DOCUMENT RESUME

ED 295 409 EC 202 848

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TITLE What Does the K-ABC Tell Us about Students with Learning Disabilities?
PUB DATE Feb 88
NOTE 33p.; Paper presented at the Annual University of Wisconsin-Oshkosh Special Education Conference (Oshkosh, WI, February 1988).
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Achievement; Cognitive Processes; Elementary Education; *Learning Disabilities; Scores; Sequential Learning; Student Characteristics; *Test Interpretation; Test Norms
IDENTIFIERS *Kaufman Assessment Battery for Children

ABSTRACT

Three studies were designed to explore the pattern of scores on the Kaufman Assessment Battery for Children (K-ABC) by 18 students in elementary level learning disability (LD) resource programs (Study 1), 133 elementary level students referred for learning problems (Study 2), and 67 elementary students referred for severe learning disabilities (Study 3). Conclusions drawn from results of all three studies are as follows: consistent or characteristic patterns of performance on the K-ABC for LD children are lacking; the factor distinguishing students referred and subsequently identified as LD and those not identified as LD is usually a discrepancy between the Achievement (ACH) standard score and the Mental Processing Composite score on the K-ABC; global scores may camouflage similarities or differences in actual subtest performance between groups of students; the K-ABC Achievement scale does not represent a unitary trait for students with learning problems; the majority of studies with LD students reveal mean simultaneous (SIM) processing scores greater than mean sequential (SEQ) scores; in contrast to the standardization sample, a large proportion of students with learning problems exhibited equal simultaneous and sequential processing scores; when a processing preference was shown by LD students, the SIM-SEQ pattern was most likely; LD students exhibit a similar pattern of subtest scores as learning problem students but with lower achievement levels. (DB)

What Does the K-ABC Tell Us About Students with Learning Disabilities?

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Paper presented at 1988 Annual UW-Oshkosh Special Education Conference, Oshkosh, Wisconsin, February 1998.

Running head: K-ABC AND LEARNING DISABILITIES

The diagnosis of learning disabilities (LD) in children continues to be a controversial endeavor as definitions of LD vary widely and school districts employ a diversity of identification procedures (Ysseldyke, Algozzine & Epps, 1983). Although criteria for placement in these programs are not consistent, many districts utilize a discrepancy model based on differences between the child's ability, as measured by an individual intelligence test, and achievement.

Numerous studies have attempted to identify differences between LD and non-LD students as well as characteristic profiles of the LD student with mixed and sometimes contradictory results being reported. Some studies (e.g. Algozzine & Ysseldyke, 1983) report no differences between students identified as LD and low achieving students while other researchers (e.g. Kaufman, 1979) report characteristic patterns of performance on the Wechsler Intelligence Scale for Children-Revised (WISC-R). A recent meta-analysis of 94 such studies using the Wechsler Scales concluded that "no recategorization, profile, factor cluster, or pattern showed a significant difference between learning disabled and normal samples" (Kavale & Forness, 1984, p. 136). The majority of these studies, however, have been characterized by small samples, use of previously identified LD students, lack of control groups, failure to control for length of time in LD program or failure to consider severity of the handicap.

Since the introduction of the Kaufman Assessment Battery for Children (K-ABC; A. Kaufman & N. Kaufman, 1983), a scale designed to measure intelligence and achievement in children ages 2 1/2 to 12 1/2, additional studies of LD students have been conducted. The authors of the K-ABC define intelligence as "an individual's style of solving problems and processing information" (A. Kaufman & N. Kaufman, 1983, p. 2) and assert that "low levels of sequential or successive processing may be associated with poor reading performance for mentally retarded and learning disabled children" (A. Kaufman & N. Kaufman, 1983, p. 11).

Validity studies in the Interpretive Manual of the K-ABC indicated that LD students obtained Simultaneous (SIM) processing standard scores approximately 2-5 points higher than Sequential (SEQ) processing scores. Several of the studies also found equal proportions of SEQ > SIM and SIM > SEQ patterns among the students.

Recent studies examining LD students' performance on the K-ABC and other measures (Haddad, 1984, April; Klanderman, Pernev & Kroeschell, 1985; Naglieri, 1984, April, 1985; Naglieri & Haddad, 1984; A. Obrzut, J. Obrzut & Shaw, 1984) have documented a strong relationship between the Mental Processing Composite (MPC) on the K-ABC and the Full Scale IQ (FSIQ) on the WISC-R (r = .71 to .85). Most of the studies have also failed to find consistent SEQ-SIM processing differences for LD students as a group. In addition, the Achievement (ACH) standard score has usually been 4-10 points lower than the MPC for LD students. Recent critiques of the K-ABC

factor structure (Bracken, 1985; Keith, 1985) have questioned the legitimacy of interpreting the entire cluster of ACH s tests as a distinct factor. In fact, Kaufman (1983) described several achievement subtests (Riddles, Expressive Vocabulary, Faces & Places and Arithmetic) as being similar to verbal measures on other tests and Keith (1985) indicated that at age levels 5 and 7 achievement subtests did not load on a separate factor. Recently, Kamph. . and Reynolds (1987) have proposed a division of the K-ABC Achievement Scale into a Reading Composite score (composed of Reading/Decoding and Reading/Understanding) and a Verbal Intelligence Composite score (composed of Expressive Vocabulary, Faces & Places, Riddles and Arithmetic) as an alternative approach to the single ACH score.

