Developmental Psychology
1979, Vol. 15, No. 3, 311–319

Perceived Control and Learned Helplessness Among Mentally Retarded and Nonretarded Children: A Developmental Analysis

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Learned helplessness is produced by successive failures and by feedback attributing failure to uncontrollable causes. Retarded children appear to encounter both causal factors frequently and may thus be susceptible to helplessness. To test this possibility, children of low, average, and high IQ at three mental age levels were administered a response-initiation measure, a puzzle-repetition measure of perseverance after failure, and a questionnaire designed to gauge attributions for failure. Teachers also rated the children on a helplessness scale. Helplessness, as measured by the two questionnaires, declined with MA. On the three helplessness measures derived from the children themselves, there was an IQ × MA interaction: The low-IQ group showed more helplessness relative to nonretarded children at the upper MA level than to nonretarded children at the two lower levels. The results, although qualified in some respects, are consistent with the view that helplessness can be learned over time by children who repeatedly fail to effect the outcomes that they desire and who learn to attribute failure to factors beyond their control.

Learned helplessness is the perception that one cannot control the outcomes that he or she experiences. This perception constitutes a general conceptual definition of learned helplessness; however, empirical research has linked helplessness to observable cognitive and behavioral effects, a number of which have come to be used by at least some investigators as operational definitions of the construct. These effects include (a) attributions of failure to stable, uncontrollable factors (Abramson, Seligman, & Teasdale, 1978; Diener & Dweck, 1978; Dweck & Goetz, in press); (b) deficits in voluntary-response initiation (e.g., Maier & Seligman, 1976; Miller, Seligman, & Kurlander, 1975); and (c) deficits in perseverance following failure (e.g., Dweck, 1975; Dweck & Bush, 1976). Studies using one or more of these operational definitions have identified two apparent causes of learned helplessness: successive failures to exercise control (Maier & Seligman, 1976; Seligman, 1975) and feedback suggesting that failures result from stable, uncontrollable factors, especially insufficient ability (Dweck & Goetz, in press).

To date, most research on causes of helplessness has focused on subjects' reactions to relatively short-term helplessness-induction procedures. (For an exception see Dweck, Davidson, Nelson, & Enna, 1978.) Yet, despite its short-term nature, such research may contribute substantially to our understanding of learned helplessness as a long-term developmental phenomenon. It may be that over the course of development, individuals come to differ from one another in their inclinations to manifest learned helplessness. If such individual

This study was supported by a grant-in-aid from Sigma Xi, the Scientific Research Society of North America and by the National Institute of Child Health and Human Development Grant HD03008.

The author is grateful to Thomas Achenbach, Irvin Child, Louis Heifetz, Fred Rothbaum, Jerome Singer, and Edward Zigler for their thoughtful contributions during various phases of the study. Special thanks are also due Hildy Feen, Alan Barman, and the administrators, teachers, and pupils of the participating school systems.

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differences in learned helplessness do emerge over years of development, they may be partly accounted for by the causal factors that the short-term experimental research has identified.

If this is true, there is one group that might be particularly susceptible to helplessness: mentally retarded children. There are two reasons to consider this group susceptible. First, their exposure to frequent failure has been documented by numerous investigators (e.g., Cromwell, 1963; Zigler, 1971). They experience what Zigler (1971) has described as "a lifetime characterized by frequent confrontations with tasks with which [they] are intellectually ill-equipped to deal" (p. 83). The retarded child's exposure to successive failures bears a marked conceptual resemblance to the successive failures used by numerous investigators (e.g., Diener & Dweck, 1978; Dweck & Bush, 1976; Dweck & Reppucci, 1973; Hiroto & Seligman, 1975) to induce helplessness experimentally.

A second reason to consider retarded children susceptible to helplessness is that their school feedback may be helplessness inducing. Dweck et al. (1978) have linked helplessness to patterns of teacher-to-child feedback in which a relatively high proportion of critical comments concern the intellectual quality of the child's work (as opposed to intellectually irrelevant factors such as messiness). Such a pattern apparently leads the child to interpret negative feedback generally as indicative of low ability—a stable, uncontrollable factor. Raber and Weisz (Note 1) recently studied teacher-to-child feedback during reading groups for retarded and nonretarded children who were at similar reading levels. The helplessness-inducing feedback pattern described previously was significantly more pronounced for retarded than for nonretarded children. In addition to feedback from the teacher, the unguarded comments of nonretarded children and the institutional feedback inherent in assignment to a "special class" or "resource room" may suggest to retarded children that their failures generally are attributable to deficient ability. In situations in which such attributions are inappropriate (e.g., in which failures could be reversed through increased effort), they constitute a debilitating manifestation of learned helplessness.

