Learned Helplessness in Children: A Longitudinal Study of Depression, Achievement, and Explanatory Style

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In this longitudinal study, the depressive symptoms, life events, and explanatory styles of 168 school children were measured five times during the course of 1 year. Measures of school achievement were obtained once during the year. Depressive symptoms and explanatory styles were found to be quite stable over the year. As predicted by the reformulated learned helplessness theory, explanatory style both correlated with concurrent levels of depression and school achievement and predicted later changes in depression during the year. Depression also predicted later explanatory styles. The implications of these results for intervention with children with depressive symptoms or school achievement problems are discussed.

The reformulated theory of learned helplessness (Abramson, Seligman, & Teasdale, 1978) makes a set of predictions about the emotional and behavioral development of children. It claims that there should be an identifiable set of children who are at particular risk for the behavioral and emotional deficits of helplessness. Specifically, children who possess an *attributional* (hereinafter referred to as *explanatory*) style that habitually leads them to view the causes of bad events as stable in time, global in effect, and internal to themselves will be—once they encounter bad events—especially vulnerable to a defined cluster of helplessness deficits. The cluster consists of (a) lowered response initiation (passivity), (b) cognitive deficits, (c) sadness, (d) lowered self-esteem, and (e) lowered assertiveness and competitiveness.

In this study, we tested the prediction that children with a maladaptive explanatory style would exhibit more helplessness deficits than children without the maladaptive style. In line with previous research, helplessness deficits were operationalized as deficits in achievement-oriented behaviors and as the motivational, cognitive, and emotional deficits of depression. This study was longitudinal, with measures of explanatory style and helplessness deficits taken five times in 1 year. This longitudinal design allowed us both to examine the causal influence of explanatory style on helplessness and to obtain data on the stability of explanatory style and depressive symptoms in elementary school children.

Learned Helplessness Theory

According to the original learned helplessness theory (Maier & Seligman, 1976; Maier, Seligman, & Solomon, 1969; Seligman, 1975), experience with uncontrollable events can lead to the expectation that no responses in one's repertoire will control future outcomes. This expectation of no control leads to motivational deficits (lowered response initiation and lowered persistence), cognitive deficits (inability to perceive existing opportunities to control outcomes), and, in humans, emotional deficits (sadness and lowered self-esteem). These deficits are collectively known as learned helplessness deficits.

Seligman (1975) pointed out the similarities between these learned helplessness deficits and the motivational, cognitive, and emotional deficits of human depression. He argued that at least some depressions may be the result of expectations that nothing one does can control important outcomes. The original helplessness theory, however, had at least four important inadequacies. First, it could not explain when helplessness deficits would be stable in time and when they would be unstable. Second, it could not explain when helplessness deficits would generalize to multiple domains of outcomes and when they would be specific to one domain. Third, it could not explain why people would lose self-esteem when they perceived they were helpless. Finally, the original helplessness theory could not account for individual differences in humans' susceptibility to helplessness.

Abramson et al. (1978) proposed a reformulation of helplessness theory that was designed to resolve the inadequacies in the original theory. According to this reformulation, the explanations people give for good and bad outcomes influence their expectations about future outcomes, and thereby influence their reactions to outcomes. Three dimensions along which explanations can vary were said to influence the helplessness deficits

individuals experience following an event. First, causes can be stable in time or they can be unstable. If the person explains a bad event by a cause that is stable rather than unstable in time, he or she will expect bad events to recur in the future and helplessness deficits will be chronic. Second, causes can have effects in many areas of an individual's life, or they can effect only one area. If a person explains a bad event by a cause that has global effects instead of by a cause that influences only that specific event, he or she will expect bad events to occur in multiple domains and helplessness deficits will generalize across domains. Third, causes can either be internal or external to the individual. If a person explains a bad event by a cause internal to himself or herself rather than external, he or she will be more likely to show lowered self-esteem.

