2-1-1996

Seasonal Assessment of Oral Reading Rate Obtained by Rural Elementary Students

Teresa R. Oswald
University of Nebraska at Omaha

Seasonal Assessment of Oral Reading Rate Obtained by Rural Elementary Students.

A Field Project
Presented to the
Department of Psychology
and the
Faculty of the Graduate College
University of Nebraska
at Omaha

In Partial Fulfillment
of the Requirements for the Degree
Specialist in Education
University of Nebraska at Omaha

by
Teresa R. Oswald
February 1996

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

FIELD PROJECT ACCEPTANCE

Acceptance for the faculty of the Graduate College, University of Nebraska, in partial fulfillment of the requirements for the degree Specialist in Education, University of Nebraska at Omaha.

Committee

Name

Robert Henley Woody, Psychology

Elaine Otte, Teacher Ed.

Norman A. Hamm

Chairman

4/13/96

Date

Acknowledgements

I would like to acknowledge several individuals who have significantly contributed to the completion of this project. First of all, I would like to thank the support staff who took the time to help me collect the data.

A sincere gratitude also goes to Dr. Norm Hamm, who helped me throughout the entire process, kept me on target and focused, and gave me numerous suggestions. To the other members of my committee: Dr. Robert Woody and Dr. Elliott Ostler for their continued support and dedication. To Jim Knudson who lent his statistical knowledge and expertise.

I would like also thank my husband, Shawn Oswald, who encouraged and supported me throughout my graduate college years. Without the constant support and prayers of my family members and husband, I would have not be able to accomplish many of my goals.

TABLE OF CONTENTS

LIST OF TABLES

Abstract

Seasonal assessments of oral reading rates were obtained from rural first and second grade elementary students. The rates were obtained by administering reading probes selected from the school's curriculum and administered during the fall, winter, and spring months. The obtained rates were then compared to established prescriptives for frustration, instructional, and mastery level reading standards.

The results indicated that the first grade participants were significantly below frustration and mastery reading levels for the fall and winter assessments, respectively. However, the first grade participants' were significantly above the mastery level prescriptive during the spring assessment. The second grade participants were at the frustration level during the fall assessment. At the winter assessment, second grade participants' oral reading rates did not differ signifcantly from the recommended mastery level prescriptive. However, the spring assessment revealed oral reading rates significantly above the suggested prescriptive for mastery level.

Also, changes in seasons were associated with equal increases

in oral reading rate. A rationale was presented for why the standard normal learning curve was not obtained.

Introduction

Seasonal Assessment of Oral Reading Rate Obtained by Rural Elementary Students.

Traditionally, the purpose of assessment has been the identification of underlying constructs or disabilities that interfere with students' academic achievement (i.e., low cognitive ability, processing deficits), as needed to establish eligibility for special education services and develop interventions that allow for remediation of the disability (Knutson & Shinn, 1991). Curriculum-based measurement (CBM) allows an alternative to the more traditional avenues of assessment by utilizing the student's own curriculum in the evaluation. CBM was designed initially to provide a data-base for educational decision-making for student scholastic growth and the development of appropriate interventions. Providing educators with the criteria needed for implementing successful interventions is the premise of curriculum-based measurement. The data-base consists of seasonal assessments of oral reading rates from rural first and second grade students. The data obtained from the seasonal assessments could provide for an analysis of suggested reading rates for the grades involved in the area of frustration, instructional, and mastery reading standards.

Curriculum-based assessment is an alternative to the traditional methods of evaluation involving norm-referenced tests. CBM allows the students to be evaluated according to the actual materials utilized in their classroom. The underlying assumption of CBM is the creation of a data-base which allows the teacher to evaluate the effectiveness of the individual student's educational program. As such, CBM is a set of standardized, specific procedures designed to quantify student performance in basic academic skills (i.e., reading, spelling, written expression, and math). According to Deno and Fuchs (1987), CBM is unique and distinctly different from more traditional psychoeducational measures because students respond to the local curriculum, rather than a set of independent items created by commercial test developers. Not only does CBM allow for the application of the school's own curriculum, but it allows focus on direct and repeated measures of student performance in the curriculum (Marston, Deno, & Tindal, 1984). Most importantly, research has indicated that frequent measurement of curriculum tasks and responsive use of that information in instructional decision-making can enhance teacher planning and student outcomes (Fuchs, Deno, & Mirkin, 1984; Fuchs, Fuchs,

Hamlett, & Stecker, 1991; Jones & Krouse, 1988).

According to Marston (1992), too many educational decisions are made relying upon traditional achievement tests. These instruments are administered universally to all children and, therefore, fail to adequately sample the curricula employed in different school settings. Deno (1992) believes that the fundamental problem with current achievement instruments is that they are not designed to measure or describe growth. Jenkins and Pany (1978) found that expected grade scores for a particular test vary as a function of the reading curriculum employed in the classroom. Dunn and Markwardt (1970) estimated that a second-grade child instructed in the Houghton-Mifflin curriculum would score at the 3.2 grade level on the Peabody Individual Achievement Test, while only at the 2.2 grade level when instructed with Ginn 360 reading series. Marston (1989) also indicates that these test scores may not accurately portray the skill level of the student since they may not adequately measure what the child has learned. Clearly, the type of reading books used in the classroom is an important component to consider in any assessment.

