Learning Disabled Students in Physical Education

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Many learning disabled students demonstrate psychological/behavioral and perceptual motor characteristics that affect physical education placement and programming. Among the characteristics exhibited by these students are hyperactivity, disorders of attention, impulsivity, poor self-concept, social imperception, delay in social play development, and deficiencies in body equilibrium, visual motor control, bilateral coordination, repetitive finger movements, and fine motor coordination. Activities found to benefit learning disabled students are jogging, relaxation, highly structured teacher-directed routines, and noncompetitive games, all of which must be carefully sequenced. Testing must be done to determine the type and extent of the learning disabled students’ problems, and activities must be selected on the basis of the results of such tests.

Probably no handicapping condition has proven to be more controversial, nor undergone more name changes than the condition we now call “learning disability.” Confusion about the condition is reflected in the number of terms associated with it. Over the last 30 years these individuals have been classified as perceptually handicapped, brain injured, minimal brain dysfunctionate, dyslexic, and/or developmentally aphasic. Each term has been selected in an attempt to convey the fact that individuals with a learning disability may have average or better intelligence but fail to demonstrate the same academic competencies as do most individuals whose IQs fall within the normal range.

The definition of specific learning disability found in Public Law 94-142 focuses on the language deficits demonstrated by individuals with the condition (U.S. Office of Education, 1977). Estimates of the prevalence of the condition in society range from 3 to 20% of the population (Cratty, 1980; Sherrill, 1981). Males with specific learning disabilities outnumber affected females 3 to 1.

Psychological/Behavioral Characteristics of Learning Disabled Students

Many learning disabled (LD) children are characterized by psychological/behavioral characteristics that affect physical education placement and programming. Among these characteristics are hyperactivity, disorders of attention (short attention span, distractibility, perseveration), impulsivity, poor self-concept, low sociometric status, social imper-
ception, and delay in social or play development. These problems are well documented with research in classroom settings (Hallahan & Cruickshank, 1973; Hallahan, 1975), but almost no research has been directed toward their occurrence and/or management in gymnasium and play settings. In this section, the psychological/behavioral characteristics of LD students are examined, related research with relevance for physical education is reviewed, and needed research is discussed.

Hyperactivity, Attention Deficits, and Impulsivity

Many investigators have documented the hyperactivity, attention deficits, and impulsivity of LD children. Particularly good reviews of research literature are provided by Hallahan (1975) and Hallahan and Cruickshank (1973).

Estimates of the number of school children (including those with specific learning disability) who are medicated to control attention deficits and behavior problems range from 2 to 25% (French & Jansma, 1981; Sprague & Sleator, 1973; Walker, 1975). The effects of these drugs on motor performance has not been thoroughly researched; however, effects of other forms of intervention strategies have been studied.

Research has been reported on the use of jogging (Allen, 1980), swimming (Cole, 1978), and relaxation training (Amerikaner & Summerlin, 1982) to reduce hyperactivity and/or disruptive behaviors in LD children. Numerous instructional approaches have been described also (Arnheim & Sinclair, 1979; Cratty & Martin, 1969; Sherrill, 1981) but these are not supported by statistical findings.

Allen (1980) demonstrated that 5 to 10 minutes of jogging at the beginning of each school day over a 6-week period reduced disruptive classroom behaviors by half in 12 boys, grades 1 to 6, who had been placed in a self-contained classroom because of their behavioral and/or perceptual disorders. Features of this program believed to contribute to its effectiveness were (a) teacher jogging with pupils, (b) awards given as individuals reached 10-, 15-, and 50-mile goals, (c) structured routines of warm-up and cool-down, (d) emphasis on competition against self to increase distance and stamina rather than against others, and (e) promotion of camaraderie among runners.

Cole (1978) compared exposure to warm (92-95°F) and normal (73-78°F) water temperatures during a 14-day swimming instructional program for LD boys, ages 5 to 11 years. Findings showed a trend toward reduction of hyperactive behaviors in the warm water but no statistically significant differences between groups.

Amerikaner and Summerlin (1982) reported that a relaxation training group was perceived by teachers as exhibiting less acting out (p < .01) and less distractibility (p < .10) than a social skills training group and a no-treatment group. The subjects were 46 first- and second-grade LD children randomly assigned to one of three treatment conditions.

