1972

The Educational Match

Daleanne Anderson

THE EDUCATIONAL MATCH

An Abstract of

a Thesis

Submitted

In Partial Fulfillment

of the Requirements for the Degree

Specialist in Education

UNIVERSITY OF NORTHERN IOWA

by

Daleanne Anderson

August 1972

ABSTRACT

Many educators are arguing that if education is to be successful, classroom teachers must be able to match the instructional material for each student with that student's level of achievement. Supposedly, providing material that is too difficult or too advanced for the student's ability can result in failure and eventually a loss of motivation. On the other hand, providing material far below the present level of achievement can lead to a similar loss of motivation. According to this line of argument one of the basic tasks facing the teacher is the proper "matching" of the curriculum to the student's capabilities.

The research for this study involved a comparison of the results obtained from the Wide Range Achievement Test, the classroom text used, and the teacher's estimate of each student's ability.

The Wide Range Achievement Test was used for the study of the basic school subjects. This test provided a grade placement of an individual student in the areas of reading, spelling and arithmetic.

The sample for this study consisted of children referred to the Educational Clinic at the University of Northern Iowa.

Only one of the six hypotheses was refuted and this compared the arithmetic text and Ss ability as measured by

the Wide Range Achievement Test. The findings also showed that the Ss tended to be overrated in arithmetic and underrated in reading by the teachers.

THE EDUCATIONAL MATCH

A Thesis

Submitted

In Partial Fulfillment

of the Requirements for the Degree

Specialist in Education

UNIVERSITY OF NORTHERN IOWA

by

Daleanne Anderson

August 1972

This Study by: Daleanne Anderson

Entitled: THE EDUCATIONAL MATCH

has been approved as meeting the thesis requirement for the Degree of

Specialist in Education

Ralph Scott

Chairman, Thesis Committee

Rex A. Romack

Member, Thesis Committee

Gerald D. Bisbey

Member, Thesis Committee

College of Education

Upon recommendation of the Thesis Committee, accepted by

Gordon J. Rhum

Dean of the Graduate College

July 28, 1972

Date

Dean of the Graduate College

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

In theory, individualized instruction which matches the child's current level of academic functioning with instructional procedures is a prime criterion of effective education. Hunt[1] mentions the value of teachers implementing the appropriate educational "match", in which the child is neither given tasks which are not so easy he is bored, nor so difficult he is excessively frustrated. This "match", then, presumably is dependent on the teacher's recognition of the student's level of functioning in the various subject areas and the provision of appropriate learning experiences which facilitate progressive skill accumulation.

The presumed value of individualized instruction is generally accepted in teacher-training institutions, despite the absence of compelling evidence that individualized instruction actually facilitated achievement.[2] The lack of evidence that individualization actually promotes skill development may mirror the fact that not many teachers implement or can implement individualized instructional procedures.

---

[1] J. McVicker Hunt, The Challenge of Incompetence and Poverty. (Chicago: University of Illinois Press, 1969), pp. 42-44.

[2] Emily C. Harris and R. Dale Hudelson, eds., "Rand Team Searches for Answers to 'What Works?'," Report on Education Research IV, No. 9 (April, 1972), 11-12.

It would be an error to assume that individualization is a simple matter. Actually, if the teacher is to individualize instruction, he or she must be competent in teaching a wide variety of subject areas and, within each subject area, a broad range of skills. The complexity of individualizing instruction is further compounded by the fact that individualization of instruction involves not only inter-child differences but also subtle intra-child differences in as much as a student may be performing above grade level in some subject areas, at about grade level in other subject areas, and significantly below grade level in still other subject areas.[3] When the number of subject areas is multiplied by the number of students in the classroom it becomes all too obvious that many students may be given work that is far too easy, or too difficult for them with all the resulting motivational, attentional, and cognitive implications.