CBM has many advantages as indicated above. However,

traditional standardized achievement measures still have their merits. Mehrens & Clarizo (1993) indicate that even if the local curriculum is adequate, restricting assessment to only that curriculum is misleading to those who must make inferences if the curriculum departs significantly from the national one. Obviously, CBM does not in any way measure generalization to other materials than those used in the classroom. Such an argument led Deno (1989) to contend that CBM "should be explored at least as a supplement" (p. 231). In contrast, Shinn (1989) argued that CBM can and should be more than just a supplement to more general measures.

An underlying CBM goal is to allow the educator to create an individual student data base and to monitor the successes or failures of modifications made in the curriculum. The advantage of local norming allows detection of any discrepancy between the actual student's performance and the performance of other grade-level peers. If such a discrepancy exists, the next task should be identifying if the size and importance of the discrepancy is enough to warrant special education services.

Kamphaus and Lozano (1984) argue that local norms are

desirable in that, "they are theoretically more representative of the milieu in which the child is currently functioning. . . if nothing else a child shares a common geographic region and community with the local reference group that is shared at most by only a small portion of the national norming sample" (p. 492). Additional support for local norming is found in Anastasi (1988) in that CBM is, "more appropriate than broad national norms for many testing purposes such as. . .comparison of a child's relative achievement in different subjects or the measurement of an individual's progress over time" (p. 98). It has also been stated that the provision of local norms provides an index of the comparisons for the regular education environment (Deno, 1985).

Shinn (1994) noted that local norms may decrease bias in student assessment. Specifically, he proposed that local norms provide an objective way to operationalize the academic expectations and measure a student's skill level without the influence of personality, gender, or ethnicity. Others also subscribe to the Shinn argument. For example, Oakland and Matuszek (1977) indicate that in the case of minority students, local norms decrease

bias and offer substantially more information. What CBM allows in contrast to published achievement measures is the assessment of and comparison to other students from similar backgrounds. In such a manner, racial and cultural bias in assessment can be minimized or even eliminated.

Fortunately, the establishment of local norms is relatively easy to conduct. In order to establish local school norms, a "measurement net" must be developed. Shinn (1988) describes a measurement net as a representative sample of grade-level curriculum material for the grade to be tested. After the materials are developed, he recommends establishing a sampling plan. The timing of the norm gathering is also important. Specifically, Shinn (1988) recommends that the collection of data be obtained on a tri-mester basis to reflect growth in the regular classroom.

Traditionally, curriculum-based measurement probes are selected from the classroom curriculum and presented to the student in the form of three different probes of differing difficulty level. Standardization procedures are utilized requiring students to

read each probe for one-minute. Accumulating evidence exists supporting oral reading fluency as a reliable and valid measure of students' general reading skills, including reading comprehension (Deno, Mirkin, & Chiang, 1982; Fuchs, Fuchs, & Maxwell, 1988; Marston, 1989; Marston & Deno, 1982; Tindal et al., 1983).

Although there are many benefits to establishing local norms, there are also several problem areas. Shinn (1988) feels that one problem may arise from labeling children as discrepant from the broader student population without further documentation and assessment, or the development of effective instructional programs to remediate the deficits exhibited by the students. Eligibility for special education services should only be considered when, and only when, interventions attempted in the regular educational environment have failed.

Another potential hazard of local norms is the fact that they may suggest mediocrity. Gerber and Semmel (1984) point out that many teachers "define" the term "handicapped" on the basis of the local normative performance. However, the simple mean performance standards should not be accepted as a standard for all students. The proponents of CBM recommend the comparison

between schools and districts to evaluate the effectiveness and appropriateness of educational programs (Deno, 1989; Shinn, 1988).

Another potential problem for CBM is the fact that the current curriculum used in the school or district may be viewed as the "only" one to be used (Shinn, 1988). CBM allows regular education teachers to make referrals on the premise that a particular student is not successful in the general curriculum employed in the class and school. Therefore, the student is referred for an extended evaluation and the possibility of placement in special education. However, a critical point is being missed. The overall premise of CBM is the development of effective instructional programs to aid in the success of all students. The purpose of any educational assessment should not be to qualify students as handicapped, but to provide data that are directly relevant for planning effective interventions (Lentz & Shapiro, 1986). In the typical school, when special education students return to the classroom utilizing the same instructional methods and curriculum, they may be seen as failing again and remain discrepant from the rest of the class.

A unique feature of CBM is that local assessment can generate

a more desirable match with instruction than can be derived by the more traditional standardized achievement tests (Mehrens & Clarizo, 1993). However, opponents of CBM respond by noting that CBM is "the ultimate in teaching the test because the material used to assess the differences are always taken directly from the course of study" (Tucker, 1985 p. 200). In relation to the traditional achievement tests, Salvia and Yssledyke (1991) state that "... unless the content of an achievement test reflects the content of the curriculum, the obtained results are meaningless" (p. 378). They go on further to relate that " ...to the extent that there is a difference between what has been taught and what is tested, the test is not a valid measure" (p. 419).

In regard to their adequacy, Salvia and Yssledyke (1991) state that, "there are few technically adequate tests and that most of the norm-referenced devices clearly lack the technical characteristics necessary for use in making specific instructional decisions" (p. 420). It should be noted that they do suggest that there are <u>some</u> technically adequate tests, but ones currently being used in the "psychoeducational decision-making process are not" (Yssledyke et

al., 1983).