These issues, however, have usually been examined using previously identified LD students or students without academic difficulties. Therefore, three studies were designed to explore the pattern of scores on the K-ABC obtained by students in LD resource programs (Study 1), students referred for learning problems (Study 2) and students referred for severe learning disabilities (Study 3).

Study 1

This study was designed to examine the pattern of performance on the K-ABC by a group of students previously diagnosed as LD.

Method

Subjects. The sample consisted of 18 students (11 males and 7 females) diagnosed as LD in a suburban, midwestern elementary school serving a predominantly middle class population. The parents of all 22 LD students in the program were asked to participate in the study, yielding a participation rate of 82%.

The students ranged in age from 8 years, 6 months to 11 years, 10 months with a mean age of 10 years, 5 months. Each student had been diagnosed previously as LD based on a discrepancy between ability, as measured by an individual intelligence test (the WISC-R in most cases), and achievement. The decision to place students in the LD program was made by a child study team. Each student received LD services on a resource basis for periods ranging from half an hour to two hours per day.

Procedure. Each student was administered the K-ABC by school psychologists trained in the administration of both tests. Pearson product moment correlations were calculated for the global scales and subtests of the K-ABC. Due to restriction in range, the correlations were corrected using a procedure developed by Guilford (1954). T-tests for related sample were also performed on the global standard scores of the K-ABC to ascertain significant differences in performance patterns.

Results. Mean scores on the global scales were all in the average range and ranged from 95.78 on Achievement (ACH) to 102.33 on Simultaneous Processing (SIM). These results are reported in Table 1.

Insert Table 1 about here

Pearson product moment correlations were calculated for the global scales of the K-ABC and corrected for restriction in range using a procedure developed by Guilford (1954). These results are presented in Table 2.

Insert Table 2 about here

The results in Table 2 suggest that the SIM and SEQ scales are measuring different aspects of intelligence for this group of LD students. Although both scales are highly related to overall intelligence (MPC), their relationship to each other is minimal (r = .06) and lower than the correlations reported for the standardization sample in the Interpretive Manual and for other studies of LD students (e.g. Lyon & Smith, 1985; Naglieri & Haddad, 1984; Smith, Lyon, Hunter & Boyd, in press). In addition, the ACH scale seems to be measuring behavior that is different from that measured by the mental processing scales as the correlations range from .18 to .48 so that a maximum of 25% of the variance is

predicted by the ACH/MPC relationship.

T-tests for related samples were performed on the global standard scores of the K-ABC to ascertain significant differences in performance patterns. Significant differences were noted for SIM-SEQ ($t(17) = 2.56$, $p < .05$) with the mean SIM score 9 points higher than the mean SEQ score. Both a SIM > SEQ pattern (Kaufman & McLean, 1986) and a SEQ > SIM pattern (Klanderman et al., 1985; Naglieri & Haddad, 1984) have been found in studies of LD students. While the difference were not significant in previous studies, the difference is significant in the present study.

Highest mean scores were on Gestalt Closure (11.8) and Photo Series (10.6) with lowest mean scores on Hand Movements (8.8) and Word Order (8.5). On the Achievement Scale, the highest mean scores were on Riddles (100.7) and Reading/Understanding (97.1) with lowest mean scores on Arithmetic (93.8) and Reading/Decoding (94.6). For the most part these results are consistent with the LD profile presented in the K-ABC Interpretive Manual. Relative strength in reasoning and relative weakness in achievement and memory/sequential processing are indicated.

udy 2

The purposes of the study were: (1) to examine K-ABC performance for a sample of elementary-age students referred for learning difficulties and (2) to examine any differences in performance between those students placed in LD programs and those not placed in LD programs.

Method

Subjects. The sample consisted of 133 students (92 males and 41 females) who were newly referred for the assessment of learning problems. The students ranged in age from 6 years to 12 years, 5 months with an average age of 8 years, 3 months.

Procedure. Each student was administered the K-ABC by school psychologists employed by the school district. Eighty-two students (62%) were subsequently placed in LD programs, 48 students (36%) were not placed in special programs, and the status of three students (2%) was not reported.

Results

K-ABC mean global scale scores were concentrated in the low average to average range for both the students placed in LD programs and the students not placed in LD programs. The lowest score for both groups was ACH which fell into the low average range for the LD group and at the lower end of the average range for the non-LD group. Mean scores, standard deviations and range are reported for the K-ABC global scales in Table 1. Mean scores, standard deviations and the SIM-SEQ correlations as well as their correlations with MPC suggest that although both scales are related to overall mental processing, the two scales are measuring different aspects of performance.

Correlations between individual subtests and the K-ABC global scales were calculated. Simultaneous subtests correlated most highly with the SIM scale (.55 to .86), sequential subtests

correlated most highly with the SEQ scale (.73 to .92) and achievement subtests correlated most highly with the ACH scale (.79 to .86). Subtest correlations with the MPC ranged from .40 to .82.