When a child is not given appropriate learning opportunities, when the assigned tasks are excessively boring or frustrating, it is possible that the teacher may refer him to an "expert" such as a guidance counselor, psychologist, or educational consultant. When this is the case, part of the real problem may lie in the failure of the classroom teacher to provide the child with the educational "match", as a result

---

[3]Ralph Scott, E. R. Kell and Donald L. Salisbury, "Cognitive Profiles of 'Retarded' Children: A Survey of Inter- and Intra- Child Differences." Psychology in the Schools, VII No. 3, (July, 1970), 288-291.

of which the child's learning and/or behavior is such that the referral is initiated.

The purpose of this study is to ascertain the extent to which the classroom teacher accurately appraised the child's level of achievement functioning in several subject areas, the extent to which he or she assigned appropriate textbook material, and the degree of congruence of this estimate of achievement functioning and text level with the measured competencies of individual students referred for educational assessment.

STRATEGY

The design of this study consisted of comparing the "adjusted" reading, spelling, and arithmetic text, the "adjusted" teacher estimate in reading, spelling, and arithmetic, with the Wide Range Achievement Test grade equivalent scores in reading, spelling and arithmetic.

Many educators claim that for successful learning it is very important that the teacher actually plan for individual differences in all areas which would include arithmetic, spelling and reading. Each student should be given the level of text that their achievement can handle. Generally speaking, all teachers agree that children in one classroom are not alike in their learning patterns and that the rates of growth are different for each individual. Most teachers expound and agree that each child should develop to his fullest capabilities; yet, we do not know in actuality whether teachers

do match their curriculum to students' present functioning levels of achievement.

It is assumed that the grade level of textbooks as stated by the teacher are accurate. It is also assumed that students progress at a relatively stable rate throughout the year with one month's progress for each month of the year. For example, if a teacher stated that a child was in the second grade text in February the text level would be second grade, 5 months (0 months assumed September 1; from September 1 to February is 5 months); if the child took the WRAT in May the adjusted text would become second grade 8 months which allowed for the three months delay between the time the teacher's provided text estimate and time of WRAT testing.

SUBJECTS

The sample for this study was drawn from children referred to the Educational Clinic at the University of Northern Iowa, Cedar Falls, Iowa. Most of these children reside in Black Hawk, Bremer, Tama and Buchanan Counties. Each child has been referred to the Educational Clinic for a psychoevaluation assessment, and in most situations they are believed to be underachieving. These children are usually referred by parents, school personnel and community agencies.

The actual sample size used in this study consisted of sixteen males whose chronological age was from seven to nine years. These sixteen males were in grades one to three (1-3).

The sample size used was limited because of the restrictions placed on the sample and the need for specific data. For example, after reviewing 580 cases at the Educational Clinic only 69 cases could be used for this study since the students had to be in grades one through six (retardates were not used), administered the Wide Range Achievement Test and had a referral blank filled out by their teacher. Now, of the 69 cases only seventeen were females and fourteen of the seventeen females were in (1-3) with the remaining three in grades four to six (4-6). The sample of females was thus considered too small for a reliable study and were deleted. The males were included in the subject sample. However, cases in grades (1-6) were not used if the students had six months or more time lapse between the time the teacher filled out the referral form and the time of testing, as it was concluded that the adjustment factor contained too great of a time lapse. Also, the referral cases had to have the teacher complete both the teacher's estimate and the text level for each student on the referral form. This reduced the sample size still further to twenty-six males (1-6). Of the twenty-six males in grades (1-6) only ten males were in grades (4-6) which made the sample too small for a study; resulting in the sixteen male subjects in grades (1-3) which were utilized for the study.

The WRAT spelling subtest was to be included in the study; however, only six teachers out of the sixteen males selected filled out the spelling text level. Thus, only the

reading and arithmetic subtest were included in the study.

INSTRUMENT

In this experiment, grade equivalencies of the WRAT, the classroom texts used, and the teacher's estimate of each student's ability were compared.