In general, CBM has received favorable reviews in regard to the evidence available on its reliability. Marston (1989) reviewed five studies utilizing CBM and found the reliabilities to be sufficiently high. CBM has also received favorable reviews in the area of content validity. Others have also indicated that CBM oral reading fluency has demonstrated discriminant validity (Deno, Marston, Shinn, & Tindal, 1983), longitudinal change (Marston et al., 1981), and sensitivity to changes in reading programs (Deno, 1985, 1986). Tindal (1983) established the discriminant validity of one-minute reading samples by reliably differentiating learning disabled from Chapter 1 and regular education first-, second-, and third-grade students. These findings were replicated by Shinn and Marston (1985); they found that words read aloud distinguished regular education students, students in Chapter 1, and mildly handicapped students with learning disabilities. Despite the overwhelming evidence of technical adequacy, opponents have argued that the teacher's curriculum is more extensive than the domains

sampled by CBM and its analysis of only the basic skills.

The present study allowed for a comparison of the local school's norms with the reading prescriptives used by Area Education Agencies around the State of Iowa for the grades involved. But the basic goal was to provide a local school with oral reading norms for grades one and two.

Method

Participants

A total of 83 first grade (N = 42) and second grade (N = 41) students served as participants for the study. Of the sample 54% were female (26 first graders and 19 second graders) and 46% were male (16 first graders and 22 second graders). Participants were selected from an elementary school located in a predominately white public school district in a small-sized, Midwestern city of Atlantic, Iowa.

Participants were recruited through a four-step process. First, permission to conduct the study was obtained at the district administrative level. Second, the principal of the elementary

school's permission was obtained. Third, the principal was provided with a description of the intent of the study's goals and testing procedures. Fourth, permission to conduct the study was obtained from the local university's Institutional Review Board.

Materials

All of the material for the individual testing were organized into two packets, one for the examiner and one for the student. The examiner's materials consisted of the three grade-level curriculum-based measurement reading passages with: (1) the cumulative number of words written in the margin; (2) a printed list of the instructions to be read to the student; (3) and guidelines for scoring the passages and the words read.

Participants were given three passages selected from the Houghton-Mifflin basal reading series, which is the district's most frequently used curriculum. The probes for the three seasonal assessments were randomly selected from a set of reading passages which accompanied the Houghton-Mifflin basal reader series.

Procedure

The data were collected by two school psychologists, a special education consultant, a school social worker, and a special education teacher. All of the data collectors had received their Master's degree and previous training in Curriculum-based measurement. The school social worker and special education teacher completed a two-day workshop on curriculum-based measurement. They were trained on data-collection, as well as graphing the data. Before the fall assessment, the data collectors were refreshed in the standardization procedures necessary for obtaining reading norms. The training consisted of reading a set of scripted instructions developed by Mark Shinn at the University of Oregon. Instructions on how to construct the testing environment were discussed. The data collectors were also given instructions on how to administer the three-second rule and score incorrectly pronounced words as errors.

The participants were given the following standardized instructions:

"When I say 'begin' start reading aloud at the top of this page. Read across the page (DEMONSTRATE

BY POINTING). Try to read each word. If you come to a word that you don't know, I'll tell it to you. Be sure to do your best reading. Are there any questions?"

The administrator then said "begin" and started a stopwatch. If the participants failed to say a word for 3 seconds, the administrator told the subject the word and marked it as incorrect. Omissions and mispronunciations were marked as incorrect. At the end of 1 minute, the administrator placed a bracket (]) around the last word and said, "Stop." No further assistance was given.

The same procedure was used for each of the three seasonal assessments. The fall assessment took place in October, 1994, over a two-day period in the school library. The winter assessment was collected during two days in January of 1995 in the school library. The last and final assessment in the Spring was acquired over a two day interval in May of 1995 in the school library and art room.

Interrater Agreement

The data collectors scored identical audio taped reading probes for reliability of scoring purposes. An interrater agreement coefficient of .93 was obtained for CBM reading passages. This coefficient was obtained by using the formula:

$$\frac{\text{number of agreements}}{(\text{number of agreements} + \text{number of disagreements})} \times 100 = \text{interrater agreement}$$

Results

To provide the school district with local norms and standard deviations, descriptive statistics were calculated for oral reading fluency. Inferential statistics were also computed to evaluate student performance on the frustration, instructional, and mastery level reading prescriptives suggested by Deno and Mirkin (1977).

Insert Table 1

First Grade. The means and standard deviations of words read per minute for the first grade students are shown in Table 1. The means for the first grade students for the fall, winter, and spring assessments were 17.39, 40.90, and 63.19 respectively. In other

words, for the fall assessment on the average students read 17.39 words per minute, 40.90 words in the winter, and 63.19 words per minute in the spring. The pattern of the three means revealed a positive linear relationship between the number of correct words read per minute and the three school seasons. However, a typical learning curve was expected between mean reading rate and the three seasonal assessments. Instead of a positive curve with negative acceleration, an unexpected positive linear relationship was obtained. Changes in the season were associated with equal increases of approximately 20 words in oral reading rate.