Abramson et al. (1978) explained the individual differences in vulnerability to helplessness by arguing that people who habitually explain bad events by internal, stable, and global causes (and explain good events by external, unstable, specific causes) will be more likely to experience general and lasting symptoms of helplessness than will people with the opposite style. The reformulated model thus is a diathesis-stress model, in which a bad explanatory style is viewed as a factor that predisposes the individual to helplessness in the face of bad events.

Abramson et al. (1978) applied this reformulated helplessness theory to depression and predicted that persons who habitually explain bad events by internal, stable, and global causes will be more prone to depressive episodes than persons without this maladaptive explanatory style. This prediction has been confirmed by a number of studies using adults and several using children (for a review see Peterson & Seligman, 1984).

Seligman et al. (1984) administered the Children's Depression Inventory (CDI; Kovacs, 1980) and the Children's Attributional Style Questionnaire (CASQ) to 96 elementary school children on two separate occasions, 6 months apart. The CDI is a self-report measure of depressive symptoms, modeled after the Beck Depression Inventory (Beck & Beck, 1972). The CASQ is a forced-choice measure of a child's tendency to choose internal, stable, and global causes or external, unstable, and specific causes for events. Seligman et al. (1984) found that the maladaptive explanatory style was significantly correlated with high-depression scores each time the questionnaires were administered. These results have been replicated by Kaslow, Rehm, and Siegel (1984) and Smucker (1982). In addition, Seligman et al. (1984) found that the children's explanatory style scores at the first testing period significantly predicted their level of depression 6 months later.

These results provide some confirmation for the model of depression among children. They do not, however, assess one important component of the model: life events. As mentioned earlier, the model is a diathesis-stress model, which states that it is in the face of maladaptive life events that explanatory style comes into play. In the present study, we tested this prediction of a significant interaction between explanatory style and life events in the development of depression in children.

These previous studies of learned helplessness theory also do not address the basic question of whether young children can have a stable cognitive style that can lead to episodes of depression. Many claims have been made about the level of cognitive development necessary for one to experience hopelessness and

self-blame (see Bemporad, 1982; Cytryn & McKnew, 1974). And, although most researchers do not dispute the existence of depressive symptoms in young children, some claim that these symptoms are unstable developmental phenomena, of little danger to the long-term mental health and functioning of the child (Lapouse, 1966; Lefkowitz & Burton, 1978). In the present study, we examined the stability of depressive symptoms and explanatory style by measuring children's levels of depression and explanatory style patterns 3 months, 6 months, 10 months, and 12 months after an initial assessment of these variables. We then asked whether a consistent, maladaptive explanatory style was associated with both concurrent and future depressions, as predicted by the reformulated helplessness theory. The reformulated helplessness theory offers a strong prediction concerning the causal influence of explanatory style on depression. It predicts that there will be a group of children who have a maladaptive explanatory style but who are not currently depressed and that these children will be more likely to become depressed over time than children without a maladaptive explanatory style.

Testing this prediction was the primary purpose of this study. In previous studies (Golin, Sweeney, & Schaeffer, 1981), cross-lagged panel correlational analyses (Kenny, 1975) were used to assess the relative causal influences of depression and explanatory style on each other. However, this method of analysis has been convincingly criticized and rejected by Rogosa (1980). Therefore, we used a series of regression analyses to test the causal predictions of the reformulated theory. The multiwave design of this study allowed us to test our predictions repeatedly.

Learned helplessness theory has also been used to explain deficits in achievement-oriented behaviors (Dweck, 1975; Dweck & Repucci, 1973; for a review, see Dweck & Wortman, 1982). Dweck and others have found that some children tend to explain academic failure in terms of stable and global causes (e.g., stupidity) and explain success in terms of unstable, specific causes (e.g., luck). As predicted, these explanatory patterns correlate with decreased persistence, decreased initiation of tasks, lowered quality of problem-solving strategies, and lowered expectations for future success. Most previous studies on the relation between causal explanations and achievement behaviors have focused only on ability versus effort explanations for success and failure, and they have used only performance on laboratory tasks as dependent measures of achievement behaviors. In this study, we wished to apply the reformulated theory more directly to predict actual achievement-related behaviors in school. We measured achievement-related behaviors in two ways: a standardized achievement test and a teacher-rated scale of helpless behaviors in the classroom. We then examined the relation between these two measures and explanatory style.

