The Development of Attributions, Self and Task Perceptions, Expectations, and Persistence

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Abstract

To investigate the processes relating outcome history to expectations, attributions, task and self inferences, and persistence, children ages 3-5, 6-8, and 9-12 years old were provided with either success or failure feedback. The children's response times were recorded as a measure of effort or persistence. Expectations were taken four times. Following the set of experimental trials, the children were asked (1) to rate the difficulty of the task, their effort, their ability, and their relative performance level and (2) to make a causal attribution for their performance. Three important findings emerged. First, we found no support for a low expectancy-learned helpless behavior link. Second, we found no major gender differences on either the attitudinal or the behavioral measures that were indicative of a "debilitating" female pattern. Third, the developmental effects were quite complex, reflecting changes on self presentational as well as inferential processes. Each of these is discussed.

The Development of Attributions, Self and Task Perceptions, Expectations, and Persistence

Psychologists have long been interested in the relationship between expectations for success and a variety performance variables. Recently attention has turned to an examination of the developmental changes in achievement expectations (e.g., Crandall, 1969; Heckhausen, 1967; Parsons, Adler, Futterman, Goff, Kaczala, Meece, & Midgley, in press; Parsons & Ruble, 1977; Parsons, Ruble, Hodges, & Small, 1976; Stipek & Hoffman, 1980). In each of these studies, age emerged as an important determinant of expectations and of the relation between outcome history and changes in expectations. The study reported herein examines the determinants of children's achievement-related expectations as a function of age and outcome history. In particular, the developmental patterns associated with the relation among attributions; expectancies; inferential judgments regarding one's ability, one's efforts, and the difficulty of task; task persistence; and performance level are explored.

Parsons and Ruble (1977) investigated the impact of age on the relationship between outcome history and expectations. Three important findings emerged in their studies. First, the expectancy statements of preschool children were unrelated to outcome while the expectancy statements of older children were. Second, the average expectations declined with age, especially among the children in the failure condition. Third, when gender differences emerged, girls reported lower expectations than boys. However, the pattern of gender differences varied as a function of age, outcome condition and trial. There were no gender differences among the preschoolers. Among the older children, both boys and girls became more pessimistic with age, especially in their response to failure, but this tendency emerged earlier among the girls.

The explanations for both the age trends and the gender differences provided by Parsons and Ruble (1977) and others (e.g., Crandall, 1969, Dweck & Goetz, 1977; Higgins & Parsons, in press; Nicholls, 1975, 1978; Shaklee & Tucker, 1979) stress the importance of interpretative and attributional processes. For example, according to Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum's (1971) attribution model, outcomes attributed to stable factors such as ability have a greater effect on future expectations than outcomes attributed to unstable factors such as luck or effort. More specifically, attributing one's failure to stable causes such as lack of ability should lead to a greater decline in one's expectations for future success than failure attributed to lack of effort. Following this line of reasoning, Parsons and Ruble (1977) argued that if preschoolers do not make stable attributions for their failure, then there should be little or no relation between their outcome history and their future expectations. Alternatively, preschoolers might not base future expectations on their attributions for previous outcomes because they do not see the need for such a heuristic. These two cognitive styles could result from cognitive immaturity (Inhelder & Piaget, 1958); e.g., preschoolers might not be able to integrate a series of temporally separated events into a single, stable construct. Alternatively, these cognitive styles could result from a set of social

experiences (Higgins & Parsons, in press) that do not make the connection between past outcomes and future outcomes particularly salient. For example, preschoolers are accustomed to rapid changes in their skill levels on a wide variety of tasks. These experiences may predispose preschoolers to have high expectations for future success despite a history of failures. Success may be seen as resulting from the acquisition of skills rather than as a consequence of variations in inherent stable abilities. If so, then variations in the short term history of success or failure at a task should have a minimal effect on preschoolers attributional patterns, on the inferences they make about their abilities, and on their perceptions of the difficulty of the task.

Why older children become more pessimistic is an equally complex problem. If expectations are related to self concept of abilities, then the older children's lower expectations might reflect the fact that older children have lower estimates of their general ability level (Parsons et al. in press; Ruble, 1975). The developmental decline in expectations might also reflect a change in children's specific reaction to failure. Older children both lower their estimates of their ability more and report feeling worse in the face of failure than do younger children (Ruble, Parsons, & Ross, 1976). Consequently, older children may more readily incorporate failure into their self concept of ability than younger children. Alternatively, the decline in expectancies might reflect changes in self-presentational goals. Older children may have learned that it is either more ego protective or more socially acceptable to express less, rather than more, certainty of success; thus, their expectations may reflect self-presentational goals as well as their actual predictions of future performances.