Insert Table 2

For the first grade sample, Deno and Mirkin report a frustration prescriptive of 29 words per minute. Their prescriptive was compared with the an observed reading rate of 17.39 words per minute for the fall. A direct difference t-test for correlated measures revealed a significant difference, as presented in Table 3. Apparently, first grade students in the fall were reading significantly below the Deno and Mirkin frustration level (df = 41, t

= 4.91, $p < .01$). In other words, the magnitude of the difference between the frustration prescriptive and the mean reading rate was so large that it would occur by chance less than one time per hundred. For the winter assessment, the students read approximately 40.90 words per minute, which was significantly below Deno and Mirkin's suggested mastery level of 50 words per minute ($df = 41$, $t = 2.25$, $p < .05$). However, during the spring administration, the first grade sample surpassed the mastery level of 50 words per minute by reading 63.19 words ($df = 41$, $t = 2.60$, $p<.05$). In short, the first grade class for the fall was significantly below frustration reading level, significantly below mastery level for the winter, and significantly above the mastery level for the spring.

Insert Table 3

The range of oral reading rates for the fall, winter, and spring assessments are provided in Figures 1 through 3. Inspection of Figure 1 indicates a discontinuous frequency distribution, with no students obtaining oral reading rates between 42-82 words per

minute and only two reading 83-103 words per minute. The winter sample exhibited a more continuous distribution when compared to the fall sample. However, for both the fall and winter administrations, the expected normal curve was not obtained. Instead, the frequency distributions exhibited positive skew. In contrast, for the spring administration, as documented in Figure 3, the distribution approaches the ideal of the standard bell curve.

Second Grade. The means and standard deviations for the second grade class are shown on Table 2. The means for each season were 34.35, 50.73, and 68.65 respectively. Therefore, the average words read correctly per minute in the second grade class for the fall, approximately 34.35; for the winter, approximately 50.73; and for the spring, 68.65. Like the first grade results, the second grade results also exhibited oral reading rates that did not conform to the typical bell shaped curve. Instead a positive linear relationship was found between seasonal assessment and oral reading rate.

Deno and Mirkin also report a frustration level of 29 words per minute for second grade students. Examination of Table 3 indicates an observed reading rate of 34.35 words per minute for the fall

assessment. A direct difference t-test compared these two indices, revealing significance (df = 40, t = .956, p > .05). Unlike the first graders, second grade students were reading at the frustration level in the fall. As of the winter administration, the students' oral reading rate did not significantly differ from Deno and Mirkin's suggested mastery level of 50 words per minute (df = 40, t = .118, p > .05). In the spring assessment, however, the second graders read significantly above the suggested mastery level prescriptive of 50 words per minute by reading 68.65 (df = 40, t = 2.66, p< .05). In short, the second grade sample was at the frustration reading level for the fall, at mastery reading level for the winter, and significantly above mastery reading level for the spring administration.

The range of second grade oral reading rates is presented in Figures 4 through 6 for the three seasonal assessments. Inspection of Figure 4 indicates a discontinuous function, with the majority of the students reading between 0-30 words per minute, and without any students reading between 77-91 or 122-136 words per minute. Examination of Figure 5 indicates that as of the winter administration, reading rates appeared distributed more

continuously, but did not approximate the expected normal distribution. For the spring administration, Figure 6 indicates a more continuous distribution, but unlike the first grade results a bell shaped curve was not obtained. Suggesting that the second grade reading materials are still challenging for the majority of the students.

Conclusion/Discussion

The major goal of the project was providing the school district with local norms for oral reading rates collected by trained professionals and under standardized conditions. CBM provides additional information regarding student classroom performance. Growth and changes in performance allow school psychologists to precisely monitor interventions and modifications in the curriculum. Like with curriculum-based procedures, the reading probes were easily administered and the data collected were descriptive in nature. The straightforward nature of establishing local norms is one of the hallmarks of curriculum-based measurement. Because of the present Specialist in Education degree project, teachers in the school district are now equipped with curriculum-based

measurement norms in the area of reading. These norms for first and second grade students provide for an evaluation of reading achievement and development of interventions to enhance performance. The norms provide an expectation of oral reading rate for each grade in the school's curriculum, allow students to be compared with similar-aged peers, and provide individual data bases for intrastudent comparison of growth. All three evaluations can now help teachers better measure the process of learning to read.

Now first grade teachers know that during the fall the average student should read 17 words per minute. Normal growth measured in the winter assessment should add 23 words to their average per minute reading rate. In the spring, a further addition of 23 words per minute should indicate average reading acquisition from winter to spring seasons.

An average second grade student should read approximately 34 words in the fall. Teachers should expect average students to increase their reading rate by 16 words in the winter. An additional increase of 18 words per minute can be expected by teachers in the spring of average second grade students.

While descriptive statistics yielded about what was expected; nevertheless, several unexpected results did occur and were subject

to further examination. Since student readers were at the same difficulty level for the entire year, a standard learning curve was expected between oral reading rate and seasonal change. However, an unexpected positive relationship between oral reading rate and the school seasons was obtained. The relationship is documented in Table 3. In other words, the typical leveling off in learning during the latter part of the year was not obtained. But these surprising results may be explained by the fact that very young first and second grade students served as participants. Because of their youth and the fact that they were at the steepest part of the learning curve, a positive linear function may be consistent with the rapid rate of oral reading growth with such young children. If older students would have been sampled, a more typical learning curve should have resulted, since these students are close to the final, asymptotic level.

Overall, the classes made improvements in their oral reading rate. It is apparent from the positive skew in Figures 1 and 2 that first grade students are still being challenged in their reading for the fall and the winter seasons. However, Figure 3 involving the spring frequency distribution approaches normality, indicating that for these students the difficulty level of the reading material may

have been appropriate. For the second grade students, Figures 4 and 5 also exhibit positive skew revealing that many students found the reading passages quite difficult for the fall and winter assessments. The spring assessment or Figure 6 displays less positive skew, but is still indicative of reading material that remains difficult for the majority of second grade students.