Poor school achievement in children has been viewed as a potential sign of depression (Brumback & Staton, 1983; Cantwell & Carlson, 1979; Weinberg, Rutman, Sullivan, Penick, & Dietz, 1973). A few recent studies indicate that even low levels of negative affect can impair performance on cognitive tasks (Kaslow, Rehm, & Siegel, 1984; Masters, Barden, & Ford, 1979). Little systematic data exist, however, on the relation of depressive symptoms and school-achievement problems in children not under psychiatric care. In the present study, we exam-

ined the relation between depressive symptoms and our two measures of achievement problems.

To summarize, we predicted that the maladaptive explanatory style would be associated with higher levels of depression, lower school achievement, and higher incidences of helpless behaviors in the classroom. In addition, we predicted that children who have the maladaptive explanatory style will be more likely to become depressed during the year or to maintain a high level of depression. We also looked at the influence of depressive episodes on the development of a maladaptive explanatory style. We further predicted that the maladaptive explanatory style would interact with the experience of bad life events to produce an even greater vulnerability to depression than either explanatory style or events produce alone. Finally, the present study was designed to provide data on the stability of explanatory style and depressive symptoms in elementary school children.

Method

Subjects. The parents of all 308 children in the third, fourth, and fifth grades of two elementary schools in central New Jersey were asked to permit their children to participate in this study. The positive response rate was 56%, yielding a sample of 168 children (87 male and 81 female). The children were predominantly white, from middle-class families, and, at the outset of the study, ranged in age from 8 to 11 years. The attrition rate for subjects over the year of the study was 18%. Dropouts resulted primarily from moves out of the school district and physical illness. None of the children who participated were receiving psychiatric care at the outset of the study. One child began receiving psychotherapy for depression after the second testing session (April 1983). The analyses reported here include his data.

Measures. The CDI (Kovacs, 1980), a 27-item modification of the Beck Depression Inventory, is designed for use with preadolescent children. Each item consists of a list of three statements representing severity levels of a symptom of depression. Item choices are assigned a numerical value of from 0 to 2. High scores on the CDI indicate high levels of depression. Children's CDI scores have been found to correlate moderately with psychiatric ratings of depression ($r = .54$; Kazdin, 1981). The internal reliability of the CDI (alpha; Cronbach, 1951) in a nonclinic sample is .78.

The CASQ (Seligman et al., 1984) is a 48-item forced-choice measure of explanatory style. Each item presents a hypothetical event and two possible explanations for why that event occurred. Respondents are instructed to imagine the event happening to them, then to choose which of the two explanations best describes why the event would happen to them. An example of an item from the CASQ is

> You get an "A" on a test.
> A. I am smart.
> B. I am smart in that subject.

The two explanations hold two of the explanatory dimensions constant while varying the third. In the example, the stability and internality dimensions are held constant, whereas the global-specific dimension is varied. There are 16 events that pertain to each of the three explanatory dimensions. Half of the events are positive and half are negative. Thus, there are six subscales on the CASQ: the internality, stability, and globality scales for bad events, and the internality, stability, and globality scales for good events. A composite explanatory style score for positive events (labeled CP) is obtained by adding the child's scores on each of the three subscales for positive events. A composite explanatory style score for negative events (labeled CN) is obtained by summing the

scores for the subscales for negative events. An overall explanatory style score (labeled CPCN) is obtained by subtracting the composite negative score from the composite positive score. The lower the overall style score, the more the child explains bad events in terms of internal, stable, and global causes, while explaining good events in terms of external, unstable, and specific causes. The coefficient alphas (Cronbach, 1951) for the CP, CN, and CPCN scales are .71, .66, and .73, respectively (Seligman et al., 1984).