So, retarded children may be particularly susceptible to the development of learned helplessness if factors that foster experimentally induced helplessness have similar long-term effects over development. If so, the retarded child's helplessness would be, to use the Abramson et al. (1978) terminology, "personal" rather than "universal," and "chronic" rather than "acute." The present study was designed to explore the incidence of certain helpless behaviors in retarded and nonretarded children. To maximize the generality of the findings, the nonretarded sample included children of both average and high IQ. To permit inferences about change over a broad developmental spectrum, three levels of cognitive development (operationally, mental age, MA) were included. Thus, MA levels of 5½, 7½, and 9½ years were completely crossed with IQ levels of 70, 100, and 130.

In selecting helplessness measures for use within this design, a classical problem in developmental research had to be confronted—that is, how best to measure a single construct across dissimilar developmental levels. A strategy of converging operations offers distinct advantages (see Harter, 1978; Weisz, 1978). Consistent with this view, the present study included multiple measures, reflecting the three differing operational definitions of learned helplessness listed in the first paragraph.

Using these measures with the groups described earlier, one might expect consistently greater helplessness among the retarded than the nonretarded at each MA level. However, a more complex possibility, suggested by the literature on "cumulative deficit" (see Bartel, 1971; Bialer, 1961; Litt, 1963), is that the retarded child's potentially helplessness-inducing experiences have a cumulative impact that only becomes evident over a period of years. If this were the case, one might expect an interaction of IQ and MA, with low-IQ children showing no more learned helplessness than other IQ groups at lower MA levels but showing more marked learned helplessness at higher MA levels. Such a pattern might reflect cumulative effects of school failure and/or helplessness-inducing feedback on the behavior of retarded children. The present study, by means of its MA–IQ orthogonal design, provided a means of exploring the question of whether this or some simpler pattern (e.g., an across-the-board IQ main effect) would describe the relationship of development and IQ to learned helplessness.

The design also provided for a limited probe into effects of experimentally induced problem-solving difficulty. Learned helplessness measures were administered following a learning task. The procedure used for half of the subjects produced unexpectedly marked difficulties in comprehension and performance. Since such difficulties can be construed as failure to control outcomes, it is appropriate to ask whether they have an effect on measures of learned helplessness. Although not designed as a helplessness manipulation per se, the difficult learning task procedure met a criterion that numerous investigators of learned helplessness now regard as extremely important—that is, it involved a completely different task and experimenter than did the procedure for assessing learned helplessness (see Roth & Kubal, 1975; Tennen & Eller, 1977). In addition, the helplessness assessment was separated from the learning task by 3 weeks—evidently a longer interval than in previous experiments. Thus, reliable effects of learning difficulties on the helplessness measures would reflect a rather powerful generalization process.

Method

Subjects

The sample consisted of 148 predominantly white, urban nursery school and public school children. To select subjects, the Stanford-Binet short form was used. It was administered according to Zigler and Butterfield's (1968) "optimizing" procedure, which was designed to minimize anxiety and feelings of failure. Groups were selected at IQ levels of 70 (range: 49–83), 100 (range: 89–112), and 130 (range: 118–145) and MA levels of 5½ years (range: 55–79 months), 7½ years (range: 81–103 months), and 9½ years (range: 105–125 months). The chronological age range was 41–153 months at the 5½-year MA level, 64–192 months at the 7½-year MA level, and 79–233 months at the 9½-year MA level. School records were examined to exclude retarded children who were suffering from organic impairment. (For rationale, see Weisz, 1976.) Over the full sample, MA and IQ were orthogonal (for IQ × MA, $r = .08$).

In addition to IQ and MA, the experimental design included a third factor: condition. Stimuli in the learning task were administered under two conditions, that is, with stimuli stationary on a table or rotating on a turntable. Children at the different IQ and MA levels were assigned to experimental conditions randomly with the constraint that no subgroup difference in mean IQ within an IQ level or mean MA within an MA level be significant. Over the 18 cells of the IQ × MA × Condition (3 × 3 × 2) design, cell *N*s ranged from 7 to 9, with the number of boys and girls in a cell never differing by more than one.

