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ABSTRACT

School records of 124 students at a private day school for learning disabled (LD) children (average age 12 years) were examined in an attempt to describe one group of students labeled LD. Information available included demographic data: medical history information: parental estimates of child's ability to inteact with others, child's developmental milestones, and behavioral problems: teacher ratings on behavioral checklists: intelligence test data: perceptual motor test data: and data on norm and criteria referenced measures of academic achievement. For the measures for which some sort of comparative standard was available, the overall impression was one of general poor performance. Rarely did any student score above the standardization mean in any area, and the majority did not evidence an appreciable ability/achievement discrepancy. Limitations in the reliability and validity of the assessment devices are noted. (Author)

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A DESCRIPTIVE STUDY OF STUDENTS ENROLLED IN A PROGRAM FOR THE SEVERELY LEARNING DISABLED

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Abstract

A continuing issue in the field of learning disabilities is the problem of identifying the defining characteristics of LD children. School records of 124 students at a private day school for learning disabled children were searched in an attempt to describe one group of students labeled LD. Information available included - demographic data; medical history information; parent estimates of: developmental milestones, the child's ability to get along with others, and behavioral problems; teacher ratings on behavioral checklists; intelligence test data; perceptual-motor test data; and data on norm- and criterion-referenced measures of academic achievement. For the measures for which some sort of comparative standard was available, the overall impression was one of general poor performance. Rarely did any student score above the standardization mean in any area, and the majority did not evidence an appreciable ability/achievement discrepency. Limitations in the data are discussed, particularly in regard to the reliability and validity of the assessment devices used.

A Descriptive Study of Students Enrolled in a Program for the Severely Learning Disabled

A major issue in the field of learning disabilities is the problem of the definition of this educational handicap (Hammill, 1980; Mercer, Forgnone, & Wolking, 1976; Reger, 1979; Senf, 1977; Smith & Polloway, 1979). Massive efforts have been launched on behalf of LD children, but educators have yet to agree on who should be called LD and how that determination should be made. Reger (1979) refers to the search for a definition as being a search for some mysterious but as yet undiscovered homogeneity among LD students. Reger hypothesizes that this search may be futile, but notes that the lack of a firm universal definition has not prevented children from being termed learning disabled and placed in programs specifically designed for the learning disabled.

The current general working definitions for LD, including the definition in PL 94-142, are based on the notion of ability/achievement discrepancies. Essentially, a child who evidences an achievement level significantly below estimated ability level is perceived to be LD. How great this discrepancy needs to be, however, is a matter of controversy (Mercer, Forgnone, & Wolking, 1976; Salvia & Clark, 1973). One point to be considered in using a discrepancy definition is O'Donnell's (1980) finding that other categories of exceptionality (blind, deaf, emotionally disturbed, mentally retarded, and gifted) show degrees of ability/achievement discrepancies similar to those of LD students. The presence of such discrepancies in other exceptionalities does not mean that children who evidence discrepancies without other concomitant handicaps should not be termed LD and provided services, but it does indicate that this defining characteristic is not exclusive to LD children.

Of equal importance to the problem of defining who is LD is the problem of determining who fits whatever definition is being used - the issue of eligibility. Once an educator settles on a working definition, a reliable and valid method of assessing the extent to which a student fits that definition is necessary. Unfortunately, this is a very difficult task considering the current state of the art of assessment. The majority of assessment devices currently in use are inadequate in terms of norms, reliability, and validity when general use is considered (Salvia & Ysseldyke, 1978). Even the technically adequate devices were generally not developed for the purpose of differentiating between LD and non-LD children, thus bringing into question their validity, reliability, and norms for use in defining this population (Smith & Rogers, 1978).

Investigators have looked at a myriad of different aspects of learning disabilities including the use of various standardized tests (e.g., Algozzine & Ysseldyke, 1980; Harmer & Williams, 1978; Larson, Rogers, & Sowell, 1976; Mecham, Jones, & Jex, 1973; Sattler, Bohanan, & Moore, 1980; Scull & Brand, 1980; Shinn, Algozzine, Marston, & Ysseldyke, 1980; Smith & Rogers, 1978; Stonebruner & Brown, 1979; Tierney & Ames, 1978; Zingale, Smith, & Dokecki, 1980, etc.), behavioral, social and family factors (e.g., Algozzine, 1979; Bryan & Bryan, in press; Deno, Mirkin, & Shinn, 1979; Epstein, Berg-Cross, & Berg-Cross, 1980; Harmer & Alexander, 1978; Kealy & McLeod, 1976; Mercer, 1979; Simonds, 1974; Strag, 1972, etc.), and physical and medical correlates (e.g., Aman, 1980; Black, 1972; Denhoff, 1971; Frostig & Maslow, 1979; Stubblefield & Young, 1975; Yang, Fisch, & Lamm, 1973; etc.). The various assessment measures have been looked at as being diagnostic,

predictive, descriptive, prescriptive, and evaluative; often assessment methods developed for one purpose are adapted for other purposes (e.g., profile analysis of the WISC-R for program planning, using the PIAT as a criterion-referenced measure, etc.).