However, neither attributions nor inferences regarding one's ability or task difficulty were measured in either Parsons and Ruble (1977) or in the other related studies investigating gender and developmental effects on expectations. Thus, while the developmental shift in the relation between outcomes and expectations has been established, the mediating role of attributions and/or inferences have not been studied. Investigations of this role is one goal of this study.

In addition, the relations of outcome history, attributions, and inferential processes to actual achievement behavior is investigated. The low expectancy-failure cycle used to explain learned helplessness assumes that low expectations affect achievement by their debilitating effect on persistence and effort. It is argued that children stop trying once they reach a stable attribution for their failures (Dweck,1975), or once they form a low ability self concept (Parsons et al., in press), or even when they are trying to protect their ego's from a low- ability inference (Covington & Beery, 1976; Covington & Omelich, 1979). If this is true then declining expectations, stable attributions, and inferences of low ability and/or high task difficulty should be related to declining persistence or effort.

To investigate the processes relating outcome history to expectations, attributions, task and self inferences, and persistence, children (ages 3-5, 6-8, and 9-12) were provided with either success or failure feedback. On a series of Matching Familiar Figure problems,

their response times were recorded as a measure of effort or persistence; their expectations were assessed; they were asked to rate 1) the difficulty of the task, 2) their effort, 3) their ability, and 4) their relative performance level; and they were asked to make a causal attributions for their performance. Specific predictions regarding these mediating and outcome variables are outlined below.

Response latency. Assuming that response latency reflects strategy and persistence and that changes in response latency reflect modification in task strategy, we made the following predictions: a) Older children in the failure condition will increase their response latency as an initial response to failure but will decrease their response latency as failure continues. The drop in latency will coincide with the drop in the children's expectations and will signify both the emergence of a stable attribution for failure and the beginning of the debilitating low expectancy failure cycle. b) There will be no change in response latency in the success condition. c) If preschool children are not using cumulative outcomes in making attributional judgments or meta-cognitive inferences regarding task strategy, then they will not modify their behavior in response to outcome information and their response latencies will not be influenced by the outcome manipulation. d) Since younger children are more impulsive than older children (Ault, 1973), preschool children will have shorter response times than older children. e) If the gender differences in expectations found among older children reflect gender differences in attributional and inferential processes then, older girls will give up sooner than older boys.

Task and self inferential judgments. a) In comparison to children in the success condition, children in the failure condition should rate the task as more difficult and their abilities as lower. b) If preschoolers are not integrating outcome information in making ability and task inferences then the effect of outcome on the children's inferential judgments will be less extreme in this age group and, overall, preschoolers will rate the task as less difficult and their ability higher than the older children in both outcome conditions, but especially in the failure condition. c) If the gender difference in expectations reflects gender differences in both attributional and inferential processes then, in the success condition, girls should rate the task easier and/or their abilities lower than boys; conversely, in the failure condition, girls should rate their ability as lower and/or their efforts higher than boys.

Effort. Predictions regarding the effect of outcome and age on ratings of one's effort are not as clear cut as the previous predictions. While older children are expected to try harder than the younger children and are expected to increase their persistence in response to failure at least initially, older and younger children may not differ in their ratings for their efforts. Younger children may not have a well developed reference structure for judging effort. Consequently, their effort judgments may be inaccurate and unrelated to actual variations in effort. In addition, since younger children confuse effort and ability (Blumenfeld et al., in press; Nicholls, 1978), they may rate their efforts high despite variations in their actual level of effort, just as they should rate their ability high despite poor performance. In

contrast, while older children should have a better developed reference structure against which to judge their efforts, they may deflate their effort ratings in order to project a more positive view of their ability (Covington & Beery, 1976), Alternatively, there is some evidence suggesting that working hard is a "moral" imperative of the American school system (Blumenfeld et al., in press; Covington & Omelich, 1979; Maehr & Nicholls, 1980). If this is true then older children, who have been socialized into the school system, may inflate their public effort ratings to avoid censure for lack of effort. It is also possible that both of these effects are operative. If so, then success subjects may inflate their effort ratings in order to appear "dutiful", while failure subjects may deflate their effort ratings in order to "save face". Finally, it is possible that these two self-presentational goals might effect the effort ratings of boys and girls differently; duty may be the stronger imperative for girls while competence may be the stronger imperative for boys (e.g., Frieze, Parsons, Johnson, Ruble, & Zellman, 1978; Maehr & Nicholls, 1980). If so, girls should rate their efforts higher than boys in both the success and failure condition.

Causal Attributions. If the general developmental drop in expectations reflects an increase in children's perception of failure as stable or diagnostic of future performance then one of the following shifts in attributional tendencies should occur. If the decline in expectations with age reflects an increase in the tendency to incorporate failure experience into one's academic self-schemata, then older children will be more likely than younger children to attribute their failures to lack of ability. Alternatively, the drop in expectations may reflect a shift toward a more "fatalistic" view of failure rather than a more personally responsible view of failure. If so, then older children will be more likely to attribute failure to stable, uncontrollable causes. In contrast, if younger children have a more unstable view of performance, then they will be more likely to attribute their failures to unstable causes and will be especially unlikely to attribute their failures to lack of ability.