Learned Helplessness Measures: Overview and Rationale

Perseverance following failure—the puzzle repetition task. In this task, the child completed one puzzle assembly task, was then stopped short of completion on a second task in an apparent failure, and finally was given a choice of persevering at the failure puzzle or repeating the success. Dweck and Bush (1976) have found that children who attribute their failures to uncontrollable factors (a defining characteristic of learned helplessness) are less likely to persevere at a failed task than children who attribute their failures to controllable factors (effort).

Response initiation—behavioral measure. Learned helplessness as defined by Seligman and his colleagues (e.g., Maier & Seligman, 1976; Seligman, 1975) involves deficits in initiating voluntary responses to terminate aversive circumstances or to otherwise control reinforcement. Miller et al. (1975) have measured such deficits by recording subjects' latencies in shutting off an alarm clock but have suggested that a less "culturally over-determined" task might be more effective. In line with this suggestion, Floor and Rosen (1975) used a remotely activated buzzer together with other response initiation tasks. Consistent with the operational definition used by Miller et al. and the extension of this definition used by Floor and Rosen, four simple tasks were summed to form a response-initiation measure in the present study. Three tasks involved control of aversive circumstances (one of these was the Floor-Rosen buzzer task); the fourth involved control of a positive outcome.

Response initiation—Teachers' Helplessness Questionnaire. Teachers also provided information on children's initiation of controlling responses. Dweck (1975) found that children who had been identified as helpless on a teachers' questionnaire showed several behaviors indicative of learned helplessness, including an inclination to repeat the success puzzle on the repetition task described earlier. Three items that Dweck (Note 2) found to be successful predictors were appropriate even for preschoolers. These were adapted and combined with 7 items that were designed for the present study, forming the Teachers' Helplessness Questionnaire. The 10 items presented pairs of balanced alternatives, pitting a helpless behavior against a confident or response initiating behavior. One example:

You introduce a *new* activity to the class. Although it looks difficult, in fact he is *able* to do it by himself. Is he likely to:

1	2	3	4	5	6	7
feel that he *cannot* do it, and be reluctant to try			(both are equally likely)			feel that he *can* do it, and be eager to try

Attributions for failure—the Perceived Influence Questionnaire. Children who attribute their failures to insufficient effort tend to persevere in the face of failure and difficulty, whereas children who attribute failure to stable, uncontrollable factors (e.g., ability) show helplessness (see Diener & Dweck, 1978; Dweck & Goetz, in press). Moreover, helpless children who are trained to make effort attributions for failure show marked improvement in their response to failure (Dweck, 1975). Although the Intellectual Achievement Responsibility Scale (Crandall, Katkovsky, & Crandall, 1965) has often been used to assess attributions for failure, the scale is too lengthy and some items are too complex for children at the lowest MA level sampled here. An alternative, the Stanford Preschool Internal-External Scale (Mischel et al., 1974), was inappropriate in some of its content (e.g., a crayon breaking) for the more mature subjects. To accommodate the broad age and MA range sampled here, pilot testing and independent judges' assessments were used to assemble the Perceived Influence Questionnaire, an amalgam containing 5 items that were derived from the Mischel et al. scale and 15 items that were derived from the Crandall et al. scale.[1] Whereas this new questionnaire is scored in several ways, evidence from Diener and Dweck (1978) suggests that a particularly refined index of learned helplessness is the number of low effort attributions for negative outcomes. The scale includes 5 items on which negative outcomes could be attributed to low effort (vs. external factors). These 5 items are herein designated the ***helplessness index***. A sample item is as follows: "When you forget something you heard in school, is it . . . because the teacher didn't explain it very well (external attribution), or . . . because you didn't try very hard to remember (internal, effort attribution)."

Learning Task

The learning task is described in Weisz (1977). The task involved 12 four-dimensional discrimination learning problems in which children sought to learn whether the right answer was one of two colors, one of two shapes, one of two sizes (larger or smaller), or one of two letters of the alphabet. Half of the children were administered the problems with stimulus cards that were stationary on a table. For the other half, stimulus cards rotated continuously on the table at 33⅓ revolutions per minute. Children were scored, in part, for the number of hints (steps of graded help) that they required to reach criterion on four initial practice problems. On this measure, children using rotating stimuli scored lower ($p < .05$) than children using stationary stimuli; this indicates that the rotating procedure interfered with task comprehension and performance.