Reading subtest: recognizing and naming letters and pronouncing words.

Spelling subtest: the child copies marks resembling letters, writes his name and writes single words from dictation.

Arithmetic subtest: requires the child to perform written computations.

Each of the subtests involves the use of different modalities within the child.[4] In the arithmetic subtest there is a visual input with a motor output. The reading subtest involves a visual input with a verbal output while spelling has an auditory input (hearing the word) with a motor output.

PROCEDURES

The students were referred to the Educational Clinic because of school learning difficulties. The referral blanks contain information to be completed by parents and teachers. In the referral blank the teacher was asked to list the grade level of textbooks assigned the student in the areas of

---

[4]Samuel Kirk and J. Paraskevopoulos, The Development and Psychometric Characteristics of the Revised Illinois Test of Psycholinguistic Abilities, (Urbana: University of Illinois Press, 1969).

arithmetic, reading and spelling. The teacher was also asked to estimate the functional grade level of the child in reading, arithmetic, spelling, language, social studies and other areas. The referral blank specifically stated that the teacher's estimate and not test results, were wanted. On the referral blank the text used in arithmetic, reading and spelling was also recorded along with the teacher's estimate of the grade level in arithmetic, reading and spelling. (See Appendix).

The referral blanks and folders of all students who have attended the Educational Clinic were examined. Students who were administered the WRAT at the Educational Clinic (1-6) were selected as potential subjects of the study.

The data taken from the folders of these students were the child's name, grade, sex, WRAT scores in arithmetic, reading, and spelling, date the WRAT was administered, the level of arithmetic, reading, and spelling texts the teacher used for each student, the teacher's estimate of the grade level the child is working at in reading, arithmetic and spelling, and the date the referral form was filled out by the teacher.

After all the data was collected the students were classified by grade level and sex.

A t-test for related means was used to test the following null hypotheses:

THE HYPOTHESES

1. There will be no significant difference between the mean WRAT arithmetic converted score and the mean grade level

of the adjusted arithmetic text level for boys.

2. There will be no significant difference between the mean WRAT arithmetic converted score and the mean grade level of the adjusted teacher's arithmetic level for boys.

3. There will be no significant difference between the mean grade level of the adjusted arithmetic text level and the mean grade level of the adjusted teacher's arithmetic level for boys.

4. There will be no significant difference between the mean WRAT reading converted score and the mean grade level of the adjusted reading text level for boys.

5. There will be no significant difference between the mean WRAT reading converted score and the mean grade of the adjusted teacher's reading level for boys.

6. There will be no significant difference between the mean grade level of the adjusted reading text level and the mean grade level of the adjusted teacher's reading level for boys.

CHAPTER II

REVIEW OF THE LITERATURE

It is generally assumed that individualized instruction is essential to effective teaching. The widespread acceptance of individualized instruction within educational circles is attested by the frequency of courses in teacher-training institutions which emphasize methods and procedures of individualizing assignments for students. In addition, many school systems have formulated in-service programs which stress individualized instruction.[5] The popularity of individualized instruction stems from the theoretical base provided by Skinner[6] with his emphasis on teaching technology, and by Bruner[7] whose theory places greater value on cognitive-affective interaction.

Despite the popularity of individualized or prescriptive instruction it is difficult to secure convincing evidence that this approach fosters cognitive development. Much of the "evidence" for individualized instruction amounts to little

---

[5]Robert S. Scanlon and Mary V. Brown, "Inservice Education for Individualized Instruction," Educational Technology X (February, 1970), 62.

[6]Robert Glaser and Lauren B. Resnick, "Instructional Psychology," Annual Review of Psychology, eds. Paul H. Mussen and Mark R. Rosenzweig (Palo Alto: Annual Reviews, Inc., 1972), p. 209.

