children may not process temporally separated feedback information very accurately. Another possibility is that young children receive little strong or direct ability-related criticism early on in the home and school environments, and thus are very positive about their ability. Children may begin to revise their ability estimates downward only after failure experiences become more common.

Parsons and Ruble (1977) suggested another possible explanation: perhaps children have different views of the meaning of various attributional constructs; e.g., they may not have a stable notion of
ability. Consequently, repeated failure experiences would not be predictive of continued failure. The nature of development during the early years of life (up to 10 or so) certainly would reinforce an unstable conceptualization of low levels of competence. Several other investigations have suggested a similar explanation (e.g., Dweck & Elliott, in press; Higgins & Parsons, in press; Ruble, Parsons, & Ross, 1976; Shaklee & Tucker, 1979; Surber, in press; Ruble & Rholes, 1981). Evidence is just beginning to come in to support this idea. For example, Eccles (Note 3) asked young children why they expected to succeed after they had failed. They typically replied with the belief that one can get smarter with more practice. The fact that young children treat effort and ability as similar constructs provides additional support for this conclusion.

Some of the research reviewed above (e.g., Dweck’s work) appears to indicate that by fourth or fifth grade children do make attributions with adultlike logic, and these attributions influence achievement motivation and expectations in the manner predicted by the Weiner et al. model. This could mean that Weiner’s model needs revision to account for preschool and early elementary school children’s attributions, but it explains older children's attributions and their consequences reasonably well. However, some recent work casts doubt even on the validity of this conclusion for the majority of older children as well. These studies suggest that the attribution model is not only inadequate for younger children; it also fails to explain the real-life achievement motivation of many older children (see Blumenfeld, Pintrich et al., 1982). Perhaps children’s achievement motivation needs to be explained in different ways. Before discussing our views on this, we will discuss some general problems with the attribution model.

Problems With the Attribution Model

Are Causal Attributions Really Causal?

A key postulate of the attribution model is that attributions mediate between achievement outcomes and subsequent achievement behavior; that is, one’s reasoning about outcomes determines motivation in subsequent achievement situations. Recently, two studies have assessed this postulate. Covington and Omelich (1979a) used path analytic techniques to investigate whether attributions are causally related to subsequent achievement behavior. College students took a test, received failure feedback, made attributions for their performance, and then took another test. The students also completed an achievement motivation measure, and gave expectations for future performance. The path analysis showed, contrary to Weiner’s view, that attributions did not mediate between the failure outcome and subsequent performance. Attributions also did not influence expectations for future success. The attributions accounted for less of the variance in performance than did the achievement motivation measure, and generally accounted for little of the variance in performance. Attributions also did not influence expectations for future success. Based on these results, Covington and Omelich concluded that attributions are not causally related to performance, but instead are merely reactions to performance that tend to be biased and self-serving. Of the attributions they assessed, the ability attributions accounted for most of the variance that could be accounted for by the attribution measure.

Futterman (Note 4), in a study with fifth to twelfth grade students, assessed children's persistence in mathematics, and attempted to determine
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Factors that predicted persistence. He found that attributions accounted for little of the variance in students' attitudes and that other variables such as perceived task value and confidence in mathematics were more important predictors of both persistence and actual achievement. These results also suggest that attributions are not a major causal determinant of subsequent achievement behavior. Thus for both children and adults, attributions do not seem to have the causal role on achievement behaviors that Weiner suggests they do.

If attributions are not causal, what is their role in achievement motivation? Eccles (Parsons), Adler, Futterman, Goff, Kaczala, & Meece (1983) has suggested that attributions play an important role when children do novel tasks for which they have not yet established a stable self-concept of ability. Parsons (Note 5) has obtained some empirical support for this notion, and; also shown that ability attributions are the most critical attributions in this context. Of course, the work on the development of attributions suggests that in the early elementary years the causal role of attributions is limited because children do not clearly differentiate the different causal dimensions. An interesting direction for future research would be to study attributions developmentally across the elementary school years to see when they exert the strongest causal influence. We would predict that this would occur in the middle elementary school years. Rheo et al.'s (1980) results support this conclusion. But the work to date suggests that the causal role of attributions on subsequent achievement motivation and behaviors is limited.