Since the gender difference in expectations mirrors the developmental pattern with females appearing more pessimistic than males, the attributional differences predicted in the previous paragraph should also characterize the difference in the attributional explanations provided by boys and girls. In addition, in keeping with previous studies of gender differences in attributions (see Parsons, in press, for review) girls will be less likely than boys to attribute their successes to ability and more likely to attribute them to effort or task ease.

Method

Subjects Eighty-four children (28 4-5 year olds, 28 6-8 year olds, and 28 9-12 year olds) attending a small private school served as subjects. The preschool sample consisted of 13 males and 15 females. The older two samples contained 14 males and 14 females each.

Measures. Expectations were assessed using the procedure developed by Parsons and Ruble (1977). The child were asked "Do you think you'll

be able to find the correct match?" and "How sure are you? A little sure, pretty sure or very sure". The children's responses were converted to a 6 point scale with 1 = very sure will fail and 6 = very sure will succeed.

The child's response time was measured with a stop watch on each of the six experimental trials. The children were told that this was not a speed test but that we did want to know how long they worked on each problem.

Inferential judgments were made on a pictorial version of a Likert-type scale. The children were asked each of the following questions: a) how hard they thought the puzzles were, b) how good they were at doing these kinds of puzzles, c) how hard they had tried to find the correct match, and d) whether they thought they had done better than, about the same, or worse than their friends. The scale for each of these questions was the same, consisting of nine columns increasing in height from the left to the right side of the page. The children were trained to use this scale for each of the questions; they had little difficulty mastering it.

A forced choice procedure was used to assess the children's attributions. They were asked whether they had gotten the answers right (wrong) because "You are good (bad) at it, because you tried (didn't try), because it was easy (hard), or because you were lucky (unlucky)". The choices were repeated a second time before they were allowed to answer. The order of the choices was varied randomly across subjects and each subject was read two different orders before being allowed to make the attribution.

Procedure. Each child was individually tested by one of six female experimenters. The task consisted of a series of the Matching Familiar Figures Test (Zelniker, Jeffrey, Ault, & Parsons, 1972). The first 2 trials provided practice; no outcome feedback was given. Children were told that the next puzzles would be more difficult and that most children their age had difficulty finding the correct match. Expectations for the next trial (Trial 1) were taken. The children then completed two trials, and were given either success or failure feedback. Following Trial 2, the children were reminded of their performance and asked their expectation for the next trial. Two more trials (Trials 3 and 4) were completed with the pre-determined feedback.(consistent with the feedback already given) Following Trial 4 the children were again reminded of their outcome and asked their expectations for the next trial. Two more trials (Trials 5 and 6) were completed with the predetermined feedback. Expectations for Trial 7 were assessed. In addition, the series of four inferential questions and the forced choice attribution question were administered. Two more trials were run. All children received success feedback on these. The children were reminded that these were very hard puzzles and were told that they had done as well as most of other children their age.

In summary, the children were divided into two groups: a success group and a failure group. They had two practice trials, six experimental trials and two post experimental trials. No feedback was

given on the practice trials; either consistent success or consistent failure feedback was given on the six experimental trials; success feedback was given on the two post experimental trials. Response times were recorded on the six experimental trials. Expectations was assessed prior to Trial One, Three, Five and Seven. Inferential and attribution questions were given immediately prior to Trial Seven.

Results

Expectations . Expectation scores were analyzed in a 3 x 2 x 2 x 4 (age x gender x outcome x trials) mixed model ANOVA with trials as the repeated measure. Contrary to our prediction, no gender effects emerged. There were significant main effects for outcome (F = 55.91, p < .0001), age (F = 10.55, p < .0001), and trials (F = 14.85, p< .0001), and a significant three way interaction for age x outcome x trial (F = 4.07, p < .001). As predicted, subjects in the success condition had higher expectations for success (M: failure = 3.30, M: success = 4.96), and children's average expectations decreased with age (M: 3-5 = 4.85, M: 6-8 = 3.93, M: 9-12 = 3.63).

Insert Table 1 about here

The means for the three way interaction are given in Table 1. A priori multiple t ratios (Kirk, 1969) indicated that the difference between any two means had to exceed 1.2 to be significant at the .05 level of probability. By this criteria, none of the age groups changed their expectations in response to success feedback and within the success condition none of the groups differed from each other.