In order to ascertain any significant differences in performance patterns between students placed in LD programs and those not placed, a series of 2 by 2 analyses of variance were conducted with global standard scores and subtest scaled scores on the K-ABC as dependent variables and placement and sex as independent variables. Significant main effects by placement were indicated on the ACH scale ($F = 8.15$, $p < .005$) and on the subtests, Arithmetic ($F = 14.74$, $p < .001$) and Reading/Decoding ($F = 14.20$, $p < .001$), with students placed in LD programs producing lower mean scores than students not placed in LD programs. No other significant main effects and no significant interaction effects were indicated. Since many LD programs base placement decisions on the discrepancy between ability and achievement and differences in ability between the two groups was nonsignificant, it is not surprising that the students placed in LD programs exhibited significantly lower ACH scores. The pattern of performance on the global scales by both groups is depicted in Figure 1.

Insert Figure 1 about here

Comparisons of subtest profiles by group (LD, non-LD) are

presented in Figures 2 and 3. These patterns are remarkably similar for both groups. Highest K-ABC subtest scores for both groups were Gestalt Closure and Matrix Analogies. Spatial Memory and Photo Series were the lowest subtest scores for the non-LD group and Hand Movements and Number Recall the lowest subtest scores for the LD group. Very similar profiles between the two groups are presented with differences only in level of score and this difference is only significant in the achievement area.

For this sample of students with learning difficulties, the achievement subtests of the K-ABC may not be measuring a unitary trait (see Bracken, 1985; Keith, 1985). Both groups performed at a lower level on Reading/Decoding, Reading/Understanding and Arithmetic as compared to Faces & Places and Riddles. Since all five subtests are on the same scale, the ACH scale may provide higher achievement scores, especially for students placed in LD programs, than their performance in reading or arithmetic would indicate.

Insert Figure 2 about here

Insert Figure 3 about here

Global scale relationships for the K-ABC and WISC-R are presented by group in Table 3. Chi-square analyses indicated no

significant difference between groups for the k-ABC. It is of interest that the majority of students (both LD and non-LD) displayed equally developed simultaneous and sequential processing skills. Of the students who displayed a preference, the vast majority were SEQ > SIM for the LD group and a near equal split for the non-LD group. These results are strongly suggestive of an absence of a characteristic processing pattern for school identified LD students as compared to other students with learning difficulties.

Insert Table 3 about here

Of the 67 LD students with complete scores on the k-ABC and WISC-R, 16 (24%) exhibited significant differences in processing style on the K-ABC and verbal/performance abilities on the WISC-R while 31 (46%) displayed significant differences between global scales on only one of the instruments and 20 (30%) displayed no significant differences on either test. For the 41 non-LD students, a similar pattern emerged with the frequencies being 3 (7%), 24 (59%) and 14 (34%), respectively.

In order to determine if significant differences among global scores existed within each group (LD, non-LD), t-tests for related samples were performed. For the LD group, significant differences on the K-ABC were noted for SEQ-SIM ($t(75) = 3.89$, $p < .001$) and MPC-ACH ($t(66) = 4.40$, $p < .001$) with the SEQ score significantly

lower than the SIM score and the ACH score significantly lower than the MPC. For the non-LD group, no significant differences were found on the K-ABC.

As a group the LD students revealed greater variability in global scores on the K-ABC. Their patterns were characterized by: SIM scores higher than SEQ scores and MPC higher than ACH. At the same time, the non-LD group displayed a more consistent pattern of scores with no significant differences among the global scales of the K-ABC. These results might lead one to conclude that the performance of the two groups is quite different. However, a comparison of subtest performance does not support this conclusion. The pattern of performance in Figures 2 and 3 is nearly identical for the two groups with the difference being in the level of score. Statistically significant differences are indicated on only two subtests (Arithmetic and Reading/Decoding). The global scores, which reflect the mean performance in each area, therefore, camouflage actual subtest performance.

These results may explain the conflicting research in the literature. Studies examining only global scale differences between school identified LD students and non-LD students may find significant differences which occur as the result of the cumulative effect of subtest differences, which individually are not statistically significant. Studies examining subtest differences between the two groups, however, may not find significant differences as the pattern of subtest scores is very similar for

both groups of students. Thus, these results emphasize the need to examine not only global scale performance but also subtest performance.

Summary. The two groups of students differed from each other on the ACH scale of the K-ABC as a result of lower performance on Arithmetic and Reading/Decoding by the students identified as LD. No other significant differences were indicated. As compared to the non-LD group, the school-identified LD students displayed greater variability in global scores with SIM > SEQ and ACH < MPC. The pattern of subtest scores, however, was similar with LD students showing a somewhat greater range in scores.

The observed differences on the global scales of the K-ABC are consistent with previous studies of LD students and seem to reflect the lesser developed academic skills of these students. Lower levels of sequential processing and lower achievement scores, especially in reading, were evident in the LD students. Both groups exhibited lower achievement scores than ability scores with significant differences for the LD group only. At the same time, the global scores appear to mask the great similarity in pattern of performance for both groups of students as shown by the subtest scores in which only Arithmetic and Reading/Decoding represent significant differences between the two groups.