The principles of Cruickshank (1967) are widely accepted in special education as a means of controlling hyperactivity by (a) establishment of a highly structured program, (b) reduction of environmental space, (c) elimination of irrelevant auditory and visual stimuli, and (d) enhancement of the stimulus value of the most important instructional cues. The principle of structure, as applied to the physical education setting, requires the establishment of a teacher-directed routine which is repeated each day. The rationale for this approach is that the hyperactive distractible child cannot make decisions until carefully educated to do so.

Use of structure in the physical education setting with LD children is supported by Elstein (1976), who compared three types of instructional programs: (a) instruction in basic skills stressing structured practice and drill and individual progressions of skill,
emphasis on recreational games, and (c) supervised but unstructured free play. The experimental period was 9 months, with two 50-min sessions per week. The subjects were LD students, ages 6 to 15, assigned randomly to one of three classes. Demers (1981) reported the success of a structured school program that used point sheets and response techniques to minimize classroom disruptions and encourage on-task performance and work completion in LD children who were mainstreamed in physical education, art, and music as readiness training for integration into academic subjects.

The importance of behavior management in classes with LD students (mainstream, resource, or separate) cannot be overemphasized. Yet, comprehensive reviews of the literature (Loovis, 1980; Presbie & Brown, 1977) indicate that little research has been conducted in this area with LD subjects in a physical education setting. In contrast, considerable research is reported on the mentally retarded population.

The Association for Children with Learning Disabilities (ACLD) passed a resolution in 1979 that the appropriate learning situation for most LD children is highly structured and individualized remediation in a setting with minimal extraneous auditory and visual stimuli. This resolution has relevance for physical education (Sherrill, 1980). Research by Rarick, Dobbins, and Broadhead (1976) supports the use of individualized rather than group-oriented physical education programs with both minimally brain injured and educable mentally retarded children, ages 6 to 13.

Impulsivity, although related to hyperactivity and attention deficits, is a separate entity. In the physical education context, impulsivity refers to lack of motor planning and/or insufficient mental rehearsal before moving or acting. Cratty and Martin (1969) report procedures for teaching impulse control. Among these are competition to see who can move the slowest, movement education stressing concepts of immobility and slowness, and line drawing to encourage slow, controlled movement. Several researchers (Luria, 1961; Meichenbaum & Goodman, 1969; Palkes, Stewart, & Kahana, 1968) report the efficacy of talking aloud to oneself (overt speech) in bringing impulsive motor behavior under control. Teacher instruction to “stop and think before moving,” in combination with children saying aloud where and how they intend to move, appear to be essential to control of impulsivity.

In summary, the hyperactivity, attention deficits, and impulsivity that characterize some LD children can be reduced or ameliorated by specially designed physical education adapted to individual needs. Activities that increase rather than decrease these undesirable behaviors are contraindicated. Thus, the content, methods, and materials for teaching physical education to LD children with these behaviors are very different from those generally employed in most mainstreamed physical education settings.

**Poor Self-Concept and Other Problems in the Affective Domain**

Learning disabled children have repeatedly been found to have significantly lower self-concepts than nondisabled peers (Martinek & Karper, 1982; Sheare, 1978; Rosenberg & Gaier, 1977). Comparison of self-concept scores of nondisabled children with those evidencing perceptual-motor deficiencies also results in significant differences (Cratty, Ikeda, Martin, Jennett, & Morris, 1970). Specific analysis of responses revealed that boys with perceptual-motor problems gave significantly different answers than boys with no such problems.

LD children have also been found to believe that external events (luck or chance) tend to affect their performance more than their personal skill does (Mindingall, Libb, & Welch, 1980). Interpersonal difficulties with peers (Bryan, 1974; Keogh, Tchir, &
Windeguth-Behn, 1974) experienced by LD children seem to be compounded in children who also have motor problems. One study (Coleman, Keogh, & Mansfield, reported a .54 correlation between social adjustment and motor performance for LD children. The Siperstein, Bopp, and Bak (1978) study found that of the 6 of 22 children who liked by at least a third of their nondisabled peers, 5 were perceived as outstanding athletes by their classmates.