A different pattern emerged for the failure condition. The expectations of the 3-5 year olds declined less across trials than either of the older groups. While all age groups began the task with equivalent expectations, the expectations of the two older groups dropped following failure such that they were significantly lower than the expectations of the 3-5 year olds on the last expectation assessment. The 9-12 year olds also had significantly lower expectations than the 3-5 year olds on the second and third expectations. Among both of the older groups, the children in the failure condition had lower expectations than children in the success condition on their second, third, and final expectations. In contrast, among the 3-5 year olds the success and failure children did not differ until their third expectation. Among the 6-8 year olds failure subjects, expectations dropped significantly from Trial 1 to Trial 3 and again from Trial 3 to Trial 7, suggesting a cumulative decline. In contrast, the expectancies of the oldest failure subjects dropped from Trial 1 to Trial 3 but then remained at a constant and low level, probably reflecting a floor effect.

Response Time. Response times were analyzed with a 3 x 2 x 2 x 6 (age x gender x outcome x trials) mixed model ANOVA with trials as the

repeated measure. There were significant main effects for age (F = 10.42, $p < .0001$), outcome (F = 4.87, $p < .04$) and trials (F = 10.92, $p < .0001$). Significant interactions were found for age x trials (F = 3.97, $p < .0001$) and for outcome x trials (F = 6.11, $p < .0001$). Children's response time increased with age (M: 4-5 = 7.16 seconds, M: 6-8 = 22.95 seconds, M: 9-12 = 25.66 seconds) and were longer in the failure condition (M: success = 14.79, M: failure = 22.39). The means for the two interactions are shown in Table 2.

Insert Table 2 about here

There was no response change among any of the success groups. The response times of the older children in the failure condition increased over trials while the response times of the preschoolers did not, suggesting that the older children were aware of the need for increased effort in response to failure, while the younger children were not. Contrary to our prediction, however, the response times of the failure children did not decrease at any point. Even though the expectations of the older two groups were dropping, they continued to increase their efforts across all six failure trials.

Task Difficulty Rating. Task difficulty ratings were analyzed with a 3 x 2 x 2 (age x gender x outcome) ANOVA. As predicted, age emerged as a significant variable (F = 5.66, $p < .005$). Although none of the groups perceived the task as extremely easy or extremely difficult, the preschoolers (M: 3-5 = 3.8) perceived the task as significantly easier than either of the two older groups (M: 6-8 = 5.4; M: 9-12 = 5.0). The outcome manipulation also produced a significant effect (F = 44.75, $p < .001$). The success group rated the puzzles as moderately easy (M = 3.2) while the failure group rated the puzzles as moderately difficult (M = 6.8). Considering these two main effects in conjunction we find that, in the failure condition, the older children rated the task as quite difficult (M: 6-8 = 7.3; M: 9-12 = 7.5) while the preschoolers rated the task as only moderately difficult (M: 3-5 = 5.6). In contrast, in the success condition the preschoolers rated the task as extremely easy (M: 3-5 = 1.9) while the older two groups rated it as only slightly easy (M: 6-8 = 3.4; M: 9-12 = 4.3).

Ability Rating. In a 3 x 2 x 2 (age x gender x outcome) ANOVA, only the outcome manipulation produced a significant effect (F = 26.22, $p < .001$). Subjects who had succeeded rated their ability as significantly greater than those who had failed (M = 6.92 vs M = 3.71). Contrary to our predictions, neither gender nor age produced any significant effects.

Relative Performance Rating. A 3 x 2 x 2 (age x gender x outcome) ANOVA yielded a significant outcome main effect (F = 5.92, $p < .05$), a significant age x gender interaction (F = 4.72, $p < .01$), and a marginally significant age x outcome interaction (F = 2.73, $p < .07$). The success subjects rated their relative outcome higher (M = 6.2) than did the failure subjects (M = 4.8). The subjects who had failed felt they had done about the same as their friends, while those who had

succeeded rated their performance as slightly better than their friends. It is interesting to note that the failure group did not think that they had done any worse than their friends, possibly because we had stressed the difficulty of the task.

Table 3 presents the means associated with both interactions. Outcome affected the older children's ratings of their relative performance ($p < .05$) but not the younger children's ($p > .05$). Thus, it is the ratings of the oldest two groups that account for the overall main effect for outcome condition . With increasing age, boys came to rate their relative performance as better than most of their friends'. In contrast, girls came to rate their relative performance as equal to that of most of their friends'.

Insert Table 3 about here

Effort Rating. A 3 x 2 x 2 (age x gender x outcome) ANOVA yielded a significant main effect for gender ($F = 3.86$, $p = .05$). As predicted, girls rated their efforts as greater ($M = 7.85$) than did the boys ($M = 6.90$), although both genders stated that they had tried quite hard. Interestingly, if we assume that response time provides a valid index of true effort, the girls in this study did not actually try any harder than the boys.