The Life Events Questionnaire (LEQ; adapted from Coddington, 1972) is a brief checklist of major life events that is designed for use with elementary school children. The subjects were instructed to check off those events that had happened to them in the last 2 months. A subject's score on the LEQ is the number of events, out of a possible 21, checked.

In the final administration of the questionnaires to the children, we asked their teachers to complete the Student Behavior Checklist (Fincham & Cain, 1984). This checklist asks teachers to rate the extent to which a child engages in learned helplessness (LH) or mastery oriented (MO) behaviors in the classroom. An example of an LH item is "wants to do easy problems rather than hard ones." An example of an MO item is "tries to finish assignments even when they are difficult." Teachers rate, on a 5-point scale, the frequency with which a child engages in each behavior. The child's ratings on the 12 LH items are summed to give a total LH score, and ratings on the 12 MO items are summed to give a total MO score. Fincham and Cain (1984) found coefficient alphas of .90 for the LH scale and .94 for the MO scale.

Once a year, all children in the two schools take the California Achievement Test (California Testing Bureau, 1982). This standardized achievement test includes tests of vocabulary, reading comprehension, and math skills. The children's scores from each of these three subtests as well as their scores on the entire battery in the form of percentile rank in a national sample were obtained.

Procedures. The CDI, CASQ, and LEQ were administered to the children in January 1983, March 1983, June 1983, October 1983, and January 1984. These administrations will be referred to as Administrations 1, 2, 3, 4, and 5, respectively. The questionnaires were read aloud to groups of approximately 30 children at one time, while the children read along and answered each question. All administrations took place in a room in the children's school during school time.

At Administration 5, the teachers of the children in the study were given a Student Behavior Checklist (PBC) to fill out for each child. Four of eight teachers returned the checklists, yielding data on 65 of the children in the study.

The children's scores on the California Achievement Test were obtained from school records. The children took this test in April 1983, after Administration 2.

Results

As predicted, a maladaptive explanatory style was associated with higher concurrent levels of depression and higher levels of depression at subsequent testing periods. Depression also appeared to influence subsequent explanatory style. But explanatory style at time n remained a significant predictor of depression at time $n + 1$ even after the effects of depression at times n and $n - 1$ on explanatory style were controlled. Further, we found no evidence that the significant correlations between explanatory style and depression were due to semantic redundancy in the CDI and the CASQ. In line with the diathesis-stress model of depression, the interaction of a maladaptive explanatory style and the experience of several bad life events was related to higher levels of future depression. A maladaptive explanatory style also was significantly associated with lower levels of achievement and more helpless behaviors in the classroom.

Means, ranges, and standard deviations of the CDI. The means, ranges, and standard deviations of scores on the CDI for the five administrations are shown in Table 1. These means are comparable to those found in third-, fourth-, and fifth-grade children by Seligman et al. (1984) and by Smucker (1982). Also presented in Table 1 are the percentages of children with scores of 16 or more on the CDI at each administration (16 was the average of the scores representing one standard deviation above the mean CDI score across all five administrations; 16 is also the cutoff score recommended by Kovacs (1980) for designating a "severe" level of depression). Levels of depressive symptoms were highest at the June testing period, then declined substantially in the October and January 1984 testing periods.

Stability. Also seen in Table 1 are the stability correlations between CDI scores across the five testing periods. Levels of depression were quite stable over periods of 3 months, 6 months, 10 months, and 12 months. Table 2 presents the correlations between the children's composite explanatory style scores (for good events and bad events, i.e., CPCN) across the five testing periods. These stability correlations for explanatory style were statistically significant, but they were not as substantial as the stability correlations for depression (see Table 1).