The game and play interests of LD children vary widely. Sherrill (1981) reported that many of these children are delayed in progression through developmental play stages. Cratty et al. (1970) and Trammell (1974) indicate that LD children like imitative or mal believe games and singing games more than their nondisabled peers do. Immature movement patterns and generalized clumsiness may contribute to delay in performance abilities in many LD children.

Cooperative, competitive, and individual class organizational structures have been compared to determine ways to increase positive interpersonal interactions between LD and nondisabled peers in physical education activities. Illustrative of this research is the study by Martino and Johnson (1979) in which two approaches to teaching swimming were examined. The cooperative condition entailed assignment of a normal-progress “buddy” to each learning disabled child with directions for them to help each other learn to swim. In the individual condition, subjects were not paired and they were told to pay no attention to one another. The findings showed that the cooperative condition produced significantly more interactions during the free-swim time than did individual instruction.

One approach that may be helpful in ameliorating the social problems of LD children and helping them gain peer acceptance is the use of cooperative activities like those featured in the “new games movement” (Fluegelman, 1976; Orlick, 1978). Traditional games that result in early elimination of the poorly skilled (e.g., dodgeball, three strikes in softball, basketball shooting games) appear contraindicated when LD children are mainstreamed because these reduce their social contact and reinforce their negative self-concepts, as well as reducing their practice time.

Peer and cross-age teaching and modeling have also been used successfully to increase peer acceptance. Project PEOPEL (Physical Education Opportunity Program for Exceptional Learners) has documented its efficacy in promoting peer acceptance through the National Diffusion Network (NDN) system (Long, Irmer, Burkett, Glasenapp, & Odenkirk, 1980). The PEOPEL approach differs from regular physical education in three ways: (a) the use of trained student aides (in a 1:1 student/aide ratio), (b) smaller classes (a maximum of 24 students), and (c) use of task-analyzed learning sequences and individualized instruction.

Research pertaining to appropriate pedagogy for mainstreaming LD students in physical education is badly needed. Existing evidence seems to indicate that integration without carefully planned intervention to improve and/or preserve ego strength and to increase peer acceptance can be detrimental to the overall growth and development of LD students. Placement in the physical education mainstream should be based on criteria encompassing psychological/behavioral considerations as well as perceptual-motor functioning.

Sensory, Perceptual, and Motor Characteristics of Learning Disabled Students

The prevalence of sensory, perceptual, and motor delays in many LD children is well documented. Bruininks and Bruininks (1977) reported that LD children tested with the...
Bruininks-Oseretsky Test of Motor Proficiency demonstrated significantly more problems in body equilibrium, controlled visual-motor movements, and bilateral coordination than did nondisabled children of the same age. Four years later, using the same test, Haubenstricker, Seefeldt, Fountain, and Sapp (1981) verified those findings. Kendrick and Hanten (1980) compared 25 nondisabled 8-year-olds with 25 learning disabled children of the same age and reported significant \( p < .01 \) differences in their abilities to repeat a finger opposition task and to control repeated tapping of the ball of the foot. Gardner and Broman (1979) also found these children to have fine-motor coordination problems.

However, the literature still lacks a clear-cut picture of the motor profile of the learning disabled child. Do all of these children demonstrate similar motor development lags, or do they evidence a variety of profiles? Two studies provide some insight into this question.

The first of these studies was conducted by Pyfer and Alley (1978) on 253 children between the ages of 3 1/2 and 15 years who were diagnosed by school psychologists as having learning disabilities. The children were tested individually between 1970 and 1977 with the following tests: the Purdue Perceptual Motor Survey, Fiorentino’s Developmental Scale, the Lincoln-Oseretsky Motor Development Scale, Frostig’s Developmental Test of Visual Perception, and other selected items. The same study was repeated (Pyfer, 1983) between 1978 and 1981 on an additional 116 children between the ages of 3 1/2 and 14 years.

On the basis of test scores, the LD students were sorted into three groups. Those whose scores were at or above average for their age were classified as \textit{clinically normal}. Those children who scored within the normal range on some tests but below average (below the 25th percentile or at least one standard deviation below the mean) on other tests were classified as \textit{clinically dysfunctionate}. The third classification, that of \textit{clinically retarded}, was assigned to individuals who scored 2 to 3 years below normative standards for their age group on all tests. The number of children assigned to each group under this classification system appears in Table 1.