There was also a marginally significant age main effect ($F = 2.7$, $p = .07$). The youngest children rated their effort (M: 3-5 = 6.8) as less than did either of the older two groups (M: 6-8 = 8.1; M: 9-12 = 7.2). However, all age groups felt that they had tried quite hard on the task. In contrast to the gender differences, this effect coincided with the developmental response time differences reported earlier.

Attributions. The frequency counts for the four attributions as a function of gender, age and outcome are presented in Table 4. Initial Chi-square analyses indicated that gender had no effect on the children's attributional judgements within any age group and in the population as a whole ($p > .25$ in each case). Therefore gender was excluded from further analyses. Everyman's Contingency Table Analyses (Goodman & Magidson, 1978) were used to assess the impact of age and outcome on attributions. These analyses test the fit of various models to the data using a Chi-square statistic; a non-significant chi-square indicates that the specified model fits the data. A model including both the attribution x outcome and attribution x age interactions fit the data (Chi-square = 9.62, df = 8, $p = .292$). Adding either the age x outcome interaction or the age x outcome x attribution interaction did not improve the fit. Inspection of the lambda co-efficients associated with the attribution x outcome interaction indicated that two attributions accounted for the outcome X attribution effect; namely, children were disproportionately likely to attribute success to effort and failure to task difficulty. The lambda co-efficients associated with the age x attribution interaction indicated the 9-12 year olds were less likely to make attributions to luck than expected by chance. There was also a non-

significant tendency for the 3-5 year olds to use luck more than expected by chance. Separate two-way Chi-square analyses of age by attribution choice within outcome yielded one additional result. Attribution of success to effort (versus the other three causes) increased with age ($p < .01$).

Discussion

Three important findings emerged in this study. First, we found no support for a low expectancy-learned helpless behavior link. Second, we found no major gender differences on either the attitudinal or the behavioral measures that were indicative of a "debilitating" female pattern. Third, the developmental effects were quite complex, reflecting changes on self presentational as well as inferential processes.

Expectancy-Failure Cycle.

We did not find any evidence of the hypothesized low-expectations-failure cycle. Despite the fact that the older children's expectations were dropping in response to failure, their response times increased across the failure trials. Apparently, these children had not given up hope of success, even though they were reporting that they expected to fail. While a larger sample and increased exposure to failure might produce the low-expectation-failure cycle, the fact that the expectation and performance measures yielded such a different pattern indicates that public statements of expectations reflect more than subjective estimates of the probability of success. Consequently, investigators should use caution in interpreting the meaning of public expectations. This is especially true for situations involving the interpretation of the meaning of individual differences in public expectations. For example, gender differences in expectations have been used as evidence of learned helplessness (e.g. Dweck & Goetz, 1978). This interpretation assumes that public statements of expectations reflect private, subjective expectations. Our data suggest that public expectations reflect other psychological dynamics, such as social desirability, as well, which may interact with gender, age or race in determining public expectations. Consequently, gender differences in public expectations should be interpreted with caution.

Gender Effects.

Contrary to our predictions, gender had very little effect on either achievement beliefs or behavior. We found no evidence to support the idea that girls have a more negative or debilitating set of achievement beliefs or the idea that they are more likely to fall victim to learned helplessness than boys in achievement settings.

Only two dependent variables yielded significant gender effects. The first was the gender x age interaction on the relative performance measure. The boys' rating of their relative performance increased with age, while the girls' ratings declined. This difference may reflect an awareness of the differential values assigned to achievement for each

gender by society at large. If boys are being trained to become achievers, they might be more prone than girls to distort their estimates of their relative performance as they get older, especially since girls are included among the comparison group. However, if it were the stereotype of male competence that was producing boys' exaggerated ratings then one would predict that girls' expectations for success should decline more than the boys with increasing age. In fact, boys and girls expectations in this study declined to the same extent. In addition, boys should be likely than girls to attribute their successes to their ability. This also was not the case. ability). Finally, boys should rate their ability higher than girls. Again this was not the case. Instead then, it seems probable that the gender difference in children's estimates of their relative performance reflects gender-typed norms regarding the appropriateness of modesty.

Gender also had a significant effect on effort ratings. As predicted, the girls rated their efforts higher than did the boys. However, there were no gender differences on either the attributional measure or on the response time measure. The gender difference, then, emerged only when subjects were asked to estimate their efforts, suggesting that the gender difference reflects gender-typed self-presentational norms rather than a debilitating attributional bias. Further research, however, is needed to explore the possible long term effects on task choice of girls' tendency to perceive their efforts as greater even when objective measures indicate that both effort and outcome are comparable. (see Parsons, Adler et al., in press and Parsons, Meece et al., in press for fuller discussion.)