Synchronous correlations. Explanatory style scores were significantly correlated with concurrent depression scores at each testing period (Table 3). The more often children chose internal, stable, and global explanations for bad events and external, unstable, and specific explanations for good events, the more likely they were to have a high score on the CDI. Within the second, third, fourth, and fifth testing periods, explanatory styles for both good events (CP) and bad events (CN) significantly correlated with CDI scores, although CN was always more highly correlated with CDI than was CP (only CN was significantly correlated with CDI scores in the first administration). Studies using adults have typically found CN almost as highly correlated with depression scores as CPCN (Seligman, Abramson, Semmel, & von Baeyer, 1979). In all but the first administration of this study, however, CPCN was more highly correlated with CDI than either CP or CN alone. This may simply be the result of the higher reliability of the CPCN scale. However, the higher correlation between CPCN and CDI may also reflect the importance of good events or of an optimistic bias in children in the prevention of depression (Alloy and Abramson, 1979).

Table 1
Summary Statistics for the Children's Depression Inventory (CDI)

Administration	n	M	Range	SD	% with score of 16 or more	r^a with CDI 1
CDI 1	164	8.39	0–46	6.79	12.5	
CDI 2	153	8.08	0–36	7.77	18.3	.71
CDI 3	158	8.75	0–41	9.31	23.3	.66
CDI 4	150	7.57	0–47	9.27	19.0	.46
CDI 5	139	4.98	0–48	7.48	10.4	.51

Note. CDI 1 was administered in January 1983; CDI 2 in March 1983; CDI 3 in June 1983; CDI 4 in October 1983; and CDI 5 in January 1984.
[a] All *rs* significant at *p* < .001.

Table 2
Stability Correlations for the Children's Attributional Style Questionnaire (CASQ)

Administration	CPCN 1	CPCN 2	CPCN 3	CPCN 4
CPCN 2	.43			
CPCN 3	.44	.61		
CPCN 4	.44	.42	.50	
CPCN 5	.35	.57	.53	.52

Note. CPCN = Composite positive minus composite negative score. CPCN 1, 2, 3, 4, and 5 = CASQ scores at administrations 1, 2, 3, 4, and 5, respectively. All *ps* < .001.

It is possible, however, that only one or two of the six individual dimensions of explanatory style (i.e., the internality, stability, and globality scales for good and bad events) actually account for the correlation between explanatory style and depression. We examined all 30 correlations between the individual explanatory style dimensions and concurrent depression across the five testing sessions and the 24 correlations between the individual dimension scores at one testing session and depression scores at the next testing session. Of the total 54 correlations, 43 were statistically significant in the predicted direction (i.e., the individual dimension was significantly correlated with concurrent or future depression as predicted by the theory). The correlations between the explanatory style dimensions for negative events and depression were usually higher than the correlations between the explanatory style dimensions for positive events and depression, as in the analyses of the composite explanatory style scale reported above. These data indicate no tendencies for just one or two dimensions to account for the relation between explanatory style and depression.

Semantic overlap of the CDI and CASQ. We were concerned that the significant correlations between scores from the CASQ and the CDI in Table 3 might be due to semantic similarities between certain items on the CASQ and items on the CDI. The CASQ includes a number of items that present the child with the choice between an explanation for the given event that is a negative self-statement and an explanation that is not. Similarly, the CDI includes items that ask children to rate how positively they feel about themselves. To test whether similarities between the two questionnaires could account for the correlations between them, we removed these items from the two questionnaires for the data from the final testing period. We then examined the correlations both between these two shortened measures and between the original CASQ and CDI and their revised versions.[1]

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[1] The items removed from the CDI were numbers 2 ("Nothing will work out for me"), 3 ("I do everything wrong"), 5 ("I am bad"), 7 ("I hate myself"), 8 ("All bad things are my fault"), 24 ("I'll never be as good as other kids"), and 25 ("Nobody loves me"). The remaining CDI items referred to somatic complaints (i.e., "I am tired all the time"), anhedonia (i.e., "Nothing is fun"), and misbehavior (i.e., "I get into fights all the time"). The CASQ items that were removed all presented the child with a choice between a statement that was self-derogatory and one that was not (i.e., "I am stupid" vs. "Teachers make hard tests") These items included numbers 6, 7, 10, 11, 26, 29, and 38.