Learning disabilities is, in fact, a field characterized more by divergent thinking among practitioners than by agreement. Academic wars are continually being waged regarding not only characteristics of these students or assessment and evaluation procedures, but also in terms of basic philosophy. Perhaps the major reason these theoretical battles remain stalemated relates back to the definitional issue. Not only are subjects in different studies not comparable because the criteria for LD varies, but as Keogh and her colleagues at the UCLA Marker Variable Project so cogently point out, rarely do investigators adequately describe the subjects in their studies, thus making any comparison between studies next to impossible.

In her reaction to the proposed research at the University of Minnesota Institute for Research on Learning Disabilities, Goodman (1979) recognized the difficulties involved in the definitional issue. Yet, she also pointed out that it cannot be ignored and urged the Minnesota investigators to broaden the scope of their investigations to include examination of the identifying and distinguishing characteristics of LD students. This study is, therefore, concerned with describing as completely as possible, one group of students labeled LD. Not only are the characteristics of these students, who all attended a day school

for LD children, considered, but the nature of the program they were in and the type of assessments are also examined. Information reported on these students covers all of the Phase II descriptive and substantive, and most of the topical, markers of the UCLA Marker Variable Project (Keogh, Major, Omori, Gandara, & Reid, 1980). Assessment information was available from almost all major sources of assessment data used with LD students (Ysseldyke & Thurlow, 1978) namely, norm-referenced tests, criterion-referenced tests, informal devices (checklists, rating scales), medical and social histories, current medical data, adaptive behavior/social data, and past records, thus providing a fairly complete picture of this group of students as described through psychoeducational assessment.

Methodology

Subjects

Students (N = 124) of a private day school for learning disabled children located near a major midwestern city served as subjects for this investigation. The mean age of the students at the time they entered this school program was 11 years 8 months; the students had been in the program for an average of 18.5 months. The 72 students who were attending the school at the time of data collection (Spring, 1979) and who had fairly complete school files constituted a subset of the population referred to as "current." These subjects were an average of 11 years 4 months of age at the time they entered the program. They averaged 12 years 9 months at the time the data were collected, and had been in the program for an average of 17.6 months. Subjects classified as "past" (N = 52) were artibrarily chosen as the first 52 students with

fairly complete records in the school's files of past students. The mean age at the time these students entered the program was 12 years 2 months; they left the program an average of 19.9 months later. As with the current students and the total group, 82% of the past students were males; over 95% were Caucasian, and all spoke English as a first language.

The school's programs were ungraded; 46% of the subjects were in the elementary program and 54% were in the secondary program. The percentage breakdown of elementary and secondary subjects was similar for the current and past subgroups. Approximately two-thirds of the students were estimated to come from middle class homes. The majority of the remaining students came from upper class backgrounds. Information regarding age on entry to the program, number of months in the program, estimated socieconomic status, and elementary/secondary enrollment for the total group and for the current and past students separately, is presented in Table 1.

Insert Table 1 about here

Setting

The school is located in a predominantly white middle to upper class suburb and serves mainly students from the suburban area. The philosophy of the school, established in 1972, is one of diagnosis, treatment, and progress evaluation under one roof. Instruction is individualized according to the perceived needs of each student, based on assessment data, with the aim of returning the student to his/her home school within

two years.

Students are grouped by age into large groups of 10 to 15 students with a student/teacher ratio of approximately 5 to 1. These groups are broken down into smaller groups according to ability. Progress reports are sent out three times a year. Elementary students do not receive grades; secondary students may receive grades if they wish. Instructional plans are said to be based on the assessments done by the school with particular emphasis on performance on the Metropolitan Achievement Test, administered annually, and the periodically administered SRA Diagnosis: An Instructional Aid in Reading/Mathematics. Each child has periodic counseling at which time school progress and performance on diagnostic and evaluative testing is discussed. Determination of readiness for reentry into a mainstream program is said to be based on: 1) grade level achievement; 2) the child's knowledge of his/her learning style, and 3) a high tolerance for frustration on the student's part.

Procedure

A survey was made of all available types of information in the school files of the subjects. This information fell into three basic categories: 1) parent questionnaire information gathered by the school at the time of application and admission to the program; 2) data from educational, psychological, and behavioral assessments; 3) reports from professional personnel outside of the school (e.g., neurologists, psychiatrists, home school personnel).

Information gathered from the files included demographic data, medical history information, parent estimates of developmental milestones, parent estimates of the child's ability to get along with family members and other significant persons, parents' perception of behavioral problems,

teacher ratings on behavioral checklists, intelligence test data, perceptual-motor test data, and data on norm- and criterion-referenced measures of academic achievement.

All quantitative data in the files were recorded for the present students. The ten most frequently administered devices were determined; only norm- or criterion-referenced data from these ten devices were recorded for past students. School collected behavioral information was only available for the 72 current students.