It appears that the major criterion for placement in LD programs is the ability-achievement discrepancy rather than other criteria, such as learning style. The non-LD group displayed a

more even global scale profile with mean scores ranging from 90.76 to 92.54 while the LD group displayed a more variable pattern with mean scores ranging from 84.37 to 93.78. Subtest profiles, however, were very similar for both groups with the difference between those placed in LD programs and those not placed being one of magnitude of scores.

The key difference between those students placed in LD programs and those not placed was the ACH score. Style of learning, as measured by the mental processing subtests of the K-ABC, was very similar for both groups. These results strenthen the conclusion that minimal differences exist between school identified LD students and other students with learning difficulties. Indeed those differences were in the achievement area with students placed in LD exhibiting greater achievement deficits than those not placed in LD programs.

Study 3

This study was designed to examine differences in K-ABC performance between referred students identified as having severe learning disabilities and students not so identified.

Method

Subjects. The subjects for the study consisted of 67 students referred for psychological evaluation as a result of serious acad .c or academic/behavioral problems. All of the students were being considered for placement in a private school located in a midwestern metropolitan area and serving severely LD students in

that the students required full time placement in a program for LD students. The subjects ranged in age from 6 to 12 1/2 years and were in the first through seventh grades. Of the 67 students referred, 32 (19 males and 13 females) were identified as being severely LD and accepted for placement; the remaining 35 (21 males and 14 females) were diagnosed as having emotional or behavioral problems (8), being mentally retarded (1), exhibiting attention deficit disorder without severe learning problems (7), having speech or language difficulties (5) or were nonhandicapped (14). The sample for the present study consisted of 40 males and 27 females.

Placement decisions were made by individual child study teams which evaluated information from multiple sources and included background information, previous academic history, medical evaluations, psychological/academic test results and behavioral observations.

Procedure. As a part of the diagnostic process, all 67 students were administered both the K-ABC and WISC-R in counterbalanced order as well as a variety of other instruments according to the nature of the referral. The evaluations were conducted by two certified school psychologists on the school staff, both of whom had received training in WISC-R and K-ABC administration and interpretation.

Pearson product moment correlations were calculated on the global standard scores of the K-ABC for each group. Chi-square

analyses were performed to examine differences in performance patterns. To further examine differences in global scores among the students with severe learning disabilities, t-tests for related samples were conducted.

Results

Mean MPC, SEQ and SIM scores were in the average range for both groups of students. The mean ACH score was in the average range for the students without severe LD and in the low average range for the severely LD group. Mean scores and standard deviations are presented in Table 1.

The results of t-tests for independent samples performed on each of the global standard scores (MPC, SEQ, SIM, ACH) yielded no significant differences between the two groups of students.

The correlational results of the study are presented in Table 2. These results are consistent with previous findings with LD students. The intercorrelations range from .66 to .95. The SIM scale correlated more highly with the MPC than the SEQ scale, due to the greater number of SIM subtests being correlated with themselves as part of the MPC. The correlation between the MPC and ACH scale ($r = .71$) is also consistent with previous findings (e.g. Lyon & Smith, 1985; Naglieri, 1984), indicating that about 49% of the variance in ACH performance can be predicted by the MPC.

The severe LD group displayed less uniform global scale patterns on the K-ABC. More than twice as many severely LD students displayed SIM/SEQ discrepancies as did the students

without a severe LD (45% vs 11%). A chi-square analysis of this pattern (discrepancy vs no discrepancy) was significant with X^2 (1) = 4.45, $p < .05$. To further analyze these patterns, separate chi-square analyses (SEQ > SIM vs SEQ < SIM; MPC > ACH vs MPC < ACH) were performed on these data with significant results obtained for SEQ > SIM vs SEQ < SIM (X^2 (1) = 5.43, $p < .02$. These results were due to the large number of severely LD students demonstrating a SIM > SEQ pattern.

Finally, using only the 32 students identified as severely LD, t-tests for related samples for the SEQ/SIM comparison (t (31) = 4.17 $p < .001$ and the MPC/ACH comparison (t (31) = 2.09, $p < .05$) were significant in the expected directions (i.e. SIM > SEQ and MPC > ACH).

Recent research involving LD students in self-contained classes (Klanderman et al., 1985) has indicated strong, positive correlations with SIM, SEQ and MPC. This study is also supportive of this pattern. Likewise, the SIM-MPC and SEQ-MPC correlations were also high (r = .95 vs r = .88). A similar pattern was found by Naglieri (1984) using a sample of normal and exceptional children and by Lyon and Smith (1986) using a sample of at-risk preschool children.

Although no significant differences were found between the two groups on the global scales of the K-ABC, important differences were indicated in the way these scores were obtained. Twice as many students with a severe LD displayed discrepancies as did the

students without a severe LD. For the students with severe LD, 93% of the SIM/SEQ discrepancies were in favor of SIM as compared to 0% for the students without a severe LD. Thus, discrepancies in subscale scores were more frequent with severely LD students as compared to students with similar academic difficulties but not identified as severely LD.

Since such discrepancies occurred in about 45% of the cases, caution is needed in interpreting this finding and using it in individual cases. Similar patterns have been found in some studies (e.g. Gunnison, Masunga, Town & Moffit, 1983, Study 17; Lyon & Smith, 1985; Naglieri & Pfeiffer, 1983, Study 33; A. Obrzut & J. Obrzut, 1983, Study 35) while other studies have found approximately equal proportions of students with learning disabilities with SIM > SEQ and SEQ > SIM patterns (e.g. Klanderman et al., 1985; Naglieri & Haddad, 1984). Severity of learning disability or type of learning disability, therefore, may be a factor as the present study was composed of students with a history of academic problems and this was not necessarily the case with previous studies.