The correlation between the CDI with its self-esteem items removed and CPCN scores from the original CASQ ($r = .46$) was identical to the correlation between the original CDI and CASQ. Similarly, removing the negative self-statements from the CASQ altered its correlation with the CDI only slightly (the r changes from $-.46$ to $-.41$). Finally, the correlation between the two revised measures ($r = -.44$) is almost identical to the correlation between the original CDI and CASQ ($r = -.46$). Thus, there is no evidence from these analyses that semantic redundancy in the CDI and the CASQ accounts for the relationships between the two measures seen in this study.[2]

Life events. The number of life events reported by the children also significantly correlated with CDI scores at each testing period (Table 3). Note that the children were asked to indicate which of the events on the LEQ had happened since the previous administration of the questionnaire. Thus, the significant correlations shown in Table 3 indicate that the number of events prior to an administration was related to the level of depression reported at the administration.

Some items on the LEQ are quite subjective in nature (e.g., "Your friends have been less friendly lately"). We were concerned that depression might bias children's perception of such events (cf. Beck, Rush, Shaw, & Emery, 1979) and, thus, increase their endorsement of such items. As a result, we removed the most subjective items from the LEQ and correlated this revised measure with the CDI. The correlations between this revised LEQ and the CDI were almost identical to those between the original LEQ and CDI scores.

Longitudinal analyses: Explanatory style, life events, and depressive symptoms. Table 4 presents correlations between composite explanatory style scores and the CDI scores obtained at the next administration. Across all testing periods, children who made more internal, stable, and global explanations for bad events and external, unstable, and specific explanations for good events developed or maintained a higher level of depression than did children without this maladaptive explanatory style. The correlations between earlier depression and later explanatory style were also significant, indicating that depression predicts later explanatory style as well. Indeed, the correlations between earlier depression and later explanatory style are often larger than the correlations between earlier explanatory style and later depression. We performed regression analyses in which we looked at the ability of explanatory style to predict changes in depression over time, after first controlling for the

Table 3

Correlations Between Depression Scores and Concurrent Explanatory Style Scores and Concurrent Life Events (LE) Scores

Test	*r* with concurrent CPCN score	*r* with concurrent LE score
CDI 1	−.34	.26
CDI 2	−.48	.29
CDI 3	−.32	.29
CDI 4	−.29	.32
CDI 5	−.46	.40

Note. CDI = Children's Depression Inventory. CPCN = Composite positive minus composite negative score. All $ps < .001$.

Table 4

Correlations Between the Composite Attributional Style Questionnaire (CASQ) Scores and Children's Depression Inventory (CDI) Scores Across Administrations

Administration	CDI 1	CDI 2	CDI 3	CDI 4	CDI 5
CPCN 1		−.33	−.26	−.23	−.31
CPCN 2	−.45		−.38	−.28	−.39
CPCN 3	−.42	−.50		−.30	−.36
CPCN 4	−.41	−.45	−.40		−.36
CPCN 5	−.35	−.47	−.46	−.32	

Note. CPCN = Composite positive minus composite negative score. All $ps < .001$.

influences of prior depression on later explanatory style and depression. The results of these analyses are presented below.

1. CASQ scores at time n predict CDI scores at time $n + 1$ with CDI at time n partialed out. The most straightforward test of the role of explanatory style in the development of later depression is to look at the partial correlation between CPCN scores from the CASQ at time n and CDI scores at time $n + 1$, with CDI at time n partialed out. We performed this test four times using the data from this study. The partial correlations between CASQ at time n and CDI at time $n + 1$ for the four successive pairs of administrations were .33 ($p = .03$), .37 ($p = .04$), .29 ($p = .009$), and .36 ($p = .002$). These data indicate that explanatory style is a significant predictor of changes in level of depression over time.

Depression also predicted changes in explanatory style. The partial correlations between CDI scores at time n and CPCN scores at time $n + 1$ with CPCN scores at time n held constant were .41 ($p < .0001$), .50 ($p < .0001$), .49 ($p < .0001$), and .52 ($p < .0001$), across the four pairs of adjacent administrations, respectively.