Procedure

A male experimenter administered the Binet, and then 5–6 weeks later, administered the learning task. A female experimenter, who had no knowledge of the blank-trials task nor of any child's experimental condition, individually administered the helplessness measures about 3 weeks after the learning task.

Response initiation—wrong name. On the way to the testing room, the experimenter asked, "Do you know what we're going to do today (*wrong name*)?", calling the child by an incorrect but gender-appropriate name. If the child did not correct her, on arrival at the room she said, "Why don't you sit here (*wrong name*)," using the same wrong name. Children correcting her on either occasion were credited with one response initiation point and were addressed correctly thereafter. For the other children, the experimenter stared at the data sheet for 3 sec and then said, "Oh, I'm sorry, your name is (*correct name*), isn't it?"

Perceived Influence Questionnaire. Next, the children's questionnaire was orally administered. Two initial sample questions (e.g., "Is your teacher's name ______ (a) (*right name*), or (b) (*wrong name*)?") were administered to familiarize the children with the questionnaire format and to discourage young children from a tendency (reported by Mischel et al., 1974) to favor the last alternative mentioned.

Response initiation—chair. For questionnaire administration, the child's chair was placed slightly farther than the child's own arms' length from the work table. This was appropriate for the orally administered questionnaire but was inconvenient and uncomfortable for the subsequent buzzer training (see later) and the draw-a-person task. If the child moved the chair forward (or asked to) at any time during either subsequent task, he/she was credited with one response-initiation point.

After the questionnaire, each child was told, "Now for the rest of the things we do today you can win chips [showing poker chips]. When we finish doing everything, if you have enough chips, you can trade them for a prize. Okay?" The child was then shown the buzzer, a black, aluminum box with a button on top. When activated, the buzzer made an obnoxious noise somewhat louder than that of an alarm clock. The child

[1] To assess young children's understanding of item valences, 13 preschoolers (mean age, 5 years 2 months, who were not subjects in this study) were read the 20 outcome stems and were asked to characterize each as "good" or "bad." Of the 260 replies, 93% agreed with the intended valence. To assess young children's capacity to remember the response alternatives, the 13 preschoolers were asked after each item to repeat the two alternatives. Of 260 replies, 94% were correct (although not always verbatim). Over the study sample of 148 subjects, split-half reliabilities for the 10 positive outcome items and the 10 negative items, calculated separately, were both .20 ($p < .05$), estimated by the Spearman-Brown formula. These figures are almost identical to the corresponding coefficients for the Mischel, Zeiss, and Zeiss (1974) questionnaire and are lower than the corresponding coefficients for the Crandall, Katkovsky, and Crandall (1965) questionnaire.

won five chips for quickly shutting off the buzzer twice; the buzzer was then moved 6 feet away. A draw-a-person task followed the buzzer training. Here, the experimenter circled and checked parts of the child's drawing and awarded five more chips to the child.

Puzzle repetition task. Next, the child was asked to assemble two puzzles, a 20 cm × 15 cm oval and a 20 cm × 15 cm rectangle. First, the child completed the oval puzzle. To insure success, the experimenter began graded help after 2 minutes but refrained from completing the puzzle herself. The rectangle was then presented, with time called two pieces short of puzzle completion. The experimenter said, "I'm going to sit over here at the side of the room and do some work for a while. While I'm working, I want you to put one of these puzzles together. Choose whichever one you want, but do only one." (Brief marble dropping and card-sorting tasks followed, but these data are not included in the present study.)

Response initiation—buzzer. With the activities now ostensibly completed, the experimenter left the room "to go get the prizes." From outside the room the experimenter used a remote control switch to activate the buzzer (described earlier). Children who did not press the button to terminate the buzzer tolerated the noise for 30 sec before the experimenter reentered, shut off the buzzer, and apologized for the "faulty machine." Children who voluntarily terminated the noise within the 30 sec were credited with one response-initiation point.

Response initiation—prize. The experimenter then counted the child's chips, "consulted" a book of statistical tables, and reported that the child had enough chips to win any prize (toys, small hand tools, key rings, and various school supplies) in the box. The experimenter said, "You could pick out something yourself, or I could look in this book (indicating the book of tables) and see what most kids your age pick, and give you that. What would you rather do?" Those who opted to control their own reinforcement were given one response-initiation point.