Do People Make Accurate Attributions?

Another important (or at least implicit) assumption of attribution theory is that people are accurate in their attributions; that is, the causes of behavior generally are evident to people, and are understood in a logical way. Evidence is accumulating that this is not the case. In an intriguing series of studies, Nisbett and Wilson (1977) demonstrated rather clearly that people often have little awareness of the real reasons why they changed their attitudes in a given situation, or why they behaved the way they did. For instance, in one study, information given to subjects about a job applicant's physical appearance had a strong influence on their ratings of the applicant, even though subjects uniformly denied that the information about physical appearance influenced their opinions. In another study, the position of items in an array greatly influenced how subjects rated various items, again even though subjects denied that position had any influence. Nisbett and Wilson concluded that people are accurate in their causal perceptions only when there are few possible causes, the causes are perceptually salient and highly plausible, and when the causes have been observed to be associated previously with the outcome. While achievement attributions possess some of these qualities, they certainly do not possess all of them; for instance, in achievement situations ability, effort, and task difficulty may all be salient, making choices among them difficult.

Other work also has shown the importance of perceptual saliency on attributions. Taylor and Fiske (1975, 1978) had subjects, placed in different parts of a room, watch a conversation between two people (experimental confederates) and rate who controlled the conversation. The causality ratings varied according to the subjects' location; whichever confederate was perceptually more salient to the subject was rated as more in control. Taylor and Fiske argued that causal perception is determined
mostly by where one's attention is directed in the environment, and attention is influenced by whatever is most salient. The work by Jones and Nisbett (1971) certainly suggests that actors and observers may differ in their attributions because of differences in their attentional focus. In addition, both Nicholls (1979b) and Eccles, Midgley, & Adler (in press) have suggested that certain classroom practices, such as grading systems, and ability grouping, will increase the salience of certain aspects of the environment, such as other children's performance. As a consequence, school practices will influence the types of attributions made as well as the probability of even making causal attributions.

Still other researchers have shown that certain characteristic biases enter into the attribution process. Miller's (1976) work, and that of Snyder, Stephan and Rosenfield (1976) showed that attributions following failure tended to be defensive and self-serving. In making attributions for failure subjects try to protect their self-esteem rather than accurately explain explain why the failure occurred. As Covington and Omelich (1979a) point out, these biases "obscure their (attributions) causal role as information processing determinants of subsequent achievement behavior" (p. 1500).

Yet another problem concerning the accuracy or attributions is that the techniques used to measure attributions influence the responses obtained. Ellig and Frieze (1980) have shown that different techniques for assessing attributions differ in their reliability and validity, and that subjects seemed to prefer some methods (like scalar ratings and open ended attributions) over others (assigning percentages to different causes). The different results of the developmental studies discussed above were undoubtedly due in part to the different measurement techniques used. For instance, in Nicholls' (1978) study children had to integrate information to infer causation to a greater extent than in studies where children simply had to rate the importance of several preselected causes (Wigfield, Note 3).

The studies just summarized indicate that people's attributions may be relatively inaccurate and biased. Most of this research was done with adults; these concerns should be even more important for our understanding of children's attributions. For instance, Ruble and Rholes (1981) have suggested that young children may be even more likely to be egotistically biased in their attributions, beacause of their tendency to center on themselves. This could be one reason they do not lower their expectations following failure.