[7]Glaser and Resnick, p. 209.

more than personal testimony of enthusiastic teachers. Thus, we find Wolf[8] claiming that as a result of an individualized reading program not one of 25 children advanced less than one year and two months during a school year. Wolf's study, however, lacks controls and fails to establish any evidence of long-term gains which would be more than anything other than incidental gains associated with the "Hawthorne Effect." In a similar vein, LaPlante[9] notes that Bushnell claims when instruction is properly individualized "ninety percent of our students can master most subjects." Again, close examination of the data indicates the absence of controls and no evidence that individualized instruction produced longitudinal impact on students' learning. This proclivity for enthusiastic testimonials is also apparent in other studies which have been reported in the literature. (Trusty[10], Edling[11], Arena[12], Melton[13],

---

[8]Mildred Wolf, "Individualized Reading -- How I Broke the Mold," Grade Teacher LXXXVII (September, 1969), 159.

[9]William LaPlante, "Real Reform Still Needed on Individualization," Nation's Schools, LXXXVII No. 2 (February, 1971), 64.

[10]Kay Trusty, "Principles of Learning and Individualized Reading," The Reading Teacher XXIV No. 8 (May, 1971), 751.

[11]Jack V. Edling, "Individualized Instruction the Way it is -- 1970," Audiovisual Instructor XV (February, 1970), 16.

[12]John E. Arena, "An Instrument for Individualizing Instruction," Educational Leadership XXVII (May, 1970), 784.

[13]Joseph Melton, "Arithmetic for Individuals," School Science and Mathematics LXXI (April, 1971), 301.

Carrier[14], Baker and Goldberg[15].)

In general, it appears that as one moves from testimonials to more rigorous statistical examination the instructional benefits of individualized learning become less certain. Spollen[16] found no evidence that individualization of instruction facilitated cognitive and perceptual functioning of kindergarten children who had been identified as having a developmental lag.

Some educators have grappled with the apparent conflict between the presumably undisputable value of individualized instruction and the lack of empirical evidence that prescriptive teaching does foster learning. The consequences of this conflict are frustrating to the concerned educator. From a psychoeducational standpoint, can it really be possible that students do not learn better when they are given opportunities to learn at their own level? If so, then what about Hunt's[17] convincing argument, "the trick is to capture each child's interest by making the circumstances which he encounters

---

[14]Robert Carrier, "Individualizing in One Room," Instructor LXXX (April, 1970), 79.

[15]Gail L. Baker and Isadore Goldberg, "The Individualized Learning System," Educational Leadership XXVII (May, 1970), 780.

[16]Joseph C. Spollen, "The Effect of Individualization of Instruction on Cognitive and Perceptual Functioning of Kindergarten Children with a Developmental Lag," Dissertations Abstracts International XXXI No. 7 (January, 1971), 3355A.

[17]Hunt, pp. 42-44.

in the program relevant to the information he already has in his mental storage and to the skills he has already developed?"

Sometimes the explanations given for the apparent failure of individualized programs to produce results appear ludicrous. Arena[18] claims that if the theory of individualized learning is valid, then one must conclude that the idea can be successfully applied. This reasoning, of course, ignores the fact that there is a whole body of literature which indicates that non-cognitive factors may inhibit cognitive growth and explain why some children do not learn as they presumably might and/or could.[19]

Some theorists resort to moralizing and emphasize the individuality of students which makes individualized learning "an absolute necessity in our schools of today and tomorrow."[20] Bergeson and Roettger[21] follow this line of reasoning and assert that those educators who demand proof of success of individualized instruction in the form of better grades and improved test scores will be disappointed because education should be concerned with enabling students to become "better people", which is something that cannot be measured. Bolvin

---

[18]Arena, p. 784.

[19]Harris and Hudelson, pp. 11-12.

[20]Baker and Goldberg, p. 780.

