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ABSTRACT

Ninety males (9-12 years old) with normal intelligence who were from 2-3 years behind expected placement in at least one academic subject participated in either experimental or traditional tutorial approaches for 1 hour weekly over 6 weeks. Experimental groups focused on academic remediation, desensitization of negative emotional reactions, and the development of appropriate classroom behaviors. Differential levels of reinforcement encouraged Ss to approach more aversive tasks. Results on tests of academic achievement, behavior, neuropsychological measures, emotional functioning, and reaction to reading failure showed that significant gains were made in remediating skill deficits and the extent to which experimental Ss were able to cope with the stress of failure. Ss showed significant gains in reading, rated classroom behavior and the ability to respond concomitant with their measured skill level even after obvious failure. (CL)

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The Interaction of Neuropsychological
and Emotional Variables in
LD Children¹

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The Interaction of Neuropsychological and Emotional Variables in LD Children

In the United States, it is estimated that between 10--15% of primary school students (grades 1--6) do not learn adequately, despite normal intellectual capacity ($IQ > 85$) (Dean, 1982). The long-term prognosis for competent, social and emotional development is significantly less for these children than that for normal learners (Shaffer, 1972). Moreover, a number of psychiatric diagnoses are significantly more prevalent with learning-disabled children (Adams, 1982). Attempts which have focused on various underlying neurological processes often are made to the exclusion of children's behavioral history and learned methods of coping with failure (e.g., Dean, 1978; Fisk & Rourke, 1979). This is a rather curious state of affairs when one considers the frequency with which children diagnosed as learning disabled also display maladaptive emotional patterns (e.g., Dean, 1982). Indeed, negative reactions to specific academic areas and school in general exist in a large number of school children, but may be carefully masked by seemingly unrelated behaviors (e.g., withdrawal, lack of compliance, etc.) (see Severson, 1970). Although a number of researchers have pointed to significantly greater numbers of these behaviors (e.g., Harris, 1961; Stott, 1970), few have collated these behaviors directly with the child's attempt to cope with an environment which offers few positive features.

In a recent attempt to study this issue, we have examined the ways learning disabled and normal learners coped with obvious failure (Dean, in press). Groups of normal children and those with deficits in reading were

presented extremely difficult words after they had read simple words. Unlike normal children, when very easy reading material was returned to, learning disabled children seemed unable to recover from the preceding failure. This finding was in contrast to the performance of a similar group of learning disabled children who were given simple words throughout a session. Thus, it seems that learning disabled children may cope with classroom failure by withdrawal. In this study, learning problem children who experience failure often became reckless in their responses and presented behaviors which were rated less than appropriate for the setting. Apparently, many of these children had developed a pattern of behavior in the face of failure which is much what one would expect in the development of an aversive reaction to school related material. From this point of view, children may develop what could be likened to a phobic reaction in an attempt to cope with failure (Severson, 1970). Thus, it would seem that any intervention with these children must not only focus on skill deficits, but must also examine the compounding effects of the child's personality patterns and methods of coping with failure. Aversive reactions are seen here as going beyond the immediate learning session to the creation of an emotional reaction to those subject areas where failure has occurred. From this point of view, what may begin as early neuropsychological processing difficulties may well lead to a paradigm of failure--aversion--failure. . . as the child attempts to cope with the stress of failure.

In sum, although a large proportion of children's learning disorders may well have a neurological base, the child's ability to cope with negative feedback and related emotional factors should be considered simultaneously in

establishing nosological classifications or treatment approaches. It seems clear that children with learning disorders cannot be approached simplistically from either an academic or a mental health point of view (Bryant, 1966; Dean, 1982; Severson, 1970). For, many of these children appear to have adapted methods of coping with failure which are as problematic as the child's original difficulty in learning (Dudek & Lester, 1968). Indeed, it has become apparent that children with histories of classroom failure retain an underlying aversive reaction to specific school tasks even after obvious success (Lang, 1977). Thus, it would seem children with learning disorders would benefit from an approach which offered academic remediation while attempting to modify negative emotional responses.

In the present intervention project, three treatment goals were approached simultaneously: (1) academic remediation, (2) desensitization of negative emotional reactions, and (3) the development of appropriate classroom behaviors. Therapy sessions, while concentrating on academic skills, were structured so as to desensitize the child's emotional reactions and reinforce appropriate coping behaviors. Patients were reinforced both for effort and success. Following a complete diagnostic assessment, a hierarchy of remedial tasks was constructed for each child along an approach--avoidance continuum (see Paul, 1969; Severson, 1970). Near the top of the hierarchy was placed an important academic skill which had developed negative emotional properties. The initial continuum was based on the child's deficits and their sorting of tasks into difficulty levels. Levels of the hierarchy ranged from the most obviously academic related tasks to simple talking with the therapist. The approach to teaching was determined by the child's neuropsychological



strengths as assessed during the first three sessions.

The subjects were 90 males ranging in age from 9 to 12 years ($\bar{X} = 10.6$) with normal intelligence who were from two to three years behind expected placement in at least one academic subject. Moreover, children conformed to Federal guidelines (i.e., PL 94-142) and those of the American Psychiatric Association (DSM-III, 1980) for the identification of children with specific reading (developmental) disorders. Potential subjects with hard signs of neurological involvement or subnormal intelligence ($IQ < 70$) were excluded from consideration. Sixty children were randomly assigned to one of the two treatment groups with 30 children in each group (traditional-tutorial, or experimental). Thirty children were chosen at random from a school based learning disabilities program. Thus, children were either assigned to the above experimental treatment, a traditional tutorial approach, or in a school based, special education program.

Sessions for both the experimental and tutorial approaches consisted of one hour a week for six months. The experimental group sessions were divided into five-minute intervals, and children were allowed to choose the activities which would comprise a given interval with corresponding reinforcement. After establishing the most heuristic reinforcers for each subject (tangible, social, etc.), children chose to move along the approach--avoidance continuum with the more aversive tasks becoming more closely linked to reinforcing outcomes. Thus, differential levels of reinforcement encouraged children to approach more aversive tasks. Remedial therapists were undergraduate students in a special education, social work, or psychology who had been trained in the approach. One significant aspect of the program was the use of

paraprofessionals in academic therapy, thus providing for a possible extension of the approach in the schools.

Outcome measures were the same as those taken during the initial phase of the study. These measures included tests of academic achievement, behavior (rating scales), neuropsychological measures, emotional functioning, and reaction to failure in reading.

The results showed that significant gains were made in remediating skill deficits and the extent to which experimental subjects were able to cope with the stress of failure. While this was true, no significant change was observed in other groups. After some six months of treatment, children showed significant gains in reading, rated classroom behavior, and the ability to respond concomitant with their measured skill level even after obvious failure. Hence, gains were made in academic achievement and the extent to which children were able to cope with stress of their academic disability. Children were seen by parents to be better able to take control and make intelligent choices of how their time would be spent. The second phase of the program is being planned to provide generalization to the home and classroom. In sum, this treatment modality which attempted to treat both academic and emotional deficiencies, when compared with that of a traditional, special-educational approach and a tutorial program, was found to produce significant gain. This was true when appropriate controls were made for the age and the sex of the subjects.

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