Results

Response Initiation—Control-Oriented Behavior

Scores on the four response-initiation tasks were added to produce the response-initiation measure (possible range: 0, maximum helpless, to 4, minimum helpless). An IQ × MA × Condition (3 × 2 × 2) unweighted-means analysis of variance (ANOVA) revealed a condition main effect and an IQ × MA interaction much like that discussed in the Introduction. Subjects who had received stationary learning-task stimuli scored higher than those who had received rotating stimuli (Ms = 2.39 vs. 2.72), $F(1, 130) = 5.31$, $p < .05$. The IQ × MA interaction, $F(4, 130) = 5.31$, $p < .05$, in part reflected the fact that it was only at the high MA level that the retarded subjects scored lowest of the three IQ groups. Separate ANOVAs at each MA level revealed that the effect of IQ was nonsignificant at the two lower MA levels but significant at the highest MA level, $F(2, 49) = 3.47$, $p < .05$. At the highest MA level, Duncan's multiple range test revealed that the retarded group scored lower than both the average IQ group ($p < .10$) and the high IQ group ($p < .05$; see Figure 1).

The four response-initiation tasks were analyzed separately via partitioned chi-square analyses (see Winer, 1971). The buzzer measure showed only a significant main effect of MA, $\chi^2(2) = 9.61$, $p < .01$; with increasing MA, an increasing proportion of the children stopped the buzzer. On the prize measure, with increasing MA, more children elected to let the experimenter choose for them, $\chi^2(2) = 7.02$, $p < .05$; as IQ level increased, more subjects chose their own prize, $\chi^2(2) = 12.53$, $p < .01$. Overall contingency tables for the chair and wrong name tasks were nonsignificant.[2]

Perceived Influence Questionnaire Helplessness Index—Attributions for Failure

The children's questionnaire yielded a measure of attribution of negative outcomes to insufficient effort (range: 0 maximum helpless, to 5, minimum helpless). An IQ × MA × Condition (3 × 3 × 2) unweighted-means ANOVA revealed that effort attributions for negative outcomes increased with MA (Ms = 1.73, 2.71, and 2.83), $F(2, 130) = 15.69$, $p < .001$; however, only the low and middle MA groups differed significantly

[2] Differences in pattern among component response-initiation measures might lead some investigators to treat the measures as entirely independent indices. My own view, however, like the view of a growing body of investigators (e.g., Mischel, Zeiss, & Zeiss, 1974), is that a quite heterogeneous collection of measures—designed to tap differing manifestations of a construct and, thus, not expected to relate strongly to one another—can yield a useful composite score that is theoretically meaningful in its relations with key independent variables. This seems to have been the case with the composite response-initiation measure used in the present study.

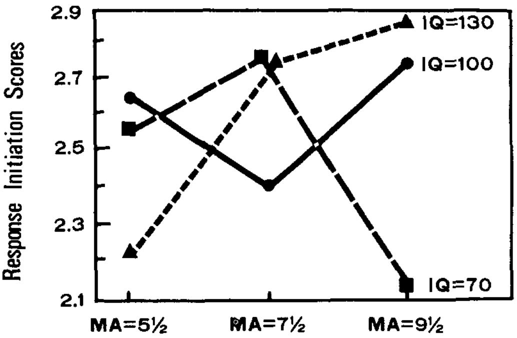

Figure 1. Mean response-initiation scores. (Range of possible scores: 0–4.)

($p < .01$; see Figure 2). There was a significant IQ × MA interaction, $F(4, 130) = 2.43, p < .05$; as in the interaction involving response-initiation scores, this interaction reflected the fact that the most pronounced inferiority of the retarded children, relative to the other two IQ groups, occurred at the upper MA level. Yet, the interactions on the two measures differed in some respects. On the response-initiation measure, the IQ effect was only significant at the upper MA level. But on the questionnaire helplessness index, separate ANOVAs at each MA level revealed that the effect of IQ was nonsignificant at the two extreme MA levels and was of borderline significance at the middle MA level, $F(2, 48) = 2.88, p < .065$.