[21]J. B. Bergeson and C. Roettger, "Two Experiences in Individualizing," Instructor LXXX, (February, 1971), 73.

and Glaser[22] simply assert that individualized instruction is successful but that this cannot be proved because the true aim of education is to "provide each individual with a sense of uniqueness and a feeling of capability to be a full-fledged member in the development of society."

> ... Formal education has not kept pace with the rapid progression of society. Education has been little concerned with the hearts and minds of learners. Formalized teaching has been done as a matter of convenience and not conscience. For too long we have been trying to get kids to do things for us (as teachers) make us feel and look good. We have taught them what we have learned to teach them, not what is relevant and meaningful to each learner today.[23]

Despite the willingness of some educators to defend individualized instruction in the absence of "hard data" it is possible that the quality of education could be substantially raised through prescriptive teaching. One reason individualized instruction has not proven its mettle may be that it hasn't really been implemented. The real problem may be that teachers are not individualizing instruction. If so, a massive and determined effort to upgrade the individualized instructional procedures would be needed.

The apparent complexity of ascertaining the actual value of individualized instruction is illustrated in a study

---

[22]John G. Bolvin and Robert Glaser, "Developmental Aspects of Individually Prescribed Instruction," Audiovisual Instruction, XIII (October, 1968), 828.

[23]Jerry Hancock, "There's a Better Way," Art Education, XXIV (April, 1971), 6.

by Davis and Lucas[24] which assessed the impact of an individualized reading program on reading rate, vocabulary and comprehension of junior high students. This study revealed that reading rates of subjects enrolled in the individualized reading program were significantly higher than those of control subjects. However, no differences were secured with respect to vocabulary or comprehension skills of control and experimental subjects.

It is not easy to put into action an effective system of individualized instruction. Hunter[25] has demonstrated the complexity of individualizing instruction and documents evidence that age and grade level are not guides for determining appropriate learning assignments. Frequently, what is right for one may be wrong with another. The sheer logistics of individualizing instruction become more apparent when needed changes within a teacher training institute, school system and sources of learning outside the school are considered.

Moreover, implementation problems within the school are themselves monumental. The normal classroom of fourth grade students is likely to reveal a range of achievement

---

[24]Floyd W. Davis and James S. Lucas, "An Experiment in Individualized Reading," The Reading Teacher XXIV No. 8 (May, 1971), 743.

[25]Madeline Hunter, "Individualized Instruction," Instructor LXXIX (March, 1970), 53-63.

skills from second to ninth grade.[26] The teacher who individualizes instruction must be concerned not only with the between-child range in abilities but with the still more complex question of within-child ability profiles.[27] Thus, a child may be functioning above grade level in one subject area, and significantly below grade level in another area subject field. Effective teaching thus requires the teacher to understand a child's present functional skill in a number of areas: the average teacher who individualizes instruction would have to understand the achievement levels of 25 students in six subject areas. This involves reasonably accurate appraisal of 150 scores, which to some extent change daily in response to maturational, motivational and social variables of each student. Thus, the commonly accepted goal of individualized instruction is understandably difficult to attain.

Interestingly, a survey of the literature reveals that although we know little about what individualized instruction has actually done to foster achievements there have been practically no studies which have sought to ascertain the extent to which the average classroom teacher individualized instruction for children who are experiencing

---

[26]Arden N. Frandsen, Educational Psychology (New York: McGraw-Hill Book Company, Inc. 1960), p. 147.

[27]Scott, Kell and Salisbury, pp. 288-291.

learning difficulties. This seems to be an important question. What appears to be needed is some evaluation of the ways in which teachers understand a student's level of functioning in various subject areas and the extent to which the teacher adapts each student's assignments to his functioning so as to implement the appropriate educational "match."

Many educators claim that for successful learning it is very important that the teacher actually plan for individual differences in all areas which would include arithmetic and reading. Each student should be given the level of text that their achievement can handle. Generally speaking, all teachers agree that children in one classroom are not alike in their learning patterns and that the rates of growth are different for each individual. Most teachers agree that each child should develop to his fullest capabilities. This study is concerned with the actuality of whether teachers do implement the "match".