Specific procedures used in the collection of data are outlined below.

Demographics/medical history. The following demographic and medical history data were obtained from students' files:

- chronological age
- age at admission
- number of months in the program
- grade level (elementary/secondary)
- marital status of parents
- family status of child (natural/adopted/foster)
- socioeconomic status of family
- occurrence of LD in the family
- birth order of child
- prenatal problems
- postnatal problems
- neurological signs (soft/hard)
- hearing
- vision

- handedness
- auditory assessment
- language/articulation difficulties.

This information was defined and recorded in the following manner:

The chronological age recorded for each subject was the age of the student as of March 30, 1979. The age of the student at the point of admission to the school was also recorded, as well as the number of months the child had attended this particular school.

Elementary students were defined as those students 12 years 11 months of age or younger as of September 1 of the most recent year for which data were available. Information regarding marital status of the students' parents (intact, separated, divorced, widowed) and whether the student was a natural, adopted, or foster child was recorded verbatim from the intake questionnaire.

The socioeconomic status of each subject's family was estimated on the basis of the parents' occupations. Average incomes for the various occupational categories and state estimates of incomes falling into low, middle, or upper class ranges were obtained from the State Department of Employment Services. School personnel also provided some guidance in classifying the families as lower, middle or upper income.

Absence or presence of others in the family with school difficulties only included parents and/or siblings. Uncles, cousins, or grandparents with school difficulties were not included in this category.

Birth order was determined from the child's present position in the family. If there appeared to be definite outcomes (such as anoxia) due to complications during pregnancy or delivery, a prenatal problem was

recorded as being present. Prenatal problems were recorded as equivocal if there were complications during pregnancy or delivery, but these complications could not be tied to a specific outcome. Similar criteria were used to determine the presence of postnatal problems, which were defined as any major illness or injury occurring from birth up to age two years. Definite postnatal problems were those in which there was an identified change in behavior and/or level of functioning due to a major injury or illness. Postnatal problems were declared to be equivocal if there was a significant illness or injury, but no definite functional changes associated with it.

Classification of neurological signs was generally based on neurological reports written by outside consultants. If there was no neurological report in the student's files, or if the report definitely said there were no neurological signs present, the student was recorded as having an absence of neurological signs. Soft signs were considered to be equivocal neurological signs, while a report of hard signs, such as seizures, was considered to indicate a definite presence of neurological abnormalities.

Information as to whether the student was on medication at the time of data collection (current students) or at the time of the most recent report (past students) was also recorded. For those students taking medication, the medication was listed as being: 1) a central nervous system stimulant; 2) a tranquilizer/sedative; 3) an anti-convulsant; or 4) other.

Hearing and vision were recorded as being problems only if there was a definite mention of a hearing or vision disability in the student's

records. Corrected vision was not considered to be a problem.

Information on handedness (right, left, both) was generally only available for the current students. This information was obtained from a school survey done during the current academic year.

Performance on the Wepman Auditory Discrimination Test was recorded simply as pass or fail. The presence of language and/or articulation difficulties was usually obtained from reports written by school personnel or by outside consultants. The severity of the language and/or articulation difficulties was estimated to be mild/moderate or severe on the basis of the information available in the child's files.

Parent ratings. Responses to the parents' ratings of their child's ability to get along with significant others were coded as above average, average, or poor. The 12 developmental milestones were rated as fast, average, or slow. These items were taken directly from the school's intake questionnaire and were identical for all students. The list of behavior problems (answered yes or no) was also completed by the parents as a part of the intake questionnaire. However, there were three different forms of this checklist; the form used depended on the year in which the child entered the program. Two of the forms had considerable (72%) overlap of items, and the third form was only used with a very small number of students. Therefore, while all information available was recorded, only the most commonly used items (N = 16) were included in the final data analyses.

Psychometrics. Whenever possible, both raw scores and standard scores ($\bar{X}$ = 100, SD = 15) were recorded for subtests and the totals on

the norm-referenced devices. For raw scores which were not transformable into standard scores, the student's age at the time the test was administered was recorded, along with the raw scores achieved. Scores from all administrations of a given device were recorded. The scores actually coded and used in the data analysis were generally from the most recent administration of the device. The devices administered to sufficient numbers of students to make data analyses meaningful fall into five domains: a) intelligence/aptitude tests; b) measures of academic achievement; c) language tests; d) measures of perceptual-motor skills; and e) behavioral measures. The specific tests in these domains on which data were recorded and analyzed are listed in Table 2.

Insert Table 2 about here

Raw scores from the Test of Written Spelling were recorded along with the age of the student at the time of testing. The mean score and the minimum and maximum scores were transformed to Spelling Ages (age equivalents) and Spelling Quotients (standard scores based on $\bar{X} = 100$).

Grade equivalents were calculated on the basis of total raw scores on the KeyMath Diagnostic Arithmetic Test. Expected grade equivalents were calculated on the basis of the chronological ages of the students at the time the test was administered.