It is important to note, given the persistence in the psychological literature of the hypothesis that gender differences in achievement behavior result from girls' debilitating beliefs and attitudes, that our pattern of non-significant gender effects is consistent with several other recent developmental studies (Ames, 1978; Cooper, Burger & Good, 1981; Diener, & Dweck, 1978; Parsons, Meece, Adler, & Kaczala, 1982; Rholes, Blackwell, Jordan, & Walters, 1980). And, while a complete review of the existing gender difference literature is beyond the scope of this paper, a careful reading suggests that the evidence is quite weak even in those developmental studies commonly cited in support of the hypothesis (see Parsons, in press, for more detail). The predicted gender difference emerges most consistently with measures of expectations for success on novel tasks (Crandall, 1969; Nicholls, 1975; Parsons & Ruble, 1977). The gender differences associated with other attitudinal measures such as causal attributions and locus of control are quite mixed (see Cooper et al, 1981; Frieze et al, 1982; Parsons, 1982). Finally, with the exception of two studies by Harter (1975a, b), there is no consistent evidence of a gender difference in either the frequency or the magnitude of a "debilitating" behavioral response to performance feedback on achievement tasks (Crandall, 1969; Dweck, 1975; Dweck & Bush, 1976; Dweck & Reppucci, 1975; Dweck & Gilliard, 1975; Harter, 1974; Veroff, 1969). This is not to say that there are no gender effects on the behavioral measures used in these studies. Indeed under some conditions boys and girls do respond differently to performance feedback. But, in our opinion, there is little evidence in the majority of these studies, ours included, that elementary school age girls are more likely to

exhibit a "debilitating" response to achievement feedback than are elementary school age boys.

Developmental Issues.

As predicted, we found a general developmental decline in average expectations. This decline resulted primarily from the children's response to failure. In the introduction we hypothesized several possible factors that might underlie this general developmental decline. The pattern of our results suggest that at least two phenomena are involved: a shift in the meaning attached to outcome history, and a shift in self-presentational goals.

Developmental Differences in the Meaning of Outcome Information. As outlined in the introduction, attribution theory links stable attributions to expectancy shifts; attributing one's failures to a stable cause is predicted to yield declining expectations for success. This prediction is based on the assumption that attributions to stable causes, such as ability level, yield the inference that the cause will continue to persist into the future producing similar future outcomes. ("I failed because I have low ability, I will always have low ability and therefore I will fail again the next time I confront this task.") But ability can be conceptualized as an unstable entity (a skill) as well as a stable characteristic. In fact a sizable proportion of both children and adults do not consider academic ability to be a stable characteristic (Hess, King & Holloway, Note 1). For these individuals, repeated failures would not necessarily yield either a stable inference regarding low ability or lower expectation for future success.

It is quite likely that children of different ages vary in the extent to which they conceive of both ability and task difficulty as stable constructs. There are several reasons to hypothesize that preschoolers conceive of both ability and task difficulty as unstable entities, and, as a consequence, that their future expectations will be influenced less by previous outcomes than will the future expectation of older children. First, a variety of recent findings suggest that young children do not distinguish between effort and ability, and base their ability judgements on perceived effort, an unstable attribute (Blumenfeld et al., in press; Kun, 1977; Nicholls, 1978). Second, sophisticated inferences of ability from outcome information (Shaklee & Tucker, 1979) and evidence of an understanding of a compensatory relationship between ability and effort in producing achievement outcomes do not emerge until the late elementary school years (Nicholls, 1978). Thus, preschoolers may lack the cognitive skills necessary to integrate outcome information into a stable construct (Parsons & Ruble, 1977; Shaklee & Tucker, 1979). Finally, preschoolers may use outcome information to infer ability but not link their ability judgements to future expectations because they do not conceptualize ability as diagnostic of future outcomes. They have had ample experience with dramatic changes in their outcomes, their abilities, and their control over their outcomes due to changes in their skills and co-ordination. They also have been told by their parents that repeated efforts will pay off and have had experiences confirming this prediction (see Higgins & Parsons, 1982). These experiences should predispose preschoolers to conceptualize both ability and task difficulty

as unstable.

The developmental data reported in this study are consistent with such an interpretation. First, when confronted with repeated failure preschoolers change their expectations less than do older children. Second, there is no outcome x age interaction for either ability or task difficulty judgements.[1] Taken together, these results suggest that all of the children used outcome information to make ability and task difficulty judgements. They differ in the extent to which they use these inferences in making future performance predictions. There is no evidence in their expectancy responses that the preschoolers use either their ability or their task difficulty estimates as diagnostic of future performance. While this might reflect cognitive immaturely, it is equally probable that it reflects differences in the psychological meaning associated with the ability and task difficulty concepts.

The age difference in the children's attributions for failure provides additional support for the conclusions that older children are less likely than younger children to view outcomes as unstable. To the extent that the age groups differ, the older children were less likely to attribute their failures to the unstable attribution of bad luck.