The standards developed by Deno and Mirkin utilize the same reading prescriptive for first and second grade students since they are relatively young and inexperienced. Examination of Table 3 indicates a rapid acquisition of basic reading skills and smooth progression through Deno and Mirkin's prescriptives. The rapid development of reading fluency could be accounted for by the minimal skills or experience that first and second grade students posses at the beginning of the school year. The average student appeared to move quickly through and surpass Deno and Mirkin's mastery reading level prescriptive during the spring assessment.

Such a rapid acquisition of reading skills may be explained in part by the high levels of scholastic achievement manifested by Iowa students. These students have historically achieved the highest scores on the Iowa Test of Basic Skills. Such high achieving students could account for the sample's surpassing Deno and Mirkin's

suggested mastery level reading prescriptive in the spring. Because Iowa students are high achieving, specific prescriptives for the state must and need to be developed. Further, at the school district level, additional prescriptives need to be developed in a school by school fashion.

For School Psychologists, the study supports expanding their role and diagnostic contributions to the districts served. When school psychologists work in coordination with teachers to collect CBM data, more time can be engaged in pre-referral interventions and modifications. CBM also provides greater opportunity for instructional and behavioral consultation with teachers.

In sum, the Specialist in Education degree project was successful in providing the school district with local norms in the area of reading. Such information will be helpful in assessing the reading acquisition of students in the school. The intent and aspiration of this project is that schools in the future will take advantage of the strengths of curriculum-based measurement along with the traditional standardized, norm-referenced tests. Both approaches are needed to accurately assess the acquisition of oral reading rate.

References

Anastasi, A. (1988). Psychological testing (6th ed.). New York: Macmillan.

Deno, S. L. (1985). Curriculum-based measurement: The emerging alternative. Exceptional Children, 52, 219-232.

Deno, S. L. (1986). Formative evaluation of individual student programs: A new role for school psychologists. School Psychology Review, 15, 358-374.

Deno, S. L. (1989). Curriculum-based measurement and special education services: A fundamental and direct relationship. In M. R. Shinn (Ed.), Curriculum-based measurement: Assessing special children (pp. 1-17). New York: Guilford Press.

Deno, S. L. (1992). The nature and development of curriculum-based measurement. Preventing School Failure, 36, 5-10.

Deno, S. L. , & Fuchs, L. S. (1987). Developing curriculum-based measurement systems for data-based special education problem solving. Focus on Exceptional Children, 19, 1-16.

Deno, S. L., Marston, D., Shinn, M. R., & Tindal, G. (1983). Oral reading fluency: A simple datum for scaling reading disability. Topics in Learning and Learning Disability, 2, 53-59.

Deno, S. L., Mirkin, P. K., & Chiang, B. (1982). Identifying valid measures of reading. Exceptional Children, 49, 360-45.

Deno, S. L., & Mirkin, P. K. (1977). Data-based Program Modification: A Manual. Minneapolis: University of Minnesota, Leadership Training Institute/Special Education.

Dunn, L. , & Markwardt, F. (1970). Peabody Individual Achievement Test. Circle Pines, MN: American Guidance Service.

Fuchs, L. S., & Fuchs, D. (1984). Criterion-referenced assessment without measurement: How accurate for special education. Remedial and Special Education, 5, 29-32.

Fuchs, L. S., Deno, S. L., & Mirkin, P. K. (1984). The effects of frequent curriculum-based measurement and evaluation on pedagogy, student achievement, and student awareness in learning. American Educational Research Journal, 21, 449-460.

Fuchs, L. S., Fuchs, D., Hamlett, C., & Stecker, P. (1991). Effects of curriculum-based measurement and consultation on teacher planning and student achievement in mathematical operations. American Educational Research Journal, 28, 617-641.

Fuchs, L. S., Fuchs, D., & Maxwell, S. (1988). The validity of informal reading comprehension measures. Remedial and Special Education, 9, 20-28.

Gerber, M., & Semmel, M. (1984). Teachers as imperfects tests: Reconceptualizing the referral process. Educational Psychologist, 19,137-148.

Heshusus, L. (1991). Curriculum-based assessment and direct instruction: Critical reflections on fundamental assumptions. Exceptional Children, 59, 315-328.

Jenkins, J. R., & Pany, D. (1978). Standardized achievement tests: How useful for special education? Exceptional Children, 44, 448-453.

Jones, E. D., & Krouse, J. P. (1988). The effectiveness of data-based instruction by student teachers in classrooms for pupils

with mild handicaps. Teacher Education and Special Education, 11, 9-19.

Kamphaus, R. W., & Lozano, R. (1984). Developing local norms for individually administered tests. School Psychology Review, 13, 491-498.

Knutson, N., & Shinn, M. R. (1991). Curriculum-based measurement: Conceptual underpinnings and integration into problem-solving assessment. Journal of School Psychology, 29, 371-393.

Lentz, F. E., & Shapiro, E. S. (1986). Functional assessment of the academic environment. School Psychology Review, 15 346-357.

Marston, D. (1989). Curriculum-based measurement: What is it and why do it? In M. R. Shinn (Ed.), Curriculum-based measurement: Assessing special children (pp. 18-78). New York: Guilford Press.

Marston, D., & Deno, S. L. (1982). Implementation of direct and repeated measurement in the school setting. (Research Report No. 106). Minneapolis: University of Minnesota Institute for Research on Learning Disabilities.