However, children may not even engage frequently in attributional reasoning, or some children may do so more than others (Diener & Dweck, 1978). Langer (1978) has argued that the attribution model overemphasizes cognition; in her view, people engage in less thinking about their actions than theorists such as Weiner and Kelley suggest they do. If this is the case, children would be even less likely than adults to analyze their actions. And even if children make attributions, recent findings by several investigators suggest that achievement behavior may be related more strongly to the perceived value of the task (Eccles [Parsons] et al., 1983), to anticipated affect and rewards and punishments (Hamilton, Blumenfeld, & Pintrich, Note 6), and to the social demands inherent in the classroom (Doyle, 1979). These findings all mean that too much emphasis has been placed on the role of attributional processes in mediating achievement behavior.
Can results from laboratory studies of attributions be generalized to the classroom? Blumenfeld, Pintrich, et al. (1982) discussed differences between classroom and laboratory settings that could influence how children interpret achievement outcomes in each setting. In the laboratory, the experimenter clearly defines success and failure, feedback is unambiguous, usually private, based on performance not conduct, and the tasks children encounter often are novel. In the classroom, tasks are likely to be more familiar, standards for evaluation may be less clear, and one's conduct in class and the form in which assignments are turned in may determine teacher reaction as much as the content of one's work. Further, teachers' perceptions (be they accurate or biased) may influence how they evaluate students' performance (Brophy & Good, 1974; Weinstein, 1976). It seems clear, then, that the tasks children do and the feedback they receive are quite different in these two situations.

Frieze (1980, 1981) and Frieze et al. (1981) also discussed differences between classroom and lab settings. Frieze stated that in the classroom, success and failure are subjective experiences, and depend upon the individual's definition of what each is. For example, a grade of B could be a great success for one person but a dismal failure for another. These subjective understandings of success and failure will influence the kinds of attributions that are made in the classroom (see also Maehr, Note 7; Maehr & Nicholls, 1980). In the lab, success and failure standards are more objective, and the subject's interpretation of how well or poorly he or she has done usually is not taken into account.

Frieze also suggested that attributions may vary depending upon school subject matter. In support of this view, Frieze, Snyder and Fontaine (Note 8) found that fifth grade children attributed success on social studies tests more to effort, and success on math exams more to math ability. Eccles (Parsons) et al. (in press) found a similar difference between math and English attributions. They also found that most children do not think lack of ability is a very important reason for failure in math (see above). Further, Frieze (1976) found that college students picked effort as the most important reason for both success and failure on college exams (see also Bailery, Helm & Gladstone, 1975; Simon & Feather, 1973).

Together, these studies show that certain attributions which have received much attention in lab studies (such as attributing failure to lack of ability) are not rated as the most important causes for school performance. Also, teachers infrequently attribute students' failures to lack of ability, and generally do not make many overt attributional statements regarding students' performance in school (see above). One implication of these findings is that attributions may not play a central role in children's evaluations of their own performance, or in their achievement motivation. If this is the case, and more research is needed before we can be sure, perhaps the recent emphasis on attribution retraining programs as a means for changing student self concept of ability and school performance (e.g., Andrews and Debus, 1978; Dweck, 1975; Fowler & Peterson, 1981) may be misdirected.

The basic premise behind such programs is that when students attribute failure to lack of ability, their subsequent performance is debilitated. If they can learn to attribute failure to lack of effort, their subsequent performance will improve. In the Dweck (1975) study, one group of learned
helpless children received repeated success experiences, whereas another group received attribution retraining. These children experienced success on most problems, but also some failure. When failure occurred, the experimenter attributed it to lack of effort. Following training, the attribution retraining group no longer gave up when they encountered failure, and attributed these failures to lack of effort. Performance of the success-only group deteriorated when they encountered failure.

More recent attribution retraining programs qualify to some extent Dweck's findings. In Dweck's study, the effects of success and failure and attribution retraining were confounded, since she did not include a group that received success and failure experiences without attribution retraining. Both Chapin and Dyck (1978) and Fowler and Peterson (1981) have shown that mixing success and failure trials was as effective as attribution retraining in improving children's task persistence.