2. CASQ scores at time n predicted CDI scores at time $n + 1$ with CDI scores at time n and at time $n - 1$ partialed out. Because depression seems to predict subsequent explanatory style, CASQ scores might predict later CDI scores only because earlier depression causes explanatory style. We analyzed for this possibility by looking at whether CPCN scores from the CASQ at time n were predictive of CDI scores at time $n + 1$ with CDI scores from both time n and time $n - 1$ partialed out. In this way, we held constant, statistically, the effects of prior and current depression on explanatory style, then examined the power of explanatory style to predict later depression.

Specifically, we first took each subject's average CDI score for the third, fourth, and fifth administrations. We then looked at the partial correlation between these average CDI scores and the CPCN scores from the second administration, after we first partialed out CDI scores from the first and second administrations (i.e., the regression equation was *average of CDI scores at times 3, 4, and 5 = CDI at time 1 + CDI at time 2 + CPCN at*

[2] Of course, this analysis addresses only the superficial similarities between items on the CASQ and the CDI. It does not address the possibility that a bad explanatory style may be simply a symptom of depression. This possibility is addressed by analyses reported later in this article.

time 2). The resulting partial correlation between earlier CPCN scores and later CDI scores was .37 ($p < .05$). The power of explanatory style to predict subsequent depression is not due simply to the effects of prior or current depression on explanatory style.

We also asked whether explanatory style and life events interact to predict depression better than either explanatory style or life events alone. For each pair of adjacent testing periods, multiple regression analyses were run in which CDI scores at the later administration were the dependent variables, and previous levels of depression, explanatory style, and life events were the independent variables. So, for example, the regression equation for the first pair of testing periods was $CDI2 = CDI1 + CPCN1 + LE2 + CPCN1 \times LE2$. In two out of four analyses (those for administrations 2 and 3, and administrations 4 and 5), the interaction between explanatory style and life events significantly predicted future levels of depression, after the terms for initial depression, explanatory style, and life events were first partialed out (p levels for the partial Fs for the interaction terms were .06 and .001, respectively). In the other two analyses, the interaction term was not significant, but explanatory style significantly predicted depression (both ps < .01). These analyses provide some support for the diathesis-stress premise of the reformulated model, and they indicate that a maladaptive explanatory style and bad life events interact to make children vulnerable to depression.

Explanatory style, achievement, and behavioral ratings. The children's scores on the California Achievement Test battery and their CPCN scores taken 1 month prior to the achievement tests were correlated at $r = .26$ ($p < .05$). Similarly, explanatory style (CPCN) significantly correlated with concurrent teacher ratings of helpless behaviors ($r = -.51, p < .0002$) and mastery behaviors ($r = .56, p < .0002$). And the children's explanatory styles for negative events (CN), taken 3 months before the teacher ratings, significantly predicted their ratings of helpless behaviors ($r = .50, p < .0001$) and mastery behaviors ($r = -.56, p < .0001$). These results indicate that explanatory style not only predicts self-reports of helplessness, but it also predicts teachers' observational indications of helplessness.

Helpless behaviors in the classroom, poorer school achievement, and depressive symptoms were significantly correlated with one another. The children's California Achievement Test scores correlated with classroom helpless behaviors at $r = .64$ ($p < .0001$) and with classroom mastery behaviors at $r = .53$ ($p < .0001$). Current levels of depression correlated with helpless behaviors in the classroom at $r = .27$ ($p < .05$) and with California Achievement Test scores at $r = -.20$ ($p < .05$).

Discussion

The central hypothesis for this study was that children with the maladaptive explanatory style described by the reformulated helplessness theory would show more depression and achievement problems than children without this style. This hypothesis was supported by several analyses. Children who tended to explain bad events by internal, stable, and global causes and good events by external, unstable, and specific causes reported more depression and showed more achievement-related problems. On the other hand, children who were

not depressed and who were not having achievement problems tended to explain bad events by external, unstable, and specific causes and good events by internal, stable, and global causes.