But if preschoolers see their failures as unstable, why don't they change their behavior in order to change their outcome. Adopting this strategy would require several skills. First, the children would need to believe they could alter their outcome by changing their performance. Second, they would need rather sophisticated meta-cognitive skills in order to plan a strategy change. Finally, they would need to be sufficiently motivated to activate these meta-cognitive processes in order to evaluate their current strategy and generate new strategies. Preschoolers have been shown to lack the meta-cognitive knowledge necessary to devise a new, more appropriate task strategy in a variety of achievement tasks. Research in the domain of impulsivity/reflectivity suggests that they lack such meta-knowledge for this task as well (Ault, 1973; Zelniker, et al., 1972).

Self-Presentational Strategies. But do the older children have a stable conceptualization of ability and task difficulty? The verbal measures associated with failure suggest that they do. Their ability and task difficulty inferences, their attributional judgements and their expectancy statements form a pattern that is consistent with an attribution model in which ability and task difficulty are assumed to reflect stable causes. Their behavior, however, suggests a more unstable inference.[2] These inconsistencies in the responses of the older children to failure suggest that they are responding to self-presentational goals as well as to attributional processes.

The attributions and expectations of the success subjects also suggest (1) an unstable inference regarding the causes of their performance, and (2) concern with self-presentation. They attributed their success to effort rather than to ability. Since effort is an unstable attribute, success attributed to high effort will not necessarily produce an increment in expectations. If we assume that there is a cost associated with being overly optimistic, then the safest

self-presentational strategy in this task would be to predict continued success with moderate certainty and to continue using the current solution strategy. This is the basic pattern evidenced in the oldest two success groups.

Inspection of the effort measures provides additional insights into the complex interplay of self-presentational goals, attributional processes, and adherence to social norms. Contrary to what one might expect, outcome did not affect the students' effort ratings. Success and failure subjects rated their efforts similarly, even though their actual response times were different. Assuming that response time is a valid index of actual effort, then the subjects who failed had actually tried much harder than the success subjects. But the success subjects rated their efforts as high and were more likely to attribute their success to effort than to ability or task ease. Apparently, the success subjects were either not sensitive to the inverse relationship between perceived ability and perceived effort or were not motivated to present themselves as having high ability. Instead, they appear more concerned with appearing diligent.

Paradoxically, the failure subjects were also motivated to appear diligent. They did not make use of lack of effort as a defensive attributional strategy (Covington & Omelich, 1979). By underestimating their efforts and by attributing their failure to lack of effort, they could have created the impression that they could succeed if they only tried harder. This conclusion would not only serve a defensive function for their own sense of competence but would also help to 'save face' . Instead, the failure subjects rated their efforts as quite high, and attributed their failure to task difficulty rather than lack of effort. Apparently, in this laboratory setting, self-presentational norms are biased in the direction of appearing diligent even if unsuccessful. A more ego-involving and long term setting such as school should elicit greater use of the low effort defensive response especially among older children who do understand the inverse relationship between effort and ability (Frieze & Synder, 1980; Kun, 1977; Nicholls, 1979; Parsons et al., in press), and who are concerned with ability judgements (Covington & Omelich, 1979; Nicholls, 1980).

One final paradox in these results is clarified if we assume a developmental shift in both the interpretation of achievement outcomes and self-presentational strategies. More specifically, if the failure subjects consider task difficulty to be a stable task attribute and if they really expect to fail on the next trial, then why do they modify their task behavior pattern? This apparent contradiction in the pattern of results evidenced by the older failure subjects is less paradoxical if we make the following assumptions: (1) Task difficulty is not considered a stable task attribute but instead is assumed to be a function of either current skill level or current solution strategies which can change through continued practice or modifying one's task strategy. (2) The children are learning the diagnosticity of past performance for future performance but are also learning the meta-cognitive skills necessary to modify their task strategies. (3) The children have learned that there is a cost associated with being overly optimistic. (4) High effort is expected on achievement tasks. Given this set of achievement beliefs,

the optimum strategy when confronted with failure on this task is to express lower expectations for success, to modify one's behavioral strategy, to rate one's ability as about average, to rate the task as fairly difficult, to rate one's efforts as fairly high, and to attribute one's failures to task difficulty. This is the pattern evidenced by the older children. If a stable conception of ability is emerging in the older age groups then one would expect a low ability inference and the low expectancy-failure cycle to emerge only after a child had given up on the possibility of a shift in outcome due to either practice or modifications in one's task strategy.

Conclusion.