Thus attribution retraining may not be the most effective way to improve children's task performance. Studies showing that students infrequently attribute failure to lack of ability, and that teachers infrequently make attributions, further support this conclusion. One other problem with attribution retraining deserves mention. Covington and Beery (1976) stated that people maintain feelings of self-worth by maintaining high self-concepts of ability (see also Nicholls, 1976). Attributing failure to lack of effort is one way to do this (see Covington & Omelich, 1979a,b). This strategy is effective as long as individuals believe they are not trying hard when failing. Attribution retraining helps individuals overcome failure by attributing failure to lack of effort, so that they then will try harder. Feelings of self-worth can be maintained if the extra effort leads to success. However, if the additional effort still leads to failure, then the failure will have to be attributed to lack of ability. This should be especially likely for low achieving students who lack basic skills. Attribution retraining is not very likely to be effective for these students unless they also are given easier tasks, or supplementary skill training. Indeed, Schunk (1981) has shown that skill or efficacy training is an effective way to improve slow learning students' math performance, persistence, and perceived competence, and that attribution retraining along with efficacy training was no more effective than efficacy training alone. Without such training, low achieving children may not try at all, in order to avoid having to attribute failure to lack of ability (see Covington & Beery, 1976).

In conclusion, the work reviewed in these sections shows that the attribution model may not account for children's achievement motivation and achievement behavior, especially in schools, as well as was once believed. There are problems concerning the causal relationship between attributions and achievement motivation, the accuracy with which people make attributions, and the frequency of their use in real world situations. These problems become greater when developmental variables are considered. New models for the development of children's achievement motivation and self-concept of ability need to be formulated. In the next section of this paper, we will discuss what needs to be included in such a model.

Beyond Attribution Theory

In this section we will propose an expanded view of achievement motivation in schools. This view is based, in part, on a model we outlined in Eccles and Wigfield (in press). It is also based on our belief that
there is a critical need to expand motivational research to include the role of socializing agents in motivating student achievement.

In Eccles and Wigfield (in press) we suggested that academic achievement motivation can best be conceptualized in terms of three questions: Can I succeed? Do I want to succeed? and What do I need to do in order to succeed? Attribution theory has focussed primarily on the first question; namely, Can I succeed? We believe that attributions most critical to this question are the attributions related to general self-concept of ability and perceived control over achievement outcomes. We discuss each of these briefly in the next section. While we argue that these are important motivational constructs, we believe that the other two questions are equally important determinants of student motivation, and that they have been overlooked until quite recently.

General Self-Concept of Ability and Perceived Control

We believe that ability and effort attributions are the most critical achievement attributions, since they have the greatest impact on individuals' self-perceptions and self-worth (see also Covington & Beery, 1976; Nicholls, 1979b). Thus we believe researchers should pay particular attention to children's understanding of ability, how they judge their own ability, and their understanding of the covariance between effort, ability and subsequent performance and skill level changes.

We would also suggest that an individual's self concept of ability is more critical than ability attributions per se. Other theorists have made a similar suggestion; for instance, Covington and Beery (1976) argue that feelings of self-worth are based on maintaining a high self-concept of ability. Bandura's (1977) self-efficacy theory emphasizes how the belief in one's ability to do different tasks is a critical determinant of task choice, persistence, and perceptions of task difficulty. Similarly, Harter (1978) and Stipek and Weisz (1981) discussed how perceived control over outcomes, especially successful outcomes, enhances individuals' self-concepts of ability. These theories all take a broader view of the ability construct than is taken in attribution theory.

While we are in agreement with the distinction between self-concept of ability and ability attributions, the relationship between the two has not been thoroughly explored. What role, if any, do attributions play in the development of self-concept of ability? As noted earlier, Eccles (Parsons) et al. (1983) hypothesized that attributions may play an important role when children are forming their self-concepts of ability, and when they do new tasks. When stable self-concepts of ability are formed, the causal role of attributions may diminish, as found by Covington and Omelich (1979a). The middle elementary school years may be the critical ones for study here.

Do all children's attributions play a causal role in the formation of self-concept of ability during this period? There is little evidence addressing this question. Presumably, mastery oriented children have high self-concepts of their ability, and yet they differ from learned helpless children not primarily in the attributions they make, but in the fact that they persist on different tasks and do not verbalize causal attributions as quickly as the learned helpless children (Diener & Dweck, 1978). The mastery-oriented children are less likely to make ability-relevant attributions and more likely to engage in task analysis (meta-cognition
rather than attributio
al analysis). So there may be individual
differences in how attributions influence self-concept of ability.