These results raise the question as to whether the SIM preference of the students with severe learning disabilities may not match the instructional approach of the traditional classroom. A. Kaufman and N. Kaufman (1983) originally hypothesized that a preponderance of LD students might display this SIM preference. Results of studies involving LD students have been inconsistent as

there are differences in classification criteria and severity. With the present sample of students referred for severe LD, there is support for this hypothesis. Studies 1 and 2, which are described in this paper, also provide results in the same direction (although statistically not significant) but utilized samples exhibiting less severe learning disabilities.

The severely LD students earned the highest mean subtest scores on Triangles (mean = 11.0), Gestalt Closure (mean = 10.4), Matrix Analogies (mean = 9.7) and Riddles (mean = 8.3). Lowest scores were Spatial Memory (mean = 8.3), Word Order (mean = 8.0), Reading/Decoding (mean = 86.5) and Reading/Understanding (mean = 89.3). These patterns were consistent with the patterns reported by A. Kaufman and N. Kaufman (1983) for LD students. Finally, when a processing preference is indicated, it is more likely to be a SIM preference as opposed to a SEQ preference.

It should be noted that 11% of the students without a severe LD displayed a processing preference (SIM or SEQ) as compared to about 50% of nonexceptional children in the standardization sample. A. Kaufman and N. Kaufman (1983) have noted that the lack of a processing preference on the K-ABC for groups of students may also be important particularly when both mental processing scores (SIM and SEQ) are near the Below Average range or lower. It is possible that in such situations, learners lack a viable means of compensating for weaker skills in one area by capitalizing on strengths in the other area.

Conclusions

The results of the three studies described in this paper as well as previous research lead to a number of conclusions regarding the K-ABC and LD students. Since these conclusions are based on limited research, they should be examined cautiously.

1. Consistent or characteristic patterns of performance on the K-ABC for LD as compared to non-LD students are lacking. This conclusion is similar to the conclusion reached for the WISC-R and is probably related to variability in defining LD and the use of school-identified LD students as subjects for studies. This results in great heterogeneity in LD samples and difficulties in generalizing results of specific studies to the LD population as a whole.

2. The distinguishing factor between students referred for academic difficulties and subsequently identified as LD and those not identified as LD is usually the ACH score on the K-ABC. As the severity of the LD increases, the greater the difference between MPC and ACH scores.

3. It is important to examine both global scores and subtest scores. As Study 2 indicates, global scores may camouflage similarities or differences in actual subtest performance between groups of students.

4. The K-ABC ACH scale does not appear to represent a unitary trait for students with learning problems. Use of the Verbal Intelligence Composite (composed of the Expressive Vocabulary,

Faces & Places, Riddles and Arithmetic subtests) and Reading Composite (composed of the Reading/Decoding and Reading/Understanding subtests), proposed by Kamphaus and Reynolds (1987) may facilitate interpretation of the ACH scale. As Study 2 demonstrated the students with learning problems did not perform uniformly on the subtests composing the ACH scale.

5. The majority of studies with LD students reveal mean SIM scores greater than mean SEQ scores. The statistical significance of these results varies from nonsignificant to significant. Practical significance, however, may involve an examination of the number of individual students having a significant SIM > SEQ pattern or, in some cases, a SEQ > SIM pattern.

6. In contrast to the standardization sample, a large proportion of individual students with learning problems exhibited a SIM = SEQ pattern. At the same time, overall SIM, SEQ and MPC were most often in the low average range. Thus, one might speculate that this lower level of measured ability coupled with a lack of processing preference may play a role in the lower level of achievement as originally hypothesized by Kaufman and Kaufman (1983).

7. When a processing preference was shown by students referred for learning difficulties, those identified as LD were most likely to show a SIM > SEQ pattern. With those not identified as LD, the pattern was more mixed with some studies showing a larger percentage of non-LD students showing a SEQ > SIM pattern.

8. LD students usually obtain their highest K-ABC subtest scores on SIM subtests such as Gestalt Closure, Matrix Analogies and Triangles and their lowest subtest scores on SEQ subtests such as Hand Movements, Number Recall and Word Order.

9. Study 2 indicates that the patterns of subtest performance for students referred for learning problems are similar and that those identified as LD exhibit lower levels of achievement along with a similar pattern of subtest scores as compared to students not identified as LD. This suggests that similar intervention approaches are needed by both groups of students. Perhaps early intervention in the regular classroom might prevent these "at-risk" students from becoming LD in the future. Clearly these results are tentative and need further validation.

10. Intervention approaches must be carefully tailored to the individual needs of the student. Some students, but not all, may benefit from a very structured, sequential approach to presenting new material, whereas other students may benefit from an approach that emphasizes their strength in nonverbal, spatial areas, while others may require a more integrated approach.