Mehrens, W. A., & Clarizo, H. F. (1993). Curriculum-based measurement: Conceptual and psychometric considerations. Psychology in the Schools, 30, 241-254.

Oakland, T., & Matuszek, P. (1977). Using tests in non-discriminatory fashion. In T. Oakland (Ed.), Psychological and educational assessment of minority children (pp. 52-69). New York: Bruner-Mazel.

Reynolds, M. C. (1982). The rights of children: A challenge to

school psychologists. In T. R. Kratochwill (Ed.), Advances in school psychology: Vol. 2 (pp. 97-118). Hillsdale, NJ: Lawrence Erlbaum Associates.

Shinn, M. R. (1988). Development of curriculum-based local norms for use in special education decision-making. School Psychology Review, 17, 61-80.

Shinn, M. R. (1989). Identifying and defining academic problems: Curriculum-based screening and eligibility procedures. In M. R. Shinn (Ed.), Curriculum-Based measurement: Assessing special children (pp. 90-129). New York: Guilford Press.

Shinn, M. R. (1994, March). Curriculum-Based Measurement. Paper presented at School Psychology Inservice/Presentation at University of Miami at Ohio.

Shinn, M. R., & Marston, D. (1985). Differentiating mildly handicapped, low-achieving, and regular education students: A curriculum-based approach. Remedial and Special Education, 6, 31-45.

Shinn, M. R., Good, R., Knutson, N., & Tilly, D. (1992). Curriculum-based measurement measures of oral reading fluency: A confirmatory analysis of its relation to reading. School Psychology Review, 21, 459-479.

Tilly, W. D., & Shinn, M. R. (1990, October). Dynamic indicators of Basic skills: A formative approach to summarizing classroom performance in reading. Paper presented at 1990 Iowa School Psychology Convention, Des Moines, Iowa.

Tindal, G., Germann, G., & Deno, S. L. (1983). Descriptive research on Pine County norms: A compilation of findings.

(Research Report No. 132). Minneapolis: University of Minnesota Institute for Research on Learning Disabilities.

Trachtman, G. (1981). On such a full sea. School Psychology Review, 10,138-181.

Tucker, J. (1985). Curriculum-based assessment: An introduction. Exceptional Children, 52, 199-204.

Salvia, J., & Yssledyke (1991). Assessment in special and remedial education. Boston: Houghton Mifflin.

Yssledyke, J. E., Thurlow, M., Graden, J., Wesson, C, Algozzine, B., & Deno, S. L. (1983). Generalization from five years of research on assessment and decision making: The University of Minnesota Institute. Exceptional Education Quarterly, 4, 75-93.

Table 1

Deno and Mirkin's Reading Prescriptives for First and Second grade Students

Reading Level	Median Words Correct per Minute
Frustration	29
Instructional	40
Mastery	50+

Table 2

Summary of means and standard deviations for minute reading samples of oral reading fluency

	Grade 1		Grade 2	
Season	M	SD	M	SD
Fall	17.39	15.30	34.35	33.50
Winter	40.90	26.22	50.73	38.90
Spring	63.19	32.49	68.65	44.30

Table 3

Summary of relationship to norms and reading prescriptives

	Grade 1				Grade 2			
Season	M	EC	t	p	M	EC	t	p
Fall	17.39	29	-4.91	<.01	34.35	29	.956	>.05
Winter	40.90	50	-2.25	<.05	50.73	50	.118	>.05
Spring	63.19	50	2.60	<.05	68.65	50	2.66	<.05

EC: Median scores proposed by Deno & Mirkin (1977) for appraising seasonal progress: Fall is frustration and Spring and Winter are mastery level.

Figure Caption Page

Figure 1. A frequency distribution for the first grade students across reading intervals for the fall administration.

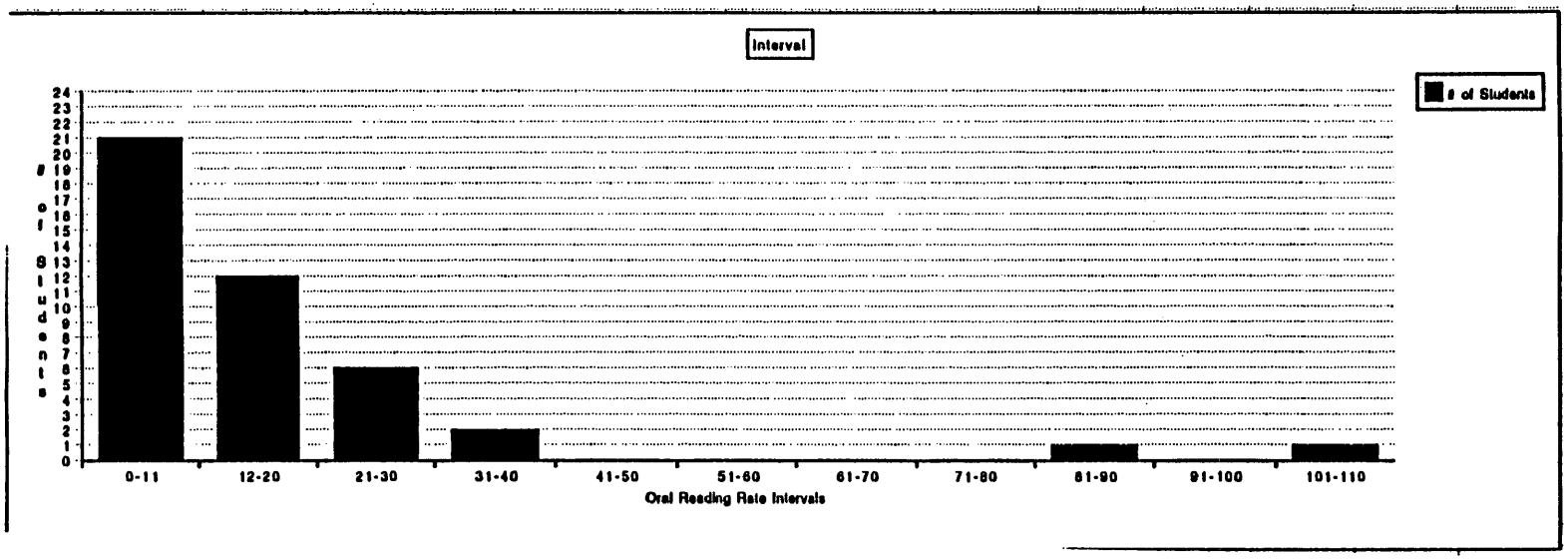
Figure 2. A frequency distribution for the first grade students across reading intervals for the winter administration.