The Metropolitan Achievement Test (MAT) was not only given to each student when they entered the program, but was also administered to all students every May. Raw and standard scores on all subtests were recorded along with the form and level of the test given the student. For analysis purposes, form and level were not differentiated for standard scores on

subtests common to more than one level. The two most recent administrations (one year apart) of the MAT were coded for analysis purposes and gain scores were computed based on the mathematics total standard score and the reading total standard score.

The criterion-referenced measures (SRA Diagnosis: An Instructional Aid in Reading and SRA Diagnosis: An Instructional Aid in Mathematics) were not amenable to transformation into standard scores. They were therefore looked at in terms of the average number of test objectives accomplished by each student per administration for the 1977-1978 and 1978-1979 academic years (there were ten and seven administrations per year, respectively). Since it cannot be assumed that the degree of difficulty of the objectives was equivalent across the various levels of each device, averages were only computed within each level (level A, B, and Advanced for the reading measure and level A, B, and Algebra for the mathematics measure).

Approximately half (N=64) of the students had scores available on both the WISC-R and the PIAT. For each of these students, the discrepancy between the total WISC-R standard score and the total PIAT standard score was calculated.

Scores on the Illinois Test of Psycholinguistic Abilities (ITPA) are generally expressed in standard scores with a mean of 36 and standard deviation of 6. For purposes of comparability with other measures, these scores were transformed so that they were based on a mean of 100 and standard deviation of 15.

Behavioral measures. Data were recorded from the Burks' Behavior Rating Scale, the Coopersmith Teacher Rating Scale, and a student behavior rating scale developed by the school. Original teacher ratings on the

Burks' Scale ranged from 1 to 3; ratings on the Coopersmith and the school's scale were on a 1 to 5 scale. Some items on the Coopersmith are phrased positively, some negatively; for analysis purposes ratings on negative items were reversed to make all the item ratings comparable. The item scores were averaged to give an overall scale item average. In most cases, several people (teachers, parents) completed the Burks' scale and several teachers filled out the school's scale for each student. The scale averages were therefore averaged across raters to come up with one overall item average for the student on each scale. There was also information available from a version of the school's student rating scale designed for the students themselves to fill out. Average item scores were coded for this form of the scale as well.

Results

Naturally-Occurring Characteristics

Two types of naturally-occurring characteristics were considered, a) medical/physical characteristics of the child, and b) characteristics of the student's family. The medical information available indicated that of the 116 students on whom medical history information was available, definite prenatal problems were reported by parents for 6% of them, and problems judged equivocal were reported by parents for another 9% of the students.

When asked about problems occurring after birth, the parents of 11% of the students indicated that there had been postnatal problems. Seventeen percent of the children reportedly had had a serious illness or injury, but without concomitant behavioral effects.

Furthermore, there was some evidence of neurological impariment for 24% of the students. In nine percent of these cases there were hard signs; for the other 15%, possible neurological imparirment was evidenced through soft signs. Hearing problems were cited in the records for four percent of the students; seven percent were considered to have a visual disability. Only 12% of the 83 students on whom information was available were left handed.

According to the school records, medications were being taken at the time of data collection (present students), or at the time of the most recent report (past students), by 32% of the subjects. The most frequently used medications fell into the category of central nervous system stimulants (57% of medications used). Eleven percent of the medications noted were tranquilizers/sedatives, while 11% were anticonvulsants; the remaining 22% fell into various other categories.

Information about the students' families indicated that 13% of the students, past and present, were adopted. The majority (84%) of the subjects' families were reported to be intact, with two percent of the subjects coming from homes where the parents were separated, ten percent from homes where the parents were divorced, and four percent from families where one of the parents had died.

Only three subjects had no brothers or sisters; for approximately one-fourth (26%) there was one other child in the family, 36% had two siblings, 20% had three siblings, and 17% came from families of five for more children. More than one-third (37%) of the students were the oldest children in their families. Second children accounted for 21% of the sample, and 28% were the third oldest. The remaining 13%

of the subjects were the fourth, fifth, or eighth child in the family.

Of the 118 subjects on whom information was available, the parents indicated that 37% had a sibling or a parent who had also had learning difficulties in school.

Speech and Language

Speech and language information was available for 109 students. Approximately one-third of the students were judged to have a language problem. Of these 33 students, six were considered to have a severe problem, and 27 had difficulties estimated to be mild or moderate. Articulation was deemed to be a problem for one-fourth of the students; four had a severe articulation problem, and 24 had difficulties judged to be mild or moderate. Eighty percent of the students passed the Wepman Auditory Discrimination Test.

Parent Ratings

Twelve developmental milestones were rated by parents on the basis of a three point scale with 1 = fast, 2 = average, 3 = slow. Means and standard deviations for each milestone are listed in Table 3. The areas in which these children appeared to their parents to be somewhat slow were: tying shoelaces, buttoning, drawing, coloring, and talking.

Insert Table 3 about here

Parents rated their child on how well the child got along with family members, teachers, and peers. Possible ratings were: 1 = above average, 2 = average, and 3 = poor. Means, standard deviations, and N's for these ratings appear in Table 4. All mean ratings were close to average.