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Table 1

Means and Standard Deviations for Global Scales on K-ABC by Study

Variable		Mean	Standard Deviation
Mental Processing Composite (MPC)			
Study 1:	Resource Program LD Students	98.67	8.98
Study 2:	Students placed in LD	90.40	12.15
	Students not placed in LD	91.48	10.48
Study 3:	Students diagnosed as Severe LD	94.16	13.87
	Students not diagnosed as Severe LD	97.97	19.40
Simultaneous Processing (SIM)			
Study 1:	Resource Program LD Students	102.33	10.12
Study 2:	Students placed in LD	93.78	12.65
	Students not placed in LD	92.54	10.96
Study 3:	Students diagnosed as Severe LD	98.13	14.49
	Students not diagnosed as Severe LD	99.55	17.62
Sequential Processing (SEQ)			
Study 1:	Resource Program LD Students	93.61	10.66
Study 2:	Students placed in LD	88.19	12.14
	Students not placed in LD	92.19	12.43
Study 3:	Students diagnosed as Severe LD	90.03	11.60
	Students not diagnosed as Severe LD	95.56	20.96

Achievement (ACH)			
Study 1:	Resource Program LD Students	95.78	9.93
Study 2:	Students placed in LD	84.37	10.59
	Students not placed in LD	90.76	10.30
Study 3:	Students diagnosed as Severe LD	89.84	6.93
	Students not diagnosed as Severe LD	94.10	19.79

Note. Sample sizes: Study 1: 18; Study 2: 32 placed in LD, 35 not placed in LD; Study 3: 32 diagnosed as Severe LD, 35 not diagnosed as Severe LD.

Table 2

Correlations Among the Global Scales of the K-ABC by Study

Study 1: Resource Program LD Students (n = 18)

Variable	SEQ	SIM	ACH
MPC	.59(.77)*	.82(.92)*	.31(.48)***
SEQ		.04(.06)	.12(.19)
SIM			.32(.45)***

Study 2: Students referred for LD placement (n = 133)

Variable	SEQ	SIM	ACH
MPC	.78(.85)*	.90(.94)*	.55(.67)*
SEQ		.43(50)*	.45(.57)*
SIM			.50(.62)*

Study 3: Students referred as Severely LD (n = 67)

Variable	SEQ	SIM	ACH
MPC	.88*	.95*	.71*
SEQ		.71*	.67*
SIM			.66*

Correlation coefficients reported in parentheses are corrected for restriction in range via Guilford's formula (Guilford, 1954)

*p < .001 **p < .01 ***p < .05

Table 3

Global Scale Relationships on the K-ABC by Group

Study 2: Students Referred for LD Placement (n = 124)

	LD	non-LD
Sequential > Simultaneous	7 (9%)	8 (17%)
Sequential < Simultaneous	26 (33%)	7 (15%)
Sequential = Simultaneous	45 (58%)	31 (68%)

Study 3: Students Referred as Severely LD (n = 67)

	Severely LD	Not Severely LD
Sequential > Simultaneous	1 (4%)	4 (11%)
Sequential < Simultaneous	17 (41%)	0 (0%)
Sequential = Simultaneous	18 (55%)	31 (89%)

Note: Percentage is by group (LD, non-LD)

