MOTHERS' EXPECTATIONS, INTERACTIONS, AND ACHIEVEMENT ATTRIBUTIONS FOR THEIR LEARNING DISABLED OR NORMALLY ACHIEVING SONS

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Mothers of learning disabled (LD) and normally achieving (NA) pupils administered an academic task to their children in their homes. Mothers' expectations, observed interactions, and attributions for their youngsters' performance were assessed. Mothers of LD pupils held lower expectations for their sons' performance and provided more negative nonverbal respon-

ses. Differences were noted in the relationship of LD and NA pupils' performance to their mothers' expectations and interactions. Mothers of LD pupils also were more likely than mothers of NA pupils to attribute their sons' failure to lack of ability. Results are discussed in the context of an interactionist perspective on parenting.

The motivational consequences of repeated failure in learning disabled (LD) children recently have received considerable attention (Licht & Kistner, 1986). These investigations have focused primarily on antecedents and consequences of LD pupils' achievement attributions. Particular attention has been given to the effects of teachers' cognitions and instructional behavior on pupils' attributions and subsequent performance. Although parent expectations and parent-child interactions have been related to achievement behavior in children (Rosen & D'Andrade, 1959; Touliatos & Lindholm, 1974), few studies have addressed the relationship among parent perceptions, parent-child interactions, and achievement in LD pupils.

Parents' expectations and attributions for their child's behavior have been identified as important mediators of parent-child interaction and subsequent child behavior (Bugental & Shennum, 1984). Within an achievement context, youngsters' history of performance may be an important antecedent of these parental cognitions. For example, parents of children with a history of academic problems, that is, LD pupils, have lower expectations and different attributions than parents of children who are doing well academically (Lavelle, 1978; Pearl & Bryan, 1982; Touliatos & Lindholm, 1974). Lavelle reported that mothers of LD pupils were more likely to attribute their youngsters' successes to effort and their failures to lack of effort when compared to mothers of nonhandicapped children. This attributional pattern has been associated with greater punishments for failure (Weiner & Frieze, 1971). Using self-report procedures, Chap-

man and Boersma (1979) compared mothers of LD and normally achieving males in terms of their expectations for their children and their positive and negative reactions to their children. They found that mothers of LD children held lower expectations and reported more negative and fewer positive reactions.

In a variety of observational studies, specific parent behaviors have been found to be associated with achievement-related behaviors in their children. In the case of achievement motivation, maternal intervention patterns have been found to differ with children having high and low needs for achievement (Rosen & D'Andrade, 1959). Mothers of children high in need for achievement appear to be more involved in achievement training and to increase their intervention when tasks are school related. Other studies have focused on child variables, such as distractibility and hyperactivity, and then looked at parent behavior in response to specific child behavior (Bee, 1967; Campbell, 1973). In a study with impulsive, reflective, and hyperactive children, Campbell (1973) found that the mothers of impulsive children provided less intervention than mothers of identified hyperactive children. Campbell demonstrated that mothers of impulsive children intervene less because their children are meeting their expectations. She further suggested that maternal expectations and intervention patterns might have been mediated by mothers' perceptions of the child and the task involved.

Although investigators have examined the expectancies, attributions, and reported interactions of parents of LD children, previous studies have not considered these variables together. Therefore, it has not been possible to assess the relationship among these factors. Many of the previously noted studies relied on mothers' verbal reports based on hypothetical achievement situations (e.g., Lavelle, 1978; Pearl & Bryan, 1982; Touliatos & Lindholm, 1974). In addition, reflecting on information processing literature, Ericsson and Simon (1980) suggest that data derived from these procedures may be of questionable utility.

In the present study, mothers of LD and normally achieving (NA) males were asked to administer an academic task to their children in their homes. In the following order, data were collected on maternal ratings of achievement expectations for their children, observations of mother-child interactions, the academic performance of the children, and maternal attributions for the youngsters' success or failure. Specifically, this study examined: (a) mothers' expectations for and behaviors with their LD or NA sons; (b) the relationship between mothers' expectations and interactions and their LD or NA sons' performance on an achievement task; and (c) the effect of the child's achievement history and experimenter feedback on mothers' attributions for their child's performance.

METHOD

Subjects

Fifteen Caucasian LD males, 16 Caucasian normally achieving (NA) males, and their mothers constituted the sample. Due to school district policies, we were unable to review district files to select the sample. Instead, we were asked to specify desired pupil characteristics and with this information district personnel

constructed a list of potential subjects. They wrote letters to parents of these children asking if they would be willing to participate in the study. The names and phone numbers of parents who agreed to participate were given to the experimenters. Ultimately, the sample was drawn from three suburban elementary schools with middle-class populations, as defined by school personnel.