Theorists from different perspectives agree, then, that ability
cancepts are a more critical determinant of achievement motivation and
behavior than are attributions. The importance of ability concepts,
however, may be a product of our current educational system, with its
emphasis on tracking, ability grouping, social comparison, and competition.
Nicholls (1979b) discussed many of the problems that these sorts of
practices cause. He argued that those educational practices lead to an
emphasis on demonstrating ability rather than on mastering material. Since
only a few children in each classroom can demonstrate high ability compared
to the other children, most students learn to perceive themselves as
failures. Nicholls' proposed solution to this problem is to lessen
competition and social comparison in classrooms, and emphasize effort and
learning for its own sake. He believes this will allow students to focus
on learning, rather than on comparing their progress with that of other
students (see Wine, 1971, 1980 for a discussion of other benefits of
focusing attention on the task). While there would still be performance
differences between brighter and slower children, Nicholls believes these
differences would have less influence on motivation than the fact that all
children were making progress (see Bloom, 1976, for discussion of a mastery
learning system that incorporates many of these ideas).

Though many of Nicholls' suggestions have merit, it seems clear that
many schools will not be changing in that direction. Because of this,
self-concept of ability will continue to be important. But from a
theoretical perspective, what Nicholls is suggesting is very interesting.
He is arguing that we should not engage in attributional retraining for the
children having motivational difficulties. Instead we should train them
not to make attributions prematurely and to focus their attention on task
analytic strategies instead, as mastery oriented children do.

However, though schools may emphasize competition and social
comparison, many experiences in the school environment may reinforce the
belief that ability can be modified. With additional practice or learning,
children may think they can get smarter; for instance, by advancing to the
next reading lesson, learning new math skills, or growing taller and
stronger. As Eccles and Wigfield (in press) suggest, the critical factor
here is the interpretation of failure. If children can avoid attributing
failure to a stable construct of ability, they will be more likely to
persist, and continue to acquire new skills. There is a need for more
research into children's conceptions of ability, and to reinforce the
notion that ability can be modified through learning.

Values and Achievement Choice

The second critical motivational question is "Do I want to succeed?".
Expectancy x value models of behavior have always stressed the importance
of this question. Unfortunately, most current models of achievement
motivation have ignored the importance of task value, focusing instead on
attributions, expectations for future success, and affect. Yet the
perceived value of the task is undoubtedly a critical determinant of
children's achievement behavior.

Let us illustrate this with an anecdote. In response to the question
"Why don't you work harder in school?", one fifth grader replied "I work as
hard as everyone else and besides what do you want me to do waste my childhood doing schoolwork?". This young lady does not suffer from learned helplessness, low self-esteem, or a debilitating attributional pattern. She would just rather play than do schoolwork. As most teachers know, her response is quite typical of children her age. Eccles (Parsons) and her colleagues (1983) have recently addressed the issue of perceived task value. They have argued that the value or importance of engaging in any achievement activity is determined both by the characteristics of the activity and by the needs, goals, and values of the person. They argue that the degree to which the activity is able to fulfill needs, to facilitate reaching goals, or to affirm personal values determines whether a person will value engaging in that task. Activities that fulfill these needs will be seen as important and the individual will be motivated to work at mastering them. Activities that do not fulfill these needs will be seen as unimportant and the individual will not be motivated to work at them. Finally, activities which threaten the individual's self-concept will take on a negative value and the individual will be motivated to avoid them.

According to their model, subjective task value is comprised of four major components: attainment value, intrinsic value or interest, utility value, and anticipated costs. Attainment value represents the importance of doing well on a task. It is influenced most directly by the likelihood that success on the task will confirm salient and valued characteristics of the self, such as masculinity, femininity, intellectual competence, affiliation, power, and/or popularity. It is assumed that the perceived qualities of the task interact with an individual's needs and self-perceptions in determining a task's attainment value. Consider, for example, a child who thinks that doing well is one characteristic of smart people and wants to be a smart person. This child will place great value on doing well in school since doing well in school will affirm a critical component of her self-concept. Consider, in contrast, the child who doesn't think doing well in school is particularly important. This child will be less motivated to work hard in order to succeed at school, especially if s/he is not certain she can succeed anyway.