CHAPTER III

ANALYSIS OF THE DATA

The null hypotheses of no significant differences were tested statistically utilizing the t-text for related means.

The adjusted text level was based on the difference between the time the teacher filled out the referral form and the time the WRAT was administered. For example, if the teacher stated that the student was in the 2nd grade arithmetic textbook in March the normal arithmetic text grade equivalent level would have been second grade 6 months. (0 months assumed September 1; from September 1 to March 1 is 6 months). If the WRAT was administered in May, however, the text grade equivalent level was adjusted to second grade 8 months, not second grade 6 months, and then to 32 months; the adjusted text level.

The adjusted teacher's level was also based on the differences between the time the teacher completed the referral form and the time the WRAT was administered. For example, if the teacher estimated that the student was performing at a third grade level in November the student's arithmetic normal grade equivalent level would have been third grade 2 months. (0 months assumed September 1; from September 1 to November 1 is 2 months. Total grade level in this example therefore is third grade 2 months). If the WRAT was administered in April the teacher's grade equivalent level was adjusted to third grade 7 months and then to 43 months; the adjusted teacher's level.

The WRAT raw score was converted to grade equivalents by a norm table and then to months. The student's converted score on the WRAT was then compared with the adjusted text level and the adjusted teacher's level.

Tables II and VIII show the months discrepancy between the WRAT score converted to months and the adjusted text level. For example, if the WRAT converted score was 26 months (second grade 2 months) and the adjusted text level was 21 months (first grade 9 months) there would be a five months discrepancy. The WRAT converted score was used as the base for determining if the student was underrated (+) or overrated (-). In this specific case the student was underrated 5 months; therefore, his discrepancy score would be (+5).

Tables IV and X show the months discrepancy between the WRAT score converted to months and the adjusted teacher's level. For example, if the WRAT converted score was 22 months and the adjusted teacher's level was 29 months there would be a 7 months discrepancy. The WRAT converted score was again used as the base for determining if the student was underrated (+) or overrated (-). In this specific case the student was overrated 7 months and his discrepancy score would be (-7).

Tables XI and XII show the months discrepancy between the adjusted text level and the adjusted teacher's level. For example, if the adjusted teacher's level was 22 months and the adjusted text level was 10 months there would be a 12 month discrepancy. The adjusted teacher's level was used as the base for determining if the student was underrated (+) or overrated (-).

In this specific case the student was underrated 12 months (+12).

Hypothesis 1. There will be no significant difference between the mean WRAT arithmetic converted score and the mean grade level of the adjusted arithmetic text level for boys.

As Table I shows, the null hypothesis is rejected as there was a significant difference.