In studying this table, it becomes apparent that the vast majority of children tested demonstrated some motor problems. Approximately 13\% were severely delayed in all areas tested and 75\% scored average on some tests but below average on other tests. The remaining 12\% demonstrated no motor delays.

When all the subtests were analyzed together to determine what type of motor performance characterizes LD children, several factors surfaced. As one reviews the information in Table 2 it becomes apparent that there is a tendency for perceptual-motor, balance, and fine-motor development to play a role in the motor performance ability of LD children. It should be pointed out that no one performance profile characterizes all LD children. These children are heterogeneous, and therefore need to be treated as individuals.

Table 1

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|}
\hline
Years tested & Clinically normal & Clinically dysfunctionate & Clinically retarded \\
\hline
1970-1977 (N = 253) & 26 & 210 & 17 \\
1978-1981 (N = 116) & 0 & 83 & 33 \\
\hline
\end{tabular}
\end{table}
Table 2  
Primary Factors Demonstrated by Three Types of Learning Disabled Students

<table>
<thead>
<tr>
<th>LD group</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970-1977</td>
<td>Perceptual-motor</td>
<td>Abnormal reflex dev.</td>
<td>Balance ability and speech</td>
</tr>
<tr>
<td>Normal</td>
<td></td>
<td></td>
<td>Age of Parent</td>
</tr>
<tr>
<td>Dysfunctionate</td>
<td>Perceptual-motor</td>
<td>Gender &amp; socioeconomic status</td>
<td></td>
</tr>
<tr>
<td>Retarded</td>
<td>Perceptual-motor</td>
<td>Socioeconomic status</td>
<td>Coordinating two hands</td>
</tr>
<tr>
<td>1978-1981</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>Motor planning—hands</td>
<td>Perceptual-motor</td>
<td>Hand speed</td>
</tr>
<tr>
<td>Dysfunctionate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retarded</td>
<td>Perceptual-motor</td>
<td>Hand control</td>
<td>Balance</td>
</tr>
</tbody>
</table>

Haubenstricker (1983) proposes that before appropriate prescriptive activities are selected, efforts must be made to determine the LD student’s particular movement characteristics. He proposes that the earlier the problem is identified and the longer the remediation program is carried out, the better the results of the program will be.

Once areas of deficiencies are identified, activities can be selected to promote development in problems areas. If appropriate activities are selected and carefully taught, the prognosis for the motor development of these students is quite good. At least one study reports that once perceptual and motor deficiencies of LD children were resolved through a well-designed motor development program, the children continued to develop motorically along age-expected levels (McLaughlin, 1980). The program was designed to eliminate specific sensory input delays, followed by activities to promote perceptual-motor function, and finally, instruction in motor skills.

Summary

Most children who are classified as learning disabled demonstrate disorders of attention, impulsivity, poor self-concept, and sensory-perceptual-motor problems. Before an appropriate physical education program can be developed for the LD individual, testing must be done to determine the type and extent of his or her disabilities. Activities should then be selected on the basis of test results and carefully sequenced to produce optimum results.

Here are some general points to keep in mind when working with learning disabled students:

1. To reduce interference from hyperactive (hyperkinetic) tendencies, select a larger number of different activities and spend a shorter period of time on each than you would with other children of the same age.
2. Use a positive behavior modification program to get the students to finish tasks (i.e., use tokens or let students select their favorite activity once each day if they stay on task).

3. Incorporate 3 to 5 minutes of conscious relaxation instruction and practice into each class period (preferably at the end of the lesson).

4. Use a very structured, one-on-one teaching/learning arrangement whenever possible. If these children cannot be individually taught, use a movement exploration approach that will permit them to work at their own level. Do not permit these students to participate in group activities that are beyond their capabilities. Such practices only reinforce the feeling that the children are different from their peers.

5. Design your programs to promote sensory input functioning before concentrating on perceptual motor integration or motor output behaviors. The greatest amount of carry-over will occur if you "fill in the blanks" of missing sensory and perceptual components before teaching motor output behaviors.

6. Give brief instructions and ask the children to repeat those instructions before starting an activity. By doing this you prevent problems that arise from the limited memory some of the children demonstrate.

7. To enhance the children's self-concept, use very small learning steps, praise every legitimate effort the students make, and utilize a noncompetitive games approach in class.

References