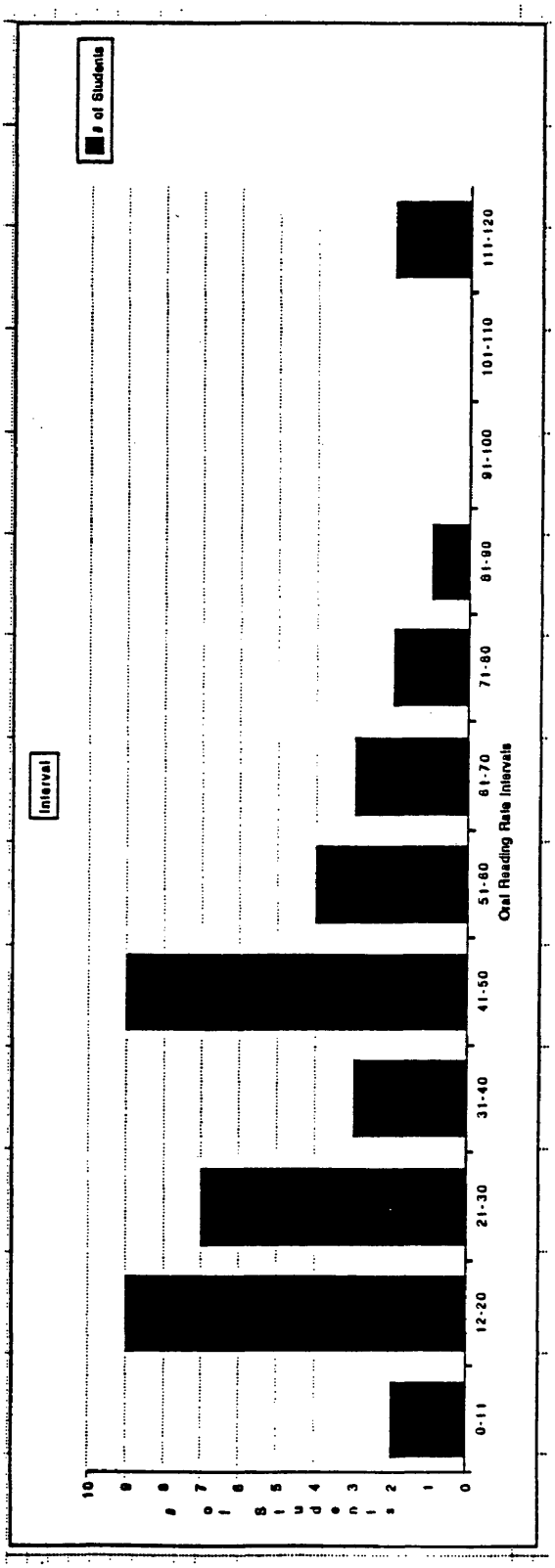
Figure 3. A frequency distribution for the first grade students across reading intervals for the spring administration.