Puzzle Repetition—Perseverance in the Face of Failure

Children's choices to repeat either the completed or uncompleted puzzle were

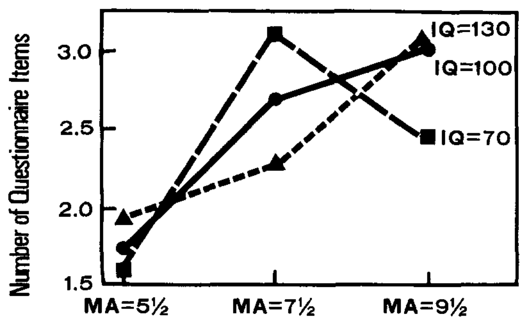

Figure 2. Mean number of Perceived Influence Questionnaire items on the failures that were attributed to insufficient effort. (Range of possible scores: 0–5.)

analyzed via a partitioned chi-square analysis. The only significant effect was an IQ × MA interaction, $\chi^2(4) = 9.80$, $p < .05$ (see Figure 3). One feature of this interaction that resembled the IQ × MA interactions on the two previous measures was that the most pronounced inferiority of the retarded children, relative to the other two IQ groups, occurred at the upper MA level. Yet, the pattern at the upper MA level barely differed from that at the middle MA level. Furthermore, separate chi-square analyses at each MA level revealed that the effect of IQ was only significant among low MA subjects, $\chi^2(2) = 6.87$, $p < .05$. Individual group comparisons at each MA level showed that none of the retarded–nonretarded subgroup differences that presumably contributed to the IQ × MA interaction attained statistical significance independently.

Teachers' Helplessness Questionnaire

Teachers' questionnaire ratings were summed across 10 7-point scales. Thus, scores could range from 10 (minimum helpless) to 70 (minimum helpless). In the IQ × MA × Condition (3 × 3 × 2) unweighted means ANOVA of this measure, the only significant effect was that of MA, $F(2, 130) = 4.58$, $p < .01$. Children were rated as showing less helplessness with increasing MA (*Ms* = 51.1, 54.0, and 58.4, at the low, middle, and high MA levels, respectively).

Multivariate Analysis of Variance

To assess the strength and consistency of the effects yielded by the helplessness measures an IQ × MA × Condition (3 × 3 × 2) multivariate analysis of variance (MANOVA) was calculated, with all four helplessness measures included as dependent variables. This resulted in a significant main effect of MA, $F(8, 242) = 5.22$, $p < .001$; the interaction of IQ and MA was also significant, $F(16, 482) = 2.07$, $p < .01$.

Discussion

In this study, multiple operational definitions of learned helplessness were used, and a search was conducted for developmental patterns that were strong or consistent enough that they might be said to characterize the data as a whole. Technically, the search was successful. MANOVA results point to two such patterns. Yet, qualifications are in order with regard to both.

The MANOVA revealed an IQ × MA interaction, and this interaction was significant on three of the four helplessness measures. Yet, describing what these interactions have in common is difficult. Perhaps the clearest common feature is that all three interactions showed retarded children to be more helpless, relative to the nonretarded groups, at the upper MA level than at the lower levels. This finding is in harmony with the view that retarded children learn helplessness over years of development, and, by extension, that successive failures and helplessness-inducing feedback play a causal role. Yet, despite the commonality among these three interactions, certain differences make interpretation difficult. For example, only on the response-initiation measure were IQ group differences significant at the upper MA level. It is possible that among children of still higher MA, or with measures that sample more behavior than just five (questionnaire) attributions or one puzzle repetition, these IQ differences might have attained significance. Alternatively, it is possible that the response-initiation measure is more effective than others because of its subtlety. Variations in the children's awareness of the social desirability of public responsibility taking (on a questionnaire) or of striving to reverse a failure (in puzzle repetition) might obscure actual IQ group differences in helplessness.

Perhaps we should not expect helplessness indices as different as, say, self-reports and motor behavior to correspond perfectly in the effects that they show (see Nisbett & Wilson, 1977; Wortman & Dintzer, 1978). On the other hand, more refined measures may yield patterns more nearly alike than those of the present experiment. The issue deserves further study, for it bears directly on the validity of recent attributional reformulations of the learned helplessness model (e.g., Abramson et al., 1978).