On average, mothers of LD pupils had 11.7 years of formal schooling, SD = 1.7 years, while mothers of NA pupils had 12.8 years of schooling, SD = 1.5 years. Children in the sample were in grades 2 through 4. Seven LD pupils were in grade 2, three in grade 3, and five in grade 4. Five NA pupils were in grade 2, four in grade 3, and seven in grade 4. The ages of the LD pupils ranged from 100 to 139 months with a mean of 118.7, SD = 11.7. The ages of the NA pupils ranged from 96 to 127 months with a mean of 110.7, SD = 9.8. All of the LD pupils met State Education Agency eligibility criteria for identification of a learning disability and were receiving special education services in resource rooms for a part of each school day. State eligibility criteria require a severe discrepancy between intellectual ability and academic achievement. A severe discrepancy is defined as educational achievement that is more than one standard deviation below the student's intellectual ability. This discrepancy could not be primarily the result of a visual, hearing, or orthopedic handicap; mental retardartion; emotional disturbance; or environmental, cultural, or economic disadvantage (Texas Education Agency, 1978). Since the experimenters were not permitted to gather IQ data from pupils' files, school personnel were asked to include only LD pupils with intelligence test scores from 85 to 115 who were not taking medication for behavior control. NA males were identified (a) by classroom teachers as performing academically on grade level and (b) by on grade level math achievement test scores from the Comprehensive Test of Basic Skills (1974). Performance on the math achievement test was lower for LD pupils (M = 3.2, SD = .7) when compared to NA pupils (M = 4.2, SD = .9), t(29) = 3.73, p < .001.

Experimental Task

Each mother administered to her son the Numeration and Addition subtests of the Key Math Diagnostic Arithmetic Test (Connolly, Nachtman, & Prichett, 1971). The Key Math Test was chosen because of its attractive format and its ease of administration. The difficulty level of the math items on this instrument range from below kindergarten level to above the eighth grade level. Thus, children in the study were able to solve some problems with ease while other problems were above their math achievement level. The number of items answered correctly by the children was recorded.

Dependent Measures

Observational Measures. Eight behavioral categories were observed. Coding procedures followed the Bales Interaction Analysis format with the modification for continuous rather than intermittent coding (Bales, 1950). Data were gathered on the frequency of six verbal and two nonverbal behaviors. In addition, total duration of the mother-child interaction was collected. The six verbal behavioral

categories included: (a) positive evaluation of child's performance; (b) negative evaluation of child's performance; (c) encourages child to stop trying; (d) positive encouragement to keep trying—indicating a job done well but not completed; (e) negative encouragement to keep trying—indicating a job poorly done and not completed; and (f) mother gives child direction on how to solve a problem. Nonverbal observational categories were: (a) mother gives nonverbal negative reeponse, defined as a frown, touching to stop child's movement, or moving away; and (b) mother gives nonverbal positive response, defined as a smile, touching to show affection, or moving closer. Nonverbal measures were coded during the actual interaction while verbal measures were coded independently by both observers from audiotape recordings. Selection of these behavioral categories was guided by previous work in the areas of achievement motivation and mother-child interactions (e.g., Campbell, 1973; Rosen & D'Andrade, 1959).

Observers were trained by one author in a series of five sessions over a period of 2 months for a total of 12 hours. The first session included a description of the study and of the observational measures being used. Observers were given definitions of the nine measures and a flow chart with yes or no decision points to assist in coding. During the second and third sessions, observational procedures were piloted. A fourth session was used to review pilot audiotapes and to reach agreement where observers had rating disagreements using the decision flow chart. A fifth session followed the first rating of an audiotape from the study sample by the observers. The tape was reviewed to reach consensus on rating disagreements.

An interobserver reliability check of verbal ratings was performed at the end of the training sessions. Observer reliability coefficients were calculated by comparing an observer's ratings with an experimenter's ratings. The formula used to calculate observer agreement coefficients was total frequency of agreement divided by agreements plus disagreements. After training, interobserver reliability for coding of verbal responses was .91.

To monitor observer drift during the course of the experiment, periodic reliability checks were conducted. During every fifth experimental session, an experimenter also coded mothers' nonverbal responses while the observer was coding nonverbal responses. Observer agreement coefficients for nonverbal ratings were .92, .92, .90, .91, .91, and .90. Reliability checks for verbal coding also were calculated each time five tapes had been independently coded by observers. Coefficients for these reliability checks were .76, .84, .87, .83, .83, and .82. The training, rating, and reliability procedures used here are similar to those used by Rosen and D'Andrade (1959), Campbell (1973), and Cunningham and Barkley (1979).