FIGURE 1

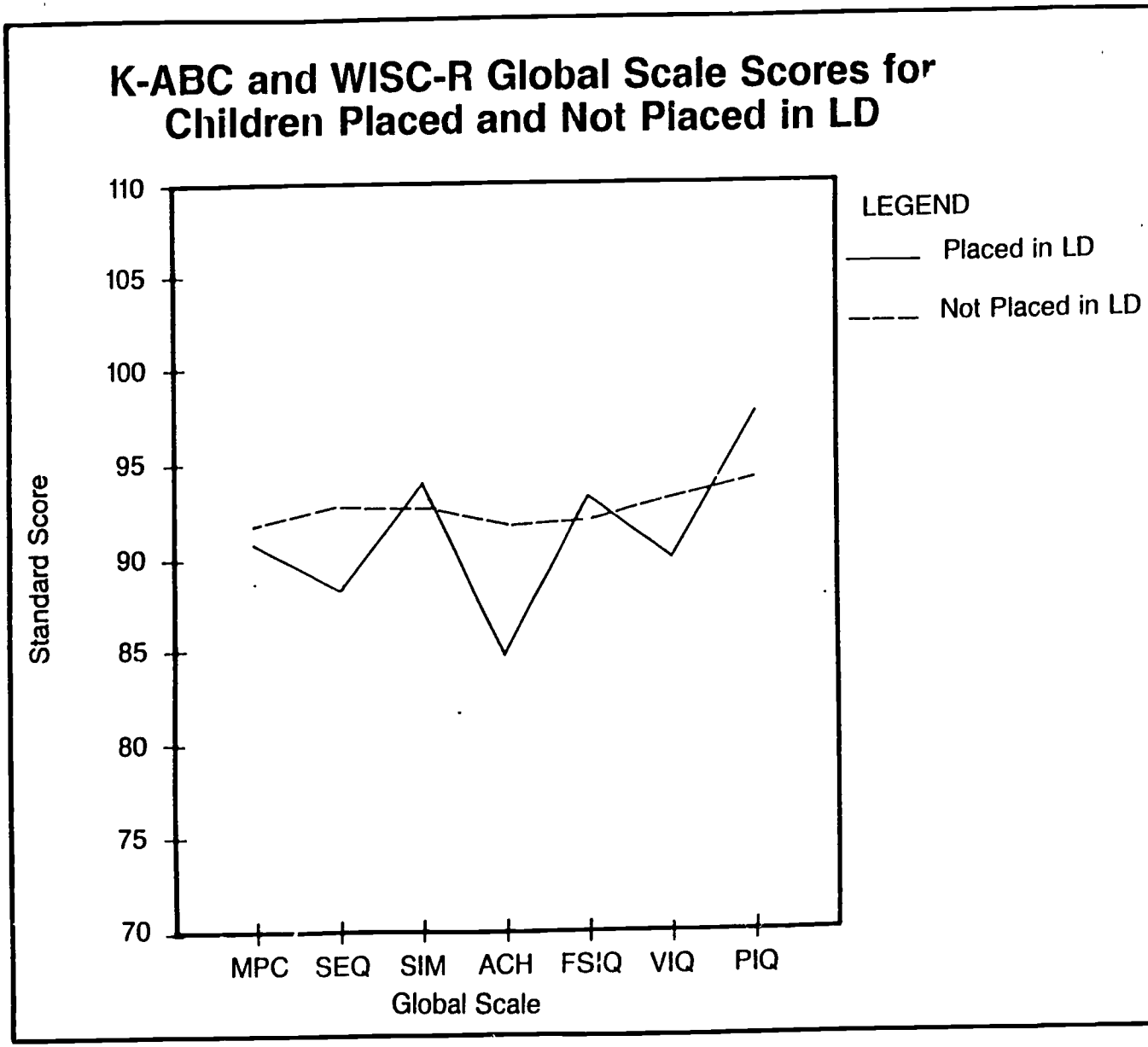

K-ABC and WISC-R Global Scale Scores for Children Placed and Not Placed in LD
110
105
100
95
90
85
80
75
70
Standard Score
MPC
SEQ
SIM
ACH
FSIQ
VIQ
PIQ
Global Scale
LEGEND
Placed in LD
Not Placed in LD