Insert Table 4 about here

On the 16 item list of behavior problems, the students on whom this information was available averaged 6.6 items checked (range = 1-13, SD = 2.7). The items and the number of students for whom each item was perceived by the parents to be a problem are listed in Table 5.

Insert Table 5 about here

Psychometrics

A recently completed inventory of the school's test materials indicated over 160 measures in various domains on file. Results from at least 42 of these devices appeared in the files of the "current" students; the average number of tests mentioned per student was nine; one student had results from 18 different measures recorded. See Table 2 for a listing of the devices on which data were available for enough subjects to make analysis meaningful.

Intelligence aptitude measures. The mean full scale intelligence quotient on the Wechsler Intelligence Scale for Children - Revised (WISC-R) was 93.9 with a range of 57-123 and a standard deviation of 14.8. The mean IQ score on the Verbal subtests was 92.2 (range = 59-123; SD = 14.1); the mean IQ on the Performance subtests was 96.3 (range = 58-130; SD = 16.9). Mean standard scores ranged from 6.7 for the Coding subtest to 10.1 for the Picture Completion and Picture Arrangement subtests. Means, standard deviations, and ranges for all subtests are listed in Table 6.

Insert Table 6 about here

The mean standard score on the Peabody Picture Vocabulary Test was 99.6 with a range from 55 to 145 and a standard deviation of 18.5.

Achievement measures. Peabody Individual Achievement Test scores were available for 84 students. The mean total test standard score on this measure was 87.1 (range = 65-112; SD = 11.9). Subtest standard scores ranged from 82.1 on the Spelling subtest to 94.2 on the General Information subtest. Means, ranges, and standard deviations of the subtest standard scores may be found in Table 7.

Insert Table 7 about here

Mean standard scores for the subtests of the Wide Range Achievement Test were 89.2, 82.3, and 84.5 for the Reading, Spelling, and Arithmetic subtests, respectively. A number of students only had scores available on one or two of the subtests. Table 8 shows the number of subjects with scores on each subtest, the mean standard scores, range of scores, and standard deviations for the Reading, Spelling, and Arithmetic subtests.

Insert Table 8 about here

Total raw scores on the Test of Written Spelling for those students within the age range covered by the test ranged from 9 to 47 with Spelling Ages (SA) ranging from 7-1 to 12-8. Spelling Quotients (SQ) ranged from

60 to 112. These scores were available for 19 students; only two students had SQ's greater than 100.

The average total raw score for 84 students on the KeyMath test was 130.5 (range = 23-203; SD = 46.5). A score of 131 translates into a grade equivalence of 4.3. This compared with an expected grade equivalence of 6.9 based on the group's mean chronological age of 12-5 at the time of testing. Differences between achieved grade equivalence and expected grade equivalence for individual students ranged from +1.6 years to -6.8 years with only four students performing better than expected on this measure. In none of the 14 subtests was the average score at or above the expected level.

Mean standard scores, ranges, and standard deviations for the subtests of the Metropolitan Achievement Test (MAT) are listed in Table 9. Scores are listed for both administrations of the MAT; subtests from all forms and levels are included. As noted in the table, the average change from the first MAT administration to the second MAT administration was 7.3 points for reading and 6.9 points for math. The N's, ranges, and standard deviations for these scores may be found in Table 10.

Insert Tables 9 and 10 about here

Across all administration of the SRA Diagnosis reading and math measures, students achieved the following average number of objectives per administration: reading - level A, 17.4; reading - level B, 16.07; reading - Advanced, 34.5; math - level A, 22.7; math - level B, 39.4; math - Algebra, 82.3. The number of students with scores

available on the various levels varied greatly. The N's, ranges, and standard deviations for the scores on each level are in Table 11.

Insert Table 11 about here

Aptitude/achievement discrepancies. Of the 64 students who had scores available on both the WISC-R and the PIAT, 44 (69%) had a discrepancy of less than one standard deviation (15 points) between the total scores on the two tests. Another 17 students (26%) had discrepancies of between 1.0 and 1.5 SD's, five had discrepancies of 1.5 - 2.0 SD's and two had discrepancies greater than 2 SD's. Two of the 64 students had standard scores on the PIAT that were higher than their scores on the WISC-R.

Language measures. Forty-one students had scores available on the Utah Test of Language Development. The average age of these students was 11-2 (range = 7-0 to 16-10; SD = 26.2 months) and their mean raw score was 43.0 (range = 27-51; SD = 6.2). This score converts to a Utah Language Age of 9-9 (range = 5-3 to 16-0).

Subtest mean standard scores, ranges, and standard deviations for the Illinois Test of Psycholinguistic Abilities are presented in Table 12; these scores are based on the transformed standard score which assumes a mean of 100 and standard deviation of 15. The students' best performances were on the Manual Expression and Sound Blending subtests ($\bar{X}$ = 100.6 and 106.2, respectively) with the Grammatic Closure subtest evidencing the lowest average score (83.3) as well as the largest standard

deviation (28 points).