Expectancy Measure. After each mother saw the experimental task and heard directions as to how it was to be presented, she was asked to rate how confident she was that her child would perform like other children his age. Specifically, mothers were asked to indicate their confidence on an 11-point Likert-type scale with zero indicating no confidence and 10 indicating very confident. This type of expectancy measure has been used previously by McMahan (1973) and Lavelle (1978).

Attributions. Following the presentation of the experimental tasks the child was asked to help the observer carry experimental equipment to her car. While the child was out of the room, an experimenter gave the mother bogus feedback as to whether or not her child had performed as well as would be expected for a child his age. Success or failure feedback was randomly assigned. After feedback, mothers were asked to indicate on a Likert-type 6-point interval scale the importance of each of the following four causal inferences in determining her child's performance: child's ability, child's effort, chance, and task characteristics. Possible ratings ranged from Not Important At All (a score of 1) to Very Important (a score of 6). These attributions have been extensively studied in the achievement evaluating literature and have been associated with a variety of achievement related behaviors (Weiner, 1985).

Procedure

An experimenter contacted the mothers and appointments were made for home visitations during weekends or after school hours. An experimenter and one of two trained observers were present for each appointment; each observer was present at approximately half of the home visits. An experimenter described the task and administered the expectancy measure to the mother while the observer talked with the son in a separate room. Specifically, the mother was told that the purpose of the study was to gather information about how mothers work with their children at home on school-type tasks and that the session would be tape recorded. She was told that there was no right or wrong way to work with a child and that she could give as much help as she thought appropriate, without giving the specific answer. The task format was presented and any questions the mother had about the procedure were answered. The mother was then asked to rate her expectancy for her son's success. Following the expectancy rating, the tape recorder was turned on, and the observer and child were asked to come into the room.

While an experimenter explained the procedure to the mother, an observer told the child what he was going to do and answered any questions the child had. After the child returned to the room, the experimenter made a few comments aimed at putting the mother and son at ease and again answered any questions. An experimenter and the observer seated themselves away from the mother and son and apart from each other. Following completion of the task, when the child and observer had left the room, an experimenter gave bogus feedback on the child's performance and collected the mother's attributional ratings.

Following completion of the attribution scale, an experimenter debriefed the mother concerning the feedback that she had received. During a debriefing, each mother was told that her son's actual performance had not been considered when the feedback was given and that feedback had been randomly assigned. It also was explained that the feedback enabled the experimenters to study mothers' reasons for their children's performance on academic tasks. She was assured that her son had done well, and any questions she had were answered. Special care was taken to insure that each mother understood that feedback was

bogus and that she then received positive information about her son's effort and performance.

RESULTS

Linear regression and correlational procedures were used to examine the effect of achievement history (LD or NA) on mothers' expectations and behaviors. Linear regression procedures also were used to examine the effect of achievement history and the success versus failure feedback on mothers' attributions for their sons' performance. A significant difference in age was found to exist between the LD and NA groups, F(1,29) = 4.32; p < .05. To remove the effect of this potentially confounding variable, age was used as a covariate in all regression analyses. However, age accounted for unique variance in only one variable, mothers' encouragement of nonpersistence, F(1,28) = 7.74; p < .01. Since the amount of time that mothers interacted with their sons also could affect the frequency of the observed behaviors, group differences in duration of the motherson interaction were investigated and found to be nonsignificant, F(1,28) = 0.72, ns.

Mothers' Expectations and Behaviors

Using age as a covariate, achievement history was regressed on mothers' expectations for their sons' performance and mothers' behaviors during the experimental task. Mothers of LD pupils had lower expectations for their sons' performance (M = 7.9; SD = 1.9) than did mothers of NA pupils (M = 9.4; SD = 1.0), F(1,28) = 4.52, p < .05.

Mothers of LD pupils exhibited greater negative nonverbal behavior (M = 6.6; SD = 5.4) than did mothers of NA pupils (M = 4.4; SD = 2.5), F(1,28) = 4.34; p < .05. Table 1 lists achievement history (LD and NA) effects for all variables. Table 2 lists means and standard deviations for each of the variables.

Relationship Between Performance and Mothers' Expectations and Behaviors

There was a significant difference in performance between the LD and NA groups, F(1,28) = 10.92; p < .01. The NA group performed better on the experimental task (M = 31.5; SD = 2.6) than the LD group (M = 27.7; SD = 3.7).