FIGURE 2

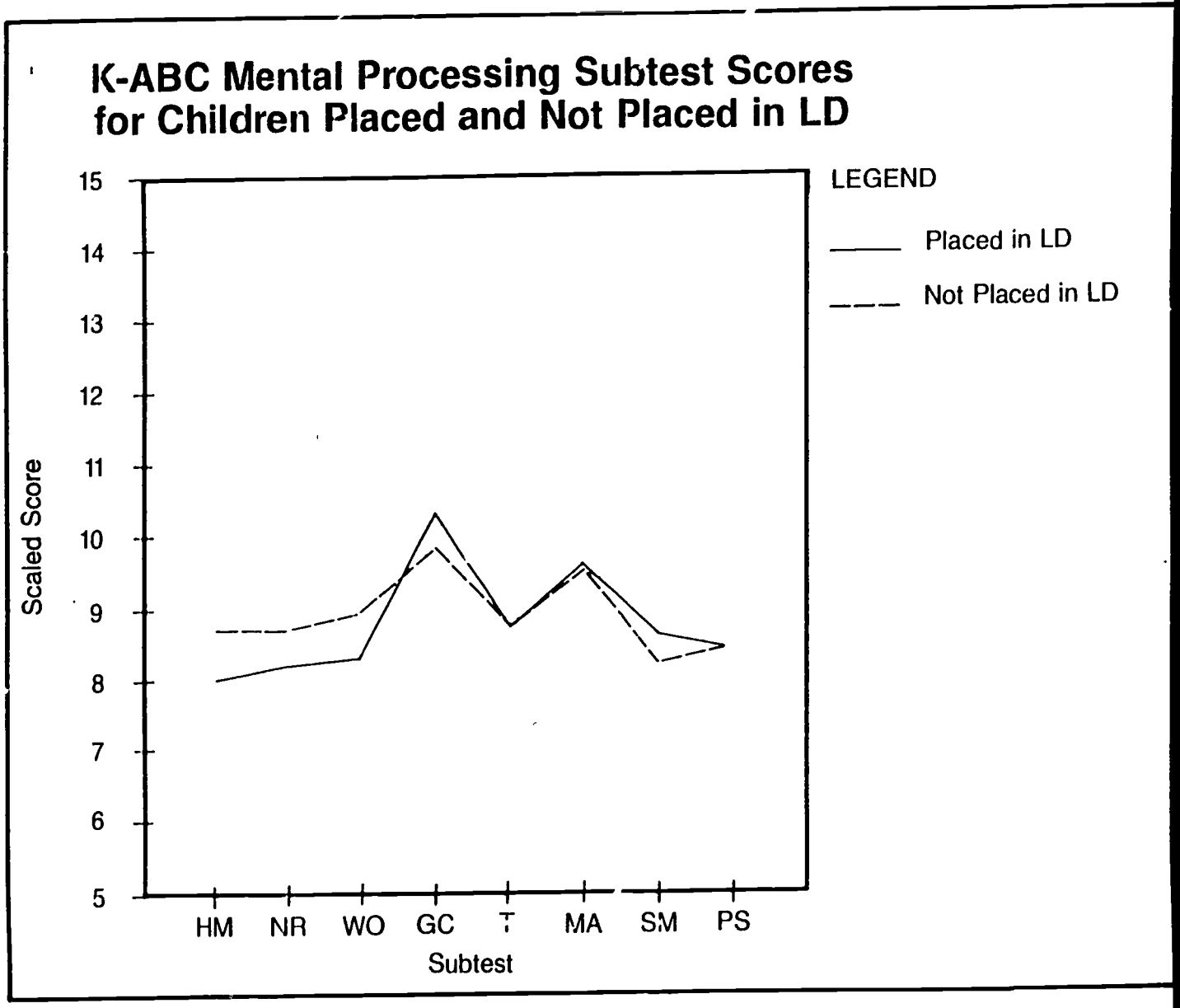
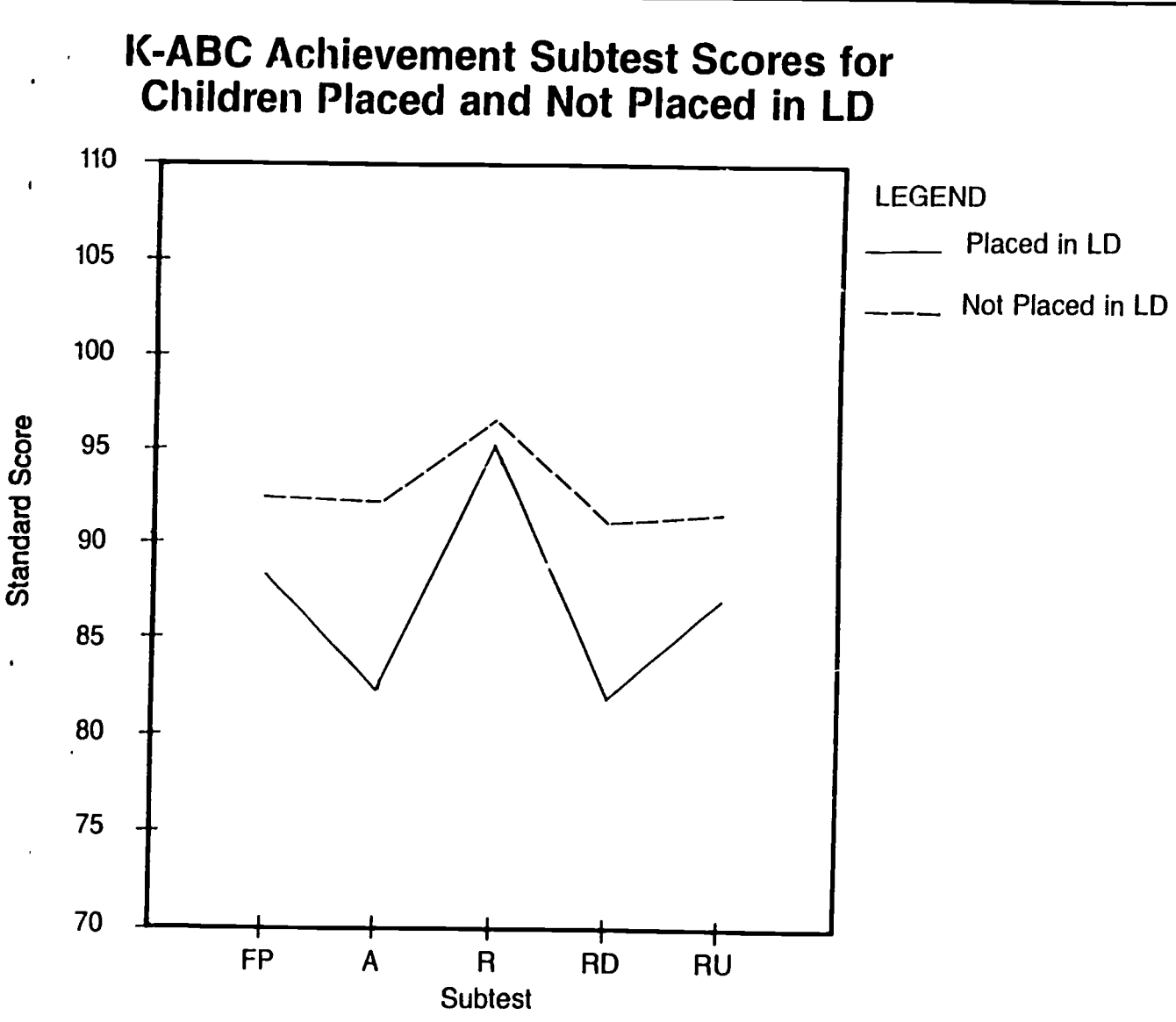

K-ABC Mental Processing Subtest Scores for Children Placed and Not Placed in LD
LEGEND
Placed in LD
Not Placed in LD
Scaled Score
15
14
13
12
11
10
9
8
7
6
5
HM
NR
WO
GC
T
MA
SM
PS
Subtest

FIGURE 3


K-ABC Achievement Subtest Scores for Children Placed and Not Placed in LD
110
105
100
95
90
85
80
75
70
Standard Score
FP
A
R
RD
RU
Subtest
LEGEND
Placed in LD
Not Placed in LD