The pattern of the attitudinal and behavioral responses points up three important issues. First, in developing models linking achievement beliefs and attributions to behavior, we need to distinguish between perceived stability of past outcomes and perceived control over future outcomes. Attribution models built on the work by Weiner and his colleagues have assumed that certain causal explanations reflect a stable concept that extends in both directions through time. It is quite possible that an individual would make a stable, external, uncontrollable attribution for a series of events and still feel in control of changing the outcomes in the future through some modification in either his/her skill level, the strategies used, or the difficulty level of the task chosen. Research in the domain of learned helplessness (e.g. Diener & Dweck, 1978) and self-efficacy (e.g. Bandura, 1977) suggest that it is the belief in the control or modification of future outcomes that is the critical achievement belief for predicting behavior, and not attributions for previous performance. The link between causal attributions and perceived control over future outcomes is in need of further study.

Second, the developmental data make it clear that we must include meta-cognitive constructs in theoretical models linking perceived control over future achievement outcomes and achievement behaviors. The achievement behaviors generated in any given situation will depend on the repertoire of task relevant skills the individual has, the individuals task analytic or meta-cognitive skills, and the individuals motivation to engage in either meta-cognitive analyses or task relevant behaviors. When confronted with repeated failure on the MFF, older children modified their task strategy and younger children did not. This difference did not reflect differences in perceived control over future outcomes; rather it reflected differences in meta-cognitive processes. We need more research focusing on this link between perceived control and efficient use of meta-cognitive processes.

Third, various individuals may not attach the same subjective meaning to achievement-related terms such as ability, effort, task difficulty, etc. Therefore, we need to be careful in drawing conclusions regarding the meaning of individual differences on any given measures without converging evidence from a variety of theoretically related measures.

Reference Notes

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Footnotes

[1]An age effect for task difficulty emerged; 3-5 year olds rated the task as less difficult than the older two groups. This finding, coupled with the higher expectations and lower response times of the 3-5 year olds in the failure condition, suggests that the preschoolers were neither integrating their cumulative outcomes into a stable underlying dimension nor making use of the social norm information provided them in assessing the task's difficulty. Since the older children were neither more likely to attribute their failures to task difficulty nor to rate their ability lower than the younger children, the higher difficulty ratings found among the older groups probably reflect an age difference in the use of social norm information in assessing task difficulty.

[2]Since so few of the older children attributed either their success or their failure to ability, we can not determine whether these children conceive of ability on this task as a stable entity or as a skill. However, since so many of the children attributed their success to effort, and so few attributed either success or failure to luck, it is clear that the older children consider performance on this task to be under intentional, internal control. Other attributional studies (e.g. Frieze Synder, 1980) indicate that this is the normative pattern for achievement tasks among white middle class American children.

Table 1

Means for the 3 x 2 x 2 x 4 ANOVA for Expectations:

Three Way Interactions[1]

Age	Outcome	Trials[2]			
		1	3	5	7
3-5	Success	5.4	5.2	5.4	5.4
	Failure	4.6	4.9	3.9	3.8
6-8	Success	4.7	4.6	5.0	5.0
	Failure	4.8	3.0	2.6	1.7
9-12	Success	4.7	4.9	5.3	3.8
	Failure	4.1	2.3	1.8	1.9

[1]Two procedures were used to test for differences among these means. Tukey's HSD statistic was used to test a posteriori differences. The means had to differ by 2.0 to be significant at the $p = .05$ level according to this criterion. Multiple t ratio: (Kirk, 1969) were used to *a priori* predictions. The means had to differ by 1.2 to be significant at the $p = .05$ level according to this criteria.

[2]Expectancies were taken immediately prior to the designated trials

Table 2

Mean Response Times as a Function of Age X Trials and Outcome X Trials[1]

	Trials					
Age	1	2	3	4	5	6
3-5	7.5	6.2	6.1	8.4	7.2	7.6
6-8	14.4	19.9	20.6	21.6	28.4	32.9
9-12	13.9	21.9	28.8	29.6	31.5	28.2
Outcome						
Success	11.4	14.3	15.5	16.6	16.8	14.1
Failure	12.5	17.7	21.5	23.1	28.0	31.7

[1]Means differing by more than 12 seconds are significantly different at the $p = .05$ levels using the multiple t ratio statistical procedures.

TABLE 3

Average Ratings of Relative Performance for the Different Age Groups for the Different Sexes and Different Conditions

		3-5 yrs.	6-8 yrs.	9-12 yrs.
AGE BY SEX	Males	4.9	6.1	6.2
	Females	6.9	4.4	4.5
AGE BY CONDITION	Success	5.7	6.6	6.3
	Failure	6.1	3.9	4.4

Table 4

Distribution of Causal Attributions

		Age					
		3-5		6-8		9-12	
		Success	Failure	Success	Failure	Success	Failure
Ability	Females	3	0	1	0	2	0
	Males	0	1	0	2	2	2
Effort	Females	0	0	4	1	5	0
	Males	1	0	5	0	5	1
Task Difficulty	Females	2	6	0	4	0	5
	Males	3	3	1	2	0	3
Luck	Females	2	2	2	2	0	2
	Males	3	3	1	3	0	0