The maladaptive explanatory style not only correlated with concurrent depression but also predicted later depression. Children with the maladaptive explanatory style at time *n* had higher levels of depression at time *n* + 1 than did children with the optimistic explanatory style. However, we also found that depression at time *n* predicted explanatory style at time *n* + 1. Thus, it is possible that explanatory style is simply a symptom of depression and that the stability of depression in the children is what accounts for the power of explanatory style to predict future depression. We performed a set of analyses to test more directly the causal role of explanatory style in the development of depression. These analyses showed that (a) explanatory style at time *n* predicted later depression scores, with depression at time *n* partialed out, and (b) explanatory style at time *n* predicted later depression with both depression at time *n* and depression at time *n* − 1 partialed out.

These analyses indicate that the power of the maladaptive explanatory style to predict future depression was not due to explanatory style being a symptom of depression or to the influence of earlier depression on explanatory style. This is also supported by the fact that children who showed the maladaptive explanatory style in the absence of current depression were more prone to show depression at later testing periods. It is important to understand that the reformulated helplessness theory does not argue that a maladaptive explanatory style is the only cause of depression but, simply, that it is one possible cause; the data from this study support this possibility.

The correlations between current depression and future explanatory style suggest that depression may, for some individuals at least, play a role in the formation of explanatory style. It is possible, for example, that a child who has experienced a serious, uncontrollable event that affects many areas of his life for a comparatively long time, such as the death of a parent, might feel helpless and show the motivational, cognitive, and emotional deficits of depression. These deficits could then lead to additional negative events, such as failure in school, and the child could begin to believe both that negative events are likely to happen in many areas in the future and that the negative events are his fault, thus exhibiting an emerging maladaptive explanatory style. Under these circumstances, remission of depressive symptoms would not necessarily be accompanied by any change in explanatory style, and the continuing maladaptive style would leave the child vulnerable to depression in the face of future negative events. Although there are probably several different circumstances that lead to a maladaptive explanatory style, the data from this study suggest that episodes of depression can be a contributory factor.

Because the reformulated theory is a diathesis-stress model, the data on the interaction of bad life events and maladaptive explanatory style assume particular importance. Bad life events interacted with the maladaptive explanatory style to predict depression in some of our analyses but not in others. Future studies should include independent verification of life events by either parents or teachers. In addition, it would be useful in future studies to include a broader and more detailed list of the kinds of bad events that can occur in the life of a child.

Although the central hypothesis that maladaptive explanatory style is an independent risk factor for future depression was supported in this study, the details of the model will only be adequately tested if future studies can follow depression and explanatory style in children for a much more extended period of time. In such studies, the relation between explanatory style and clear episodes of depression in children could be examined, and the influence of each variable on the other could be clarified.

The present study used questionnaires to measure depression. It may be argued that high levels of self-reported depressive symptoms do not necessarily correspond to a depressive disorder. Clearly, another important addition to future studies would be clinical interviews for depression. Such studies could then test the model as it applies to clinically depressed children. Even so, children's reports of severe personal distress on the CDI should be taken seriously, because the results from this study and others (Kaslow et al., 1984) indicate that self-reported depression is related to impairment in cognitive functioning.

The results of this study support the reformulated helplessness theory's assertion that explanatory style will be an important target for therapy and prevention with children who show symptoms of depression or problems in school achievement. Dweck (1975) and others (Andrews & Debus, 1978; Chapin & Dyck, 1976; Fowler & Peterson, 1981) have already shown that children who are given attribution retraining show decreases in helplessness deficits in cognitive tasks and that the effects of retraining persist for at least several months. Future studies might test the therapeutic role of retraining explanatory style in children who show symptoms of depression. Depressed children could be taught to question their initial maladaptive explanations for events and to consider more external, unstable, and specific explanations for bad events and more internal, stable, and global explanations for good events. Such training clearly should be conducted with an understanding of the actual life circumstances and abilities of the child, so that the child learns to make explanations that are both optimistic and reasonable. The results of this study lead us to predict that such training would result in the relief of present depressive symptoms and a lower likelihood of future depressive symptoms.

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