Insert Table 12 about here

Perceptual-motor measure. The Beery-Buktenica Developmental Test of Visual-Motor Integration (VMI) was administered to 73 students. Within the 2-15 year age range covered by the test, the average age of these students was 10-10 (range = 6-10 to 14-7; SD = 26.5 months). Scores averaged 14.6 (range = 6-23; SD = 4.1). The VMI Age Equivalent for a raw score of 15 is 7-10 (males), 7-11 (females).

Behavioral measures. Scores on the Burks' Behavior Rating Scales were available for the nine students referred to the school's behavior management program because of behavioral difficulties. Scores were summed into the 19 profile categories and were summed across raters. Within each category the student's score was judged to be: 1 - not significant, 2 - significant, or 3 - very significant. The average across all categories was 1.68 (range = 1.1 - 2.3; SD = .38).

Teacher ratings on the Coopersmith Behavior Rating Scale were available for 38 students. The average item score was 2.61 with a rating of 1 being the most positive rating and a rating of 5 being negative.

The school's own rating scale also had items rated from 1-5 with 1 being positive and 5 negative. Items on the form the students completed were comparable to the items on the teachers' form. Seventy students had forms completed by one or more teachers; sixty students completed a

student form. The mean rating across teachers and items on the teachers' form was 2.89 (SD = .49); the mean rating across items on the student form was 2.27 (SD = .52).

Discussion

The students in this investigation are defined as LD by virtue of attending this particular school rather than by a specific type of performance on any one test or battery of tests. Most of the information presented is not standardized or norm-referenced, thus no judgments were made on whether these students exhibit more or less of a given characteristic than any other group of 124 children. For the measures for which some sort of comparative standard was available (standard scores, age scores, grade equivalents), the overall impression is one of general poor performance across all measures. Not only were performances on measures of academic achievement considerably below average, but the mean WISC-R score (93.9) was several points below an expected mean of 100. The only measure on which the mean score was comparable to that of the test's standardization sample was the PPVT ($\bar{X}$ = 99.6). Although learning disabilities is generally defined as a deficiency in a specific academic area, rarely did any student score above the standardization mean in any area (reading, spelling, arithmetic, language, etc.). An examination of individual ability/achievement discrepancies in WISC-R and PIAT scores further reveals that more than two-thirds of the students on whom these scores were available had an achievement score which was 0.0 - 1.0 standard deviation less than their ability score. Only seven students had discrepancies of 1.5

standard deviations or greater, thus indicating that ability/achievement discrepancies are not a defining characteristic of this particular LD population.

No formal statistical analyses are reported on the data gathered in this study because of innumerable problems of missing data, tests administered at varying points in the student's program, non-standard administrations, the wide age range of subjects, confounding of tests and instruction, uncontrolled quality of administration, unreliability of much of the data (e.g., parent and teacher reports), and lack of good criterion variables.

In only a very few cases (e.g., Smith & Rogers, 1978; Zingale, Smith, & Dokecki, 1980) have investigators looked at the technical adequacy of assessment devices with LD children. Smith and Rogers (1978) found that the WISC-R, MAT, and PIAT were in fact as reliable for their sample of LD children as for the standardization sample; however, these findings do not justify the blithe administration of these and other tests long before the findings were published. Also, these three tests are among the relatively few assessment devices which are considered technically adequate in terms of reliability even for general use (Salvia & Ysseldyke, 1978). Even though these measures may be reliable, their validity has not been demonstrated with students identified as LD. For those devices judged inadequate technically for general use, how much less adequate they must be for use with a vaguely defined and widely divergent group like LD students.

Not only are the reliability, validity, and norms of assessment devices of questionable merit when used with LD students, but in many cases, the way in which performance on these measures is reported may

be extremely misleading. Various investigators (Hanna, Dyck, & Holen, 1979; Salvia & Ysseldyke, 1978) have seriously questioned the value of reporting age scores, grade scores, and discrepancy scores.

Another major issue is the use of assessment devices for purposes other than those for which they were devised and have been validated. Not only is this poor and unethical practice (APA, 1974), but it is specifically forbidden by the Protection in Evaluation Procedures Provisions of PL 94-142 (Federal Register, 1977). A particularly widespread use of assessment devices in recent years has been for the development of instructional programs. Very often the measures used for these purposes are devices developed for other purposes (the WISC-R, the MAT, the PIAT, etc.) - measures for which no "treatment validity" (Hofmeister, 1979) has been demonstrated.

In order to provide adequate services for these children called LD and to make effective use of research in this area, we need to know who and what it is that we are dealing with. An accurate description of these students requires reliable and valid assessment practices. Likewise, reliable and valid assessment is a necessity in planning instructional interventions and in evaluating the effectiveness of those interventions. We need to be able to have confidence that our assessments are reflecting characteristics of the student and changes in the student rather than just random variation in the measurement system.