The MANOVA also revealed a significant effect of MA, although MA effects on separate ANOVAs were significant only on the two questionnaire measures. The MA effect on the children's questionnaire is consistent with the modest developmental increases reported by Crandall et al. (1965) for acceptance of responsibility for negative outcomes. Yet, the present findings have a somewhat sharper focus: (a) They deal specifically with effort attributions for negative outcomes, attributions that Diener and Dweck (1978) found to be particularly powerful predictors of nonhelpless behavior, and (b) they indicate that the developmental effect is linear ($p < .01$ for linear trend contrast) only for the two nonretarded groups and ominously curvilinear ($p < .01$ for quadratic trend contrast) for retarded youngsters. Since the present findings represent some of the earliest developmental data on learned helplessness, their implications for developmental research deserve special attention. The findings suggest that research may reveal developmental declines in helplessness but that whether it does so may be a function both of the operational definition of helplessness that one chooses[3] and of the characteristics of the children whom one samples (e.g., whether they are retarded or nonretarded).

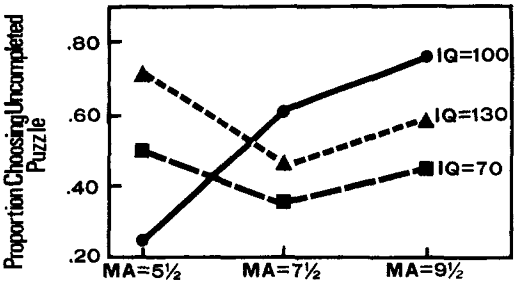

Figure 3. Proportion of each group choosing to repeat previously uncompleted puzzle.

Deficits in response initiation were more pronounced among children who had re-

[3] In this connection, the findings suggest that even the distinction between control over positive events and control over negative events may be important in the selection of operational definitions. Among the component response-initiation measures, it was only the positive situation (prize measure) that yielded a main effect of IQ and only the positive situation that revealed less response initiation with development.

ceived a relatively difficult learning task procedure than among children who had received a simpler procedure. This finding supports the notion that difficulty and failure at problem solving can produce learned helplessness. Yet, here, the problem-solving difficulty was encountered some 3 weeks prior to the response-initiation measure. This suggests the possibility of a longer term generalization process than has been demonstrated in prior research. Thus it will be interesting to see whether this type of finding proves robust in future investigation.

Overall, these rather complex findings are useful in suggesting several questions and hypotheses for future study. One such hypothesis is that retarded children "learn" helplessness over years of development. Although the present study has demonstrated one means of testing this developmental hypothesis and has generated initial data on its validity, definitive tests must await future research.

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Received December 6, 1978 ■

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Psychosocial Development During the Adult Years: Age and Cohort Comparisons. Susan K. Whitbourne (College of Education, University of Rochester, Rochester, New York 14627) and Alan S. Waterman.

Validity and Fairness of Physical Ability Tests for Predicting Performance in Craft Jobs. Richard R. Reilly (American Telephone & Telegraph Company, 295 North Maple Avenue, Basking Ridge, New Jersey 07920), Sheldon Zedeck, and Mary L. Tenopyr.

Reliable Sociometric Measure for Preschool Children. Steven R. Asher (Department of Educational Psychology, University of Illinois, Urbana, Illinois 61801), Louise C. Singleton, Barbara R. Tinsley, and Shelley Hymel.

Referential Communication Performance from Age 4 to 8: Effects on Referent Type, Context, and Target Position. W. Patrick Dickson (Child & Family Studies, 1440 Linden Drive, University of Wisconsin, Madison, Wisconsin 53706).

Children's Ratings of the Stressfulness of Experiences. Kaoru Yamamoto (College of Education, Arizona State University, Tempe, Arizona 85281).

Exploratory Play as an Index of Mastery Motivation: Relationships to Persistence, Cognitive Functioning, and Environmental Measures. Kay D. Jennings, Robert J. Harmon, George A. Morgan, Juarlyn L. Gaiter, and Leon J. Yarrow (National Institute of Child Health and Human Development, Building 31, B2B15, Bethesda, Maryland 20014).

Cardiac and Behavioral Responses to Repeated Tactile and Auditory Stimulation by Preterm and Term Neonates. Tiffany M. Field (Department of Pediatrics, Mailman Center for Child Development, University of Miami School of Medicine, P.O. Box 016820, Miami, Florida 33101), Jean R. Dempsey, Judy Hatch, George Ting, and Rachel K. Clifton.

Information-Processing Analysis of a Piagetian-Imagery Task. Anne L. Dean (Department of Psychology, University of New Orleans, New Orleans, Louisiana 70122) and Wade O. Harvey.

Sex Differences in Responsiveness to Babies Among Adults. S. Shirley Feldman (Department of Psychology, Stanford University, Stanford, California 94305) and Sharon Churnin Nash.

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