This component of subjective task value may be especially critical to our understanding of differences in motivation that are related to socioeconomic class, gender, and ethnic group membership. As several reviewers have concluded, (see for example Wigfield & Asher, in press) middle class children, especially girls, are more likely to believe that doing well in school is important. These children will be more motivated to achieve in school. In contrast, children from some ethnic groups are less likely to endorse the value of school performance. These children will see less need to achieve in school, especially if they begin to associate school with failure and negative affective experiences.

Intrinsic or interest value, the second component of task value, is the inherent enjoyment one gets from engaging in an activity. Some people just enjoy doing school work. They gain great satisfaction from completing assignments and doing well. For example, they may find mathematics aesthetically pleasing, or science exciting, or reading pleasant and calming. For such people the value of school and related activities should be very high and they should be highly motivated to do their school work. Psychologists concerned with intrinsically motivated learning (e.g., Covington & Beery, 1976; Deci, 1975; Kruglanski, 1975; Lepper & Green, 1978; Nicholls, 1979; White, 1959) have been most interested in this
component of subjective task value. They argue that all children are intrinsically motivated to learn and to master their environment but that schools, through evaluative procedures, teacher-controlled learning and lock-step pacing of tasks undercut this motivation in most children, but particularly in low ability children. Harter (1981) has confirmed this developmental prediction. Older children are more likely to cite extrinsic reasons for doing school work than are younger children. Clearly, something is happening in schools to undercut the power of intrinsic motivation. Work is needed to understand better this process and its implications for student motivation.

Apart from any feelings of interest or enjoyment, school tasks also have utility value and are often undertaken as a means of reaching a variety of long and short range goals. For example, a high school student may want to be a veterinarian and may need to take a particular course (e.g., calculus or advanced algebra) in order to gain entry into the appropriate college program. Consequently, she may take advanced mathematics classes, even though she has little or no interest in math itself. In this case, the instrumentality of mathematics in helping her to achieve her career goal outweigh her otherwise negative or neutral attitude toward the subject matter itself. The utility value of math in this case is high because of its long range usefulness, and we would predict that this student would work as hard as necessary to pass the course at the required level.

Finally, the value of a task to an individual is also affected by the cost of engaging in the activity. Students have limited time and energy. If they spend one hour on homework they have one less hour to spend doing something else. They must make choices between various activities. Students may also be unsure they will succeed at the task. Consequently, the anticipated psychological costs of failure must also be taken into account in determining the value a child attaches to various achievement activities.

In sum, Eccles and her colleagues believe that subjective task value is a function of both perceived qualities of the task and the individual's needs, goals, and self perceptions. Individual differences on these factors are created by the experiences individuals have had with similar tasks in the past, by social stereotypes (e.g., girls can't do math; poor kids are dumb; blacks are better at sports than math), and by the kinds of information provided by parents, teachers or peers about the importance of or the difficulty involved in doing well. Their analysis highlights the necessity of thinking about various achievement-related behaviors within the broad social array of behavioral options available to children. For example, the decisions to try or not to try hard in math or to spend time with friends instead of studying are not made in isolation of other very salient life decisions that directly affect the perceived value of all of the available options. We should not underestimate the importance of these other goals for any student. But they are probably especially important for the child who is uncertain of academic success even if s/he decides to work hard.

Task Analytic Strategies

The final question proposed by Eccles and Wigfield, "What do I need to do in order to succeed?", has received the least attention from motivational psychologists. But it is clear that in order to get work done
in school, students must know what is expected of them and must have effective strategies for overcoming difficulty when they confront it. The importance of this question was highlighted by the findings of Diener and Dweck (1978) discussed earlier. One critical difference between mastery oriented children and learned helpless children in this study was the tendency of mastery oriented children to engage in task analysis when confronted with difficulty while the learned helpless children gave up, and attributed their difficulty to lack of ability. Knowing how to analyze tasks, knowing appropriate problem solving strategies, and knowing how to seek help when necessary are all characteristics of high achieving children. A child who is deficient on these skills will undoubtedly find school a very frustrating place and may well adopt the ego-protective strategies (e.g., refusing to try) discussed by Covington and Beery (1976).