TABLE I

WRAT ARITHMETIC CONVERTED SCORE AND ADJUSTED ARITHMETIC TEXT LEVEL N=16

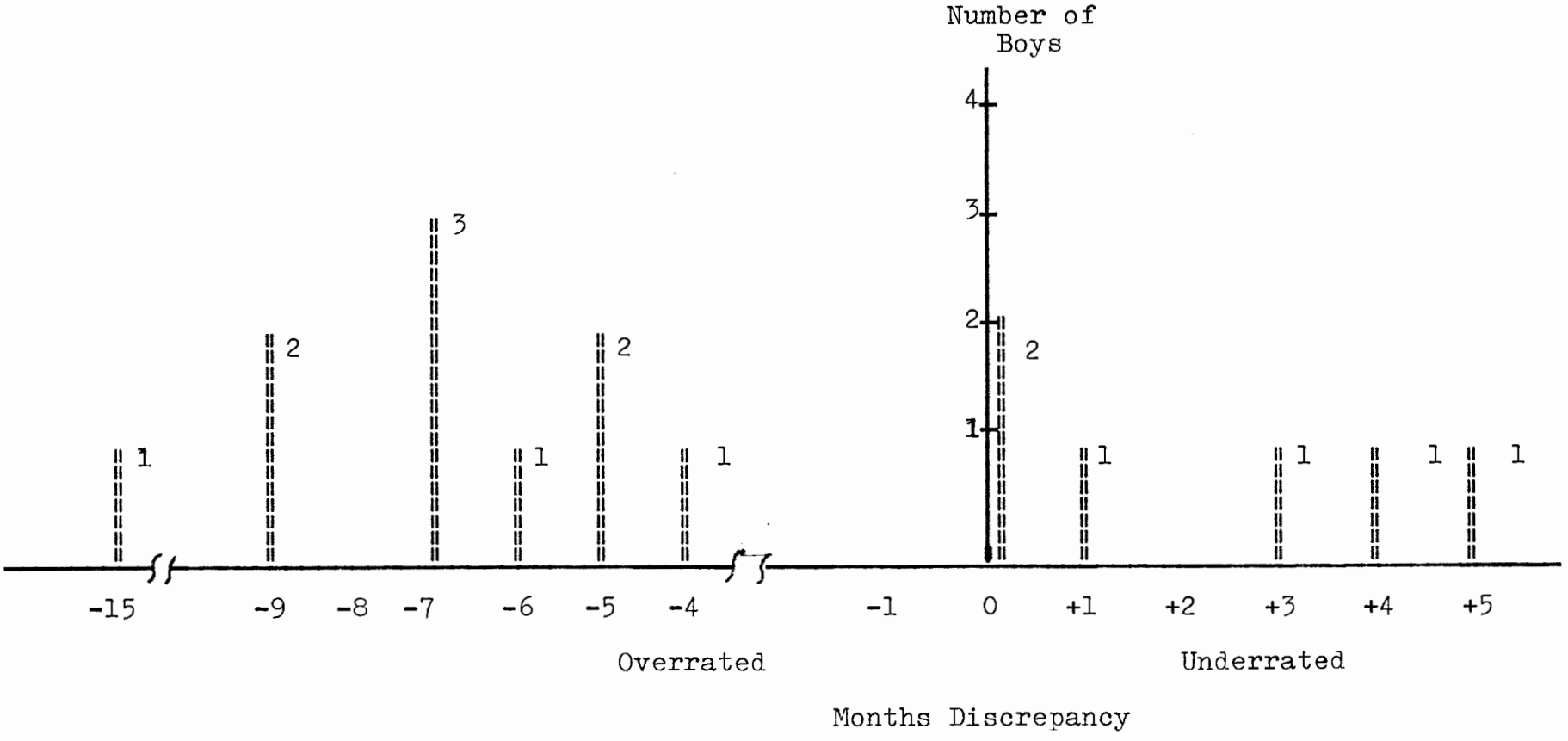
	Mean	Standard Deviation	t-value
WRAT Arithmetic	30.06	6.42	
			2.77*
Adjusted Arithmetic Text	33.88	8.58	

(*) $p. < 05$

Table II shows, of the sixteen male Ss in grades 1-3, two (13%) were matched exactly. That is their achievement level as measured by the WRAT test, was equal to their adjusted arithmetic text level. Also, in Table II, it is noted that four Ss (25%) were underrated. Table II shows ten (62%) male Ss were using a text level above their achievement levels (overrated); seven (44%) of the ten, having a discrepancy score of six months or more.

TABLE II

DIFFERENCES IN MONTHS BETWEEN THE WRAT CONVERTED SCORE AND THE ADJUSTED ARITHMETIC TEXT LEVEL FOR BOYS (1-3) N=16



Hypothesis 2. There will be no significant difference between the mean WRAT arithmetic converted score and the mean grade level of the adjusted teacher's arithmetic level for boys.

As Table III shows, the hypothesis is accepted as there was no significant difference.

TABLE III