Correlations were used to examine the relationship between sons' performance on the experimental task and mothers' expectations and behaviors. Table 3 shows these correlations for the LD and NA groups. The performance of the LD sons was negatively correlated with mothers' expectations and positively correlated with mothers' negative evaluation behavior. Within the NA group, the frequency of mothers' teaching interruptions was negatively correlated with their sons' performance.

In examining Table 3, it will be noted that many of the correlations in the LD and NA groups are opposite in direction. To determine if the correlations differ significantly between the two groups, a test for difference between independent correlations was undertaken. The procedure for this analysis involves the transformation of the correlations into Fisher's Z scores and is presented in

| Dependent variable | Type III SS | Total SS | F | |
|--------------------------|----------------|-------------|---------|--|
| Mothers' expectations | 10.26 | 85.10 | 4.52* | |
| Mothers' behaviors: | | | | |
| Positive nonverbal | 272.58 | 3028.39 | 3.04 | |
| Negative nonverbal | 68.13 | 529.74 | 4.34* | |
| Positive evaluation | 24400.63 | 392937.10 | 1.92 | |
| Negative evaluation | 1435.41 | 186896.77 | 0.22 | |
| Positive encouragement | 927.23 | 16587.10 | 1.85 | |
| Negative encouragement | 3206.80 | 48846.77 | 1.97 | |
| Encourage nonpersistence | 52.03 | 9243.55 | .20 | |
| Teaching interruptions | 77.90 | 82446.77 | 0.03 | |
| Pupil performance | 114.73 | 410.77 | 10.92** | |

TABLE 1
EFFECT OF PUPIL ACHIEVEMENT HISTORY ON MOTHERS' EXPECTATIONS, MOTHERS'
BEHAVIOR, AND PUPIL PERFORMANCE^a

Bruning and Kintz (1968). Scores from this analysis may be found in Table 3. There was a significant difference between the correlations for the two groups for mothers' expectations, mothers' positive encouragement behavior, and mothers' teaching interruptions at Alpha <.05.

Mothers' Attributions

With age as a covariate, a two achievement history by two (feedback) design was used to examine the effect of achievement history and bogus performance feedback on mothers' attributions for their sons' performance. Feedback influenced mothers' effort attributions. Mothers who received success feedback rated their sons' effort as more important (M = 4.9; SD = 1.3) than did mothers who received failure feedback (M = 2.9; SD = 1.5), F(1,26) = 15.1; p < .01.

There was a significant achievement history by feedback interaction for mothers' attributions of their sons' ability, F(1,26) = 7.27; p < .02. Using a test of simple main effects, it was found that mothers of the LD group were more likely to perceive the cause of the failure to be lack of ability, F(1,27) = 4.42; p < .05. Attribution ratings for mothers of LD and NA pupils may be found in Table 4.

DISCUSSION

Consistent with the findings of related investigations (Pearl, Donahue, & Bryan, 1986), mothers of LD pupils perceive and interact with their sons in a more negative manner than do mothers of nondisabled younsters. Mothers' lower expectation and negative affective responses have been interpreted as dis-

^{*}p < .05.

^{**}p < .01.

^aDue to differences in age between the LD and NA groups, findings are reported with variance for age removed.

| TABLE 2 |
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| MOTHERS' EXPECTATIONS, MOTHERS' BEHAVIORS, AND PUPIL PERFORMANCE FOR |
| THEIR LD AND NA SONS |

| | L | D | NA | |
|--|------|------|------|------|
| Dependent variable | М | SD | М | SD |
| Mothers' expectations Mothers' behaviors: | 7.9 | 1.9 | 9.4 | 1.0 |
| Positive nonverbal | 9.8 | 7.0 | 17.4 | 11.3 |
| Negative nonverbal | 6.6 | 5.4 | 4.4 | 2.4 |
| Positive evaluation | 17.6 | 11.7 | 24.3 | 10.6 |
| Negative evaluation | 14.7 | 9.0 | 14.3 | 7.0 |
| Positive encouragement | 2.4 | 1.9 | 3.8 | 2.8 |
| Negative encouragement Encouragement of | 7.9 | 4.9 | 6.1 | 2.9 |
| nonpersistence | 2.6 | 2.1 | 2.9 | 1.4 |
| Direct teaching interruptions | 7.2 | 6.0 | 9.3 | 4.2 |
| Pupil performance | 27.7 | 2.6 | 31.5 | 3.7 |

appointment and "giving up" on their LD children (Chapman & Boersma, 1979). However, this response pattern also may facilitate the performance of their sons. In this study, mothers' lower expectations for their LD sons were associated with their sons' higher perfomance on the achievement task. Since high expectations may result in their children experiencing more pressure, greater anxiety and, as a result, performance decrements (e.g., Bower, 1981; Sarason & Stoops, 1978), mothers' lowered expectations may reflect sensitivity to their LD youngsters' needs.