Whether children focus more on the task at hand or on evaluating themselves while doing achievement tasks may depend upon school practices. Nicholls (1979b), in his discussion of educational practices and motivation, stated that competition, social comparison, an tracking, with their emphasis on demonstrating ability, will foster self-focus. Emphasizing learning for its own sake, individualized learning tasks, and greater cooperation should foster task focus. An important motivational consequence of emphasizing task focus is the reduction of evaluation anxiety. Many studies have shown that in situations where self focus is emphasized, high anxious individuals perform poorly compared to low anxious individuals. Under more task focused conditions, high anxious individuals often do as well as low anxious individuals (see Wine, 1971, 1980). Schools which emphasize task goals should be more likely to enhance the development of mastery orientation and minimize the effects of anxiety. However, more research is needed before we fully understand the development of a task focused orientation in school.

The Influence of Socialization Agents

An area of research greatly neglected in the attribution tradition is how children's achievement-related beliefs are influenced by various socialization agents, especially parents and teachers. This topic was seen as important by early achievement motivation theorists (see Wigfield & Asher, in press; Parsons, 1981, for reviews). We believe it should be investigated further by both attribution and achievement theorists. While information is accumulating on how children of different ages make attributions in different ways, we know little of why these changes occur. Do parents explain their children's achievement outcomes to them, and do these explanations influence children's understanding of their achievement outcomes? Do these explanations change as children get older, and enter school? A study by Hess, Holloway, and King (Note 9) showed that parents (mothers) and children made different kinds of attributions. Mothers attributed their children's success more to ability and failure to lack of effort, while the children attributed their success more to effort and failure more to lack of ability. Since children in the study were in the fifth grade, the study provides no information on how parents shape children's attributions, but it does show that parents do give reasons for their children's achievement performance and that these reasons are different than the reasons provided by the children.

More work has been done on the role teachers have in shaping children's attributions, though as discussed earlier the nature of teacher's impact is the topic of some debate. The paucity of information
on how parents influence children's attributions, and the controversy concerning teachers' role, clearly indicate more research is needed in this area. The most fruitful way such research should proceed would be to assess some of the more general constructs discussed in this concluding section, such as achievement values and self-concept of ability, rather than limiting the study to attributional processes. For example, how does the socialization process teach children to value certain subjects more than others? What kinds of information sources do children use in assessing their competencies in different areas? How do parents judge their children's abilities? How do changes in the social environment, such as the beginning of school, influence parents' judgements and the kinds of information they use to make judgements about their children? Answering these questions will contribute greatly to our understanding of children's achievement motivation.

To conclude, we have tried to show how a broader model emphasizing task value, self-concept of ability, and task versus self-focus provides a more complete understanding of achievement motivation processes than does attribution theory. We believe it is essential for achievement motivation research to become more field-based, so that theories developed to describe achievement motivation processes are dealing with those processes as they operate in real-world settings. In this way some of the limitations of previous research will be overcome.
Reference Notes


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Footnotes

'It should be noted that in this analysis attributions across the different situations were collapsed together. Since a previous analysis indicated that the attributions used in each setting were quite different, perhaps the developmental differences would have been assessed better had each situation been analyzed separately, especially since some age differences were obtained. For instance, older children did attribute poor performance more to unstable and intentional causes.

'The IAR is designed to assess internal versus external tendencies. Dweck and Repucci divided the scale into several subscales contrasting effort with external causes for success and failure. The results did not allow for a comparison of the relative important of ability or effort. Girls in comparison to boys gave slightly more weight to external causes of failure than on lack of effort. Boys and girls, however, were equally internal and did not differ in their perception of ability as a cause of either success or failure.