The present study is a strictly descriptive look at one group of LD students using only the information collected by and available to the school they attended. Therefore, the description of the students is necessarily only as valid and reliable as the methods by which the

assessment data were collected. And yet, even though the measures used may not have always been technically valid, there is an ecological validity to this description in that the information gathered on this particular group of students is essentially the same information as is gathered on LD students across the nation (Thurlow & Ysseldyke, 1979). The inability to identify definitive characteristics of "LD-ness" among these students, the use of a multitude of measures to describe these nonexistent characteristics, and the further use of these measures of unproven reliability and validity to design instructional programs is, unfortunately, an all too telling commentary on the state of the art in the field of learning disabilities.

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Footnotes

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We are also most appreciative of the generous support of the director and staff of the school from which this information was gathered. We hope, in return, that our findings might be useful to them.

Table 1

Demographic Data on All Subjects, Present Students and Past Students

	Total	Present	Past
Number of subjects	124	72	52
Sex			
Male	82%	82%	82%
Female	18%	18%	18%
Average age on entry	11-8	11-4	12-2
Age range on entry	6-1 to 18-1	6-1 to 18-1	7-4 to 16-4
Average number of months in program	18.5	17.6	19.9
Range of months in program	3 to 63	3 to 63	5 to 45
SES			
% Low	7%	4%	10%
% Middle	64%	63%	67%
% Upper	29%	33%	24%
Educational level on entry			
Elementary	46%	47%	43%
Secondary	54%	53%	57%

Table 2

Devices from which Psychometric Data were Recorded and Analyzed

Domain	Device
Intelligence/Aptitude	Wechsler Intelligence Scale for Children - Revised (WISC-R)
	Peabody Picture Vocabulary Test (PPVT)
Achievement	Peabody Individual Achievement Test (PIAT)
	Wide Range Achievement Test (WRAT)
	Test of Written Spelling (TWS)
	KeyMath Diagnostic Arithmetic Test
	Metropolitan Achievement Test (MAT)
	SRA Diagnosis: An Instructional Aid in Reading
	SRA Diagnosis: An Instructional Aid in Mathematics
Language	Utah Test of Language Development
	Illinois Test of Psycholinguistic Abilities (ITPA)
Perceptual-Motor	Developmental Test of Visual-Motor Integration (VMI)
Behavioral	Burks' Behavior Rating Scales
	Coopersmith Behavior Rating Scale (teacher form)
	the school's behavior rating scale - teacher and student forms

Table 3

Mean Ratings for the 12 Developmental Milestones

Milestone	N	$\bar{X}$
Walking	109	2.12[a] (0.59)[b]
Running	108	2.06 (0.52)
Climbing	107	2.03 (0.60)
Talking	109	2.39 (0.61)
Toilet training	108	2.14 (0.60)
Buttoning	109	2.47 (0.57)
Tying shoelaces	109	2.56 (0.55)
Playing with toys	109	1.96 (0.51)
Coloring	108	2.39 (0.54)
Drawing	108	2.41 (0.60)
Understanding what is said to him/her	108	2.21 (0.67)
Getting along with peers	108	2.29 (0.61)

[a]Ratings are based on a scale of 1-3 with 1 = fast, 2 = average, 3 = slow.

[b]Numbers in parentheses are standard deviations.

Table 4

Parent Estimates of Child's Ability

to Get Alone with Others

Person	N	$\bar{X}$
Mother	108	1.74[a] (0.52)[b]
Father	103	1.74 (0.54)
Sister	87	1.91 (0.62)
Brother	80	2.03 (0.60)
Teacher	104	1.90 (0.46)
Peer	108	2.16 (0.61)

[a]Ratings are based on a scale of 1-3 with 1 = above average, 2 = average, 3 = poor.

[b]Numbers in parentheses are standard deviations.

Table 5

Percentage of Students for Whom Parents Perceived Particular Behaviors to be a Problem

Behavior	%
Difficult or different	59[a]
Hyperactive	46
Clumsy	40
Withdrawn	26
Inactive/sluggish	21
Sleepy/lethargic	13
Forgetful	69
Impulsive/explosive	62
Abnormal in gait	20
Poor writing or drawing	81
Hard to understand verbally	27
Poor in understanding what she/he hears	58
Inattentive	60
Obstinate/stubborn	53
Subject to temper tantrums	31
Insensitive to feelings of others	24

[a]N's ranged from 96 to 102 for each item.

Table 6

Standard Scores on Subtests on the WISC-R

Scale	N	$\bar{X}$	Range
Verbal	87	92.2 (14.1)[a]	59-123
Information	85	8.5 (3.1)	1-15
Similarities	83	9.6 (2.7)	5-16
Arithmetic	84	7.7 (2.7)	2-16
Vocabulary	85	8.7 (3.2)	1-19
Comprehension	85	9.4 (3.0)	3-16
Digit Span	79	7.6 (2.6)	1-17
Performance	87	96.3 (16.9)	58-130
Picture Completion	84	10.1 (3.1)	3-18
Picture Arrangement	84	10.1 (3.2)	1-17
Block Design	85	9.4 (3.7)	1-18
Object Assembly	82	10.5 (3.7)	1-18
Coding	85	6.7 (3.0)	1-14
Mazes	12	8.5 (2.0)	5-12
Full Scale	87	93.9 (14.8)	57-123

[a]Numbers in parentheses are standard deviations.