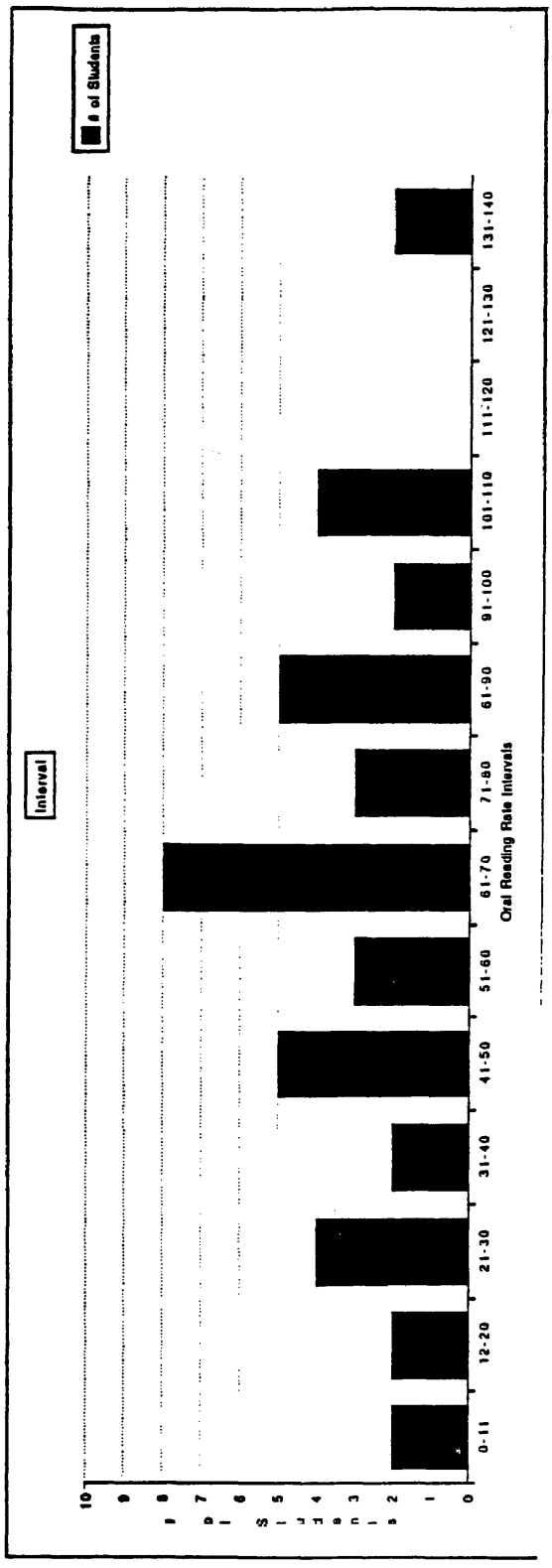
Figure 4. A frequency distribution for the second grade students across reading intervals for the fall administration.

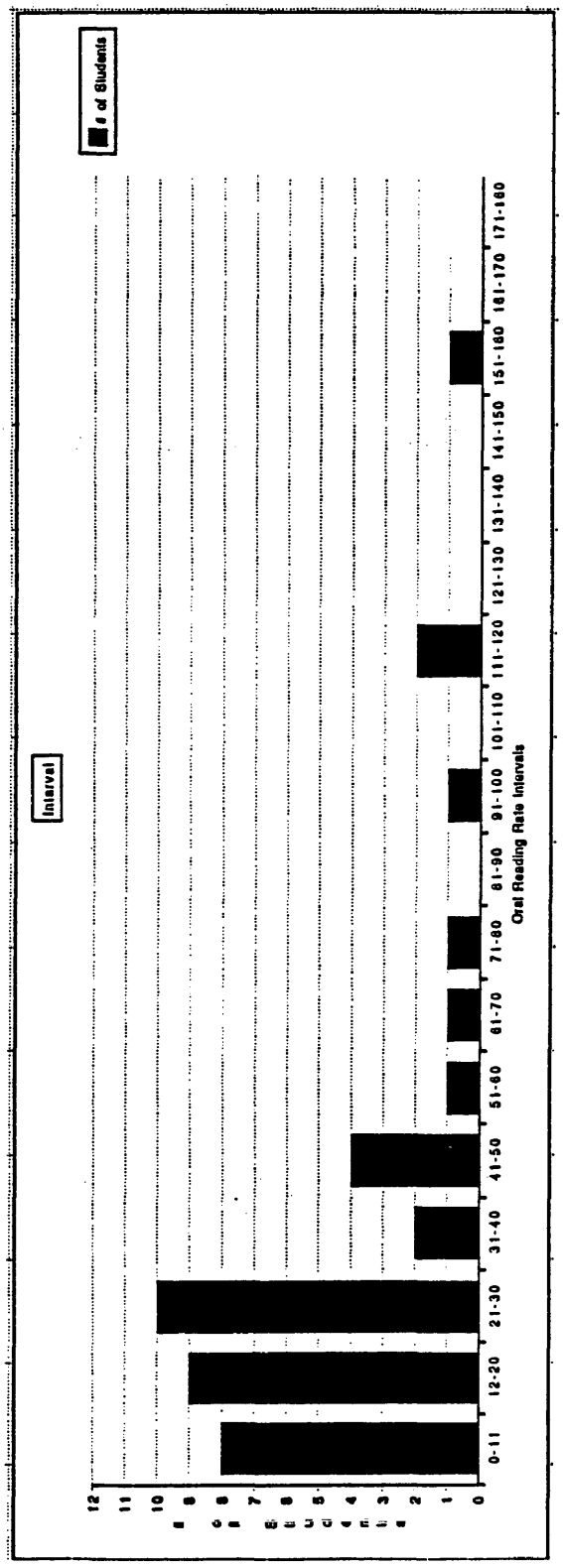
Figure 5. A frequency distribution for the second grade students across reading intervals for the winter administration.

Figure 6. A frequency distribution for the second grade students across reading intervals for the spring administration.


Interval
# of Students
# of Students
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
0-11
12-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
91-100
101-110
Oral Reading Rate Intervals


# of Students
Interval
0-11
12-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
91-100
101-110
111-120
Oral Reading Rate Intervals
0
1
2
3
4
5
6
7
8
9
10


Interval
# of Students
0-11
12-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
91-100
101-110
111-120
121-130
131-140
Oral Reading Rate Intervals
0
1
2
3
4
5
6
7
8
9
10


Interval
# of Students
0-11
12-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
91-100
101-110
111-120
121-130
131-140
141-150
151-160
161-170
171-180
Oral Reading Rate Intervals
0
1
2
3
4
5
6
7
8
9
10
11
12