The relationship between mothers' behavior and their sons' performance also differs for mothers of LD and NA pupils. Specifically, the relationship between

TABLE 3
CORRELATIONS BETWEEN SONS' PERFORMANCE ON THE EXPERIMENTAL TASK AND
MOTHERS' EXPECTATIONS AND BEHAVIORS

| | Performance | | Test for Differences | |
|--------------------------|-------------|-------|-------------------------|--|
| | LD | NA NA | in r (z scores) | |
| Mothers' expectations | 52* | .48 | 2.75** | |
| Mothers' behaviors: | | | | |
| Positive nonverbal | .44 | 28 | 1.90 | |
| Negative nonverbal | .20 | 33 | 1.35 | |
| Positive evaluation | .27 | 30 | 1.48 | |
| Negative evaluation | .55* | 01 | 1.58 | |
| Positive encouragement | .36 | 44 | 2.13* | |
| Negative encouragement | .27 | .00 | .70 | |
| Encourage nonpersistence | 25 | 35 | .28 | |
| Teaching interruptions | .13 | 60** | 2.05* | |

^{*}p < .05; **p < .01; LD (N = 15); NA (N = 16).

| Feedback condition | | | Mothers' Attributions | | | | | | |
|-----------------------|-------|------------------|-----------------------|-----------------|------|------|------|-------------------------|------|
| | | Pupil ability | | Pupil effort | | Luck | | Task characteristics | |
| | Pupil | М | SD | M | SD | М | SD | М | SD |
| Success | LD | 4.63 | 1.30 | 5.25 | .89 | 1.25 | .71 | 4.13 | 1.46 |
| | NA | 5.50 | .93 | 4.63 | 1.69 | 1.00 | .00 | 3.88 | 1.55 |
| Failure | LD | 2.86 | 2.12 | 3.29 | 1.89 | 1.43 | 1.13 | 3.86 | 1.86 |
| · anaro | NA | 1.38 | 1.06 | 2.50 | 1.07 | 1.50 | 1.07 | 4.63 | 1.41 |

TABLE 4
MOTHERS' ACHIEVEMENT ATTRIBUTIONS FOR THEIR LD OR NA SONS

their children's performance and the frequency of positive encouragement by mothers and number of teaching interruptions by mothers differs for the LD and NA groups.

Mothers' attributions concerning their sons' performance also were affected by their youngsters' achievement history. Performance feedback given to mothers was provided on a random basis and therefore not associated with actual performance of their sons. However, this feedback affected mothers' attributions concerning their LD sons' ability. When given success feedback, mothers of LD pupils perceived their sons' ability as important in determining a successful outcome. When given failure feedback, mothers of LD pupils perceived that their sons' lack of ability played an important role in determining failure. In contrast, mothers of NA pupils viewed their sons' ability as important in determining success, whereas lack of ability was unimportant in determining failure. These findings may reflect the confusion that parents of LD pupils experience concerning their children's ability and the effect of performance feedback from others on their perception of their children's competence. Further, ability attributions have been linked to expectations for future performance (Weiner, 1985) and may account for mothers' lowered expectations for their LD sons.

Although pupils' achievement history affected mothers' attributions concerning their sons' ability, it did not affect mothers' perceptions concerning how hard their children tried. Both LD and NA mothers perceived the children's success as due to the presence of effort while their children's failure was not due to lack of effort. This result contrasts with Lavelle's (1978) finding that mothers of LD pupils will more likely attribute children's failure to lack of effort than mothers of NA pupils. This difference may be explained, in part, by the fact that parents in Lavelle's study were responding to hypothetical information, while mothers in the present study were responding to what they actually observed about their children's performance and effort.

Parents and children are important influences on each other's interpersonal environment (Bell, 1968; Magnusson & Allen, 1983). Due to the reciprocal interactive nature of parent-child relationships, it may be unproductive merely to list differences between mothers of handicapped and nonhandicapped

youngsters. This approach tends to reflect a rather unidirectional approach wherein the parent socializes the child. Differences between mothers are frequently interpreted as possible causal factors in the development of their children's pathology (Thomas, Chess, & Birch, 1968). Rather than viewing differences in mothers' perceptions and interactions as deficits, their perceptions and interactional patterns may be unique and adaptive responses to the characteristics of their children.

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