Table 7

Standard Scores of Subtests on the PIAT

Subtest	N	$\bar{X}$	Range[b]
Mathematics	85	90.8 (12.4)[a]	65-114
Reading Recognition	85	89.9 (13.7)	65-123
Reading Comprehension	84	90.8 (14.4)	65-123
Spelling	84	82.1 (11.6)	65-107
General Information	85	94.2 (13.6)	65-128
Total Test	84	87.1 (11.9)	65-112

[a]Numbers in parentheses are standard deviations.

[b]The lowest possible score on all subtests is 65.

Table 8

Standard Scores for Subtests of the WRAT

Subtest	N	$\bar{X}$	Range
Reading	59	89.2 (14.0)[a]	60-116
Spelling	63	82.3 (12.3)	42-106
Arithmetic	60	84.5 (9.2)	66-107

[a]Numbers in parentheses are standard deviations.

Table 9

Standard Scores of Subjects for Two Administrations of the MAT

Subtest	Administration I N	Administration I $\bar{X}$	Administration I Range	Administration II N	Administration II $\bar{X}$	Administration II Range
Word Analysis	24	48.5 (11.3)[a]	33-72	24	50.5 (10.7)	28-72
Word Knowledge	88	71.8 (20.1)	27-125	91	75.6 (19.7)	17-120
Reading	88	67.7 (21.2)	18-121	91	72.9 (20.0)	29-121
Reading Total[b]	67	76.1 (18.1)	32-111	69	82.0 (16.2)	51-119
Reading Total[c]	20	47.2 (11.0)	27-68	21	49.4 (9.9)	22-61
Language	55	78.0 (14.9)	42-101	59	83.9 (12.1)	59-106
Spelling	80	68.9 (14.0)	39-101	84	72.6 (15.7)	43-112
Math Computation	78	76.3 (19.9)	27-140	84	80.8 (20.0)	43-125
Math Concepts	78	73.3 (18.0)	29-107	84	79.1 (16.8)	31-125
Math Problem Solving	77	74.3 (20.0)	28-106	84	78.8 (19.7)	34-117
Total Math[d]	76	79.2 (20.1)	27-129	84	83.2 (19.3)	36-121
Total Math[e]	8	47.6 (14.7)	33-68	6	44.3 (12.4)	32-62
Science	20	88.0 (16.7)	53-117	29	97.2 (11.8)	71-122
Social Studies	20	87.3 (17.6)	43-113	29	93.4 (11.5)	73-122

[a] Numbers in parentheses are standard deviations

[b] Elementary, Intermediate Advanced levels

[c] Primary I & II

[d] Primary II, Elementary, Intermediate, Advanced

[e] Primary I

Table 10

Reading and Math Total Scores and

Gain Scores on the MAT

		N	X	Range
Administration I				
	Reading	87	69.5 (20.7)	27-111
	Math	84	76.2 (21.7)	27-129
Administration II				
	Reading	90	74.4 (20.4)	22-119
	Math	90	80.6 (21.3)	32-121
Gain				
	Reading	69	7.3 (8.3)	-16-+20
	Math	69	6.9 (10.5)	-41-+30

Table 11

Number of Objectives Accomplished on SRA Diagnosis:

Reading and Mathematics Measures

Measure	Level	N	$\bar{X}$	Range
Reading				
	A	27	17.4 (9.7)[a]	1.5 - 52.0
	B	20	16.1 (12.5)	3.0 - 41.3
	Advanced	27	34.4 (14.4)	14.6 - 94.0
Mathematics				
	A	37	22.7 (7.6)	9.5 - 41.3
	B	27	39.4 (16.8)	12.0 - 68.3
	Algebra	3	8.2 (1.3)	6.7 - 9.0

[a]Numbers in parentheses are standard deviations.

Table 12

Standard Scores for ITPA Subtests

Subtest	N	$\bar{X}$	Range
Auditory Reception	32	89.0 (15.3)[a]	48-115
Visual Reception	34	96.6 (22.4)	45-138
Visual Sequential Memory	33	88.5 (23.8)	33-138
Auditory Association	34	92.0 (27.1)	28-133
Auditory Sequential Memory	34	88.2 (17.7)	48-128
Visual Association	34	95.5 (12.8)	70-120
Visual Closure	31	91.5 (19.9)	58-138
Verbal Expression	31	89.9 (15.2)	65-128
Grammatic Closure	31	83.3 (28.0)	13-123
Manual Expression	30	100.6 (15.5)	70-133
Sound Blending	30	106.2 (17.9)	63-130

[a]Numbers in parentheses are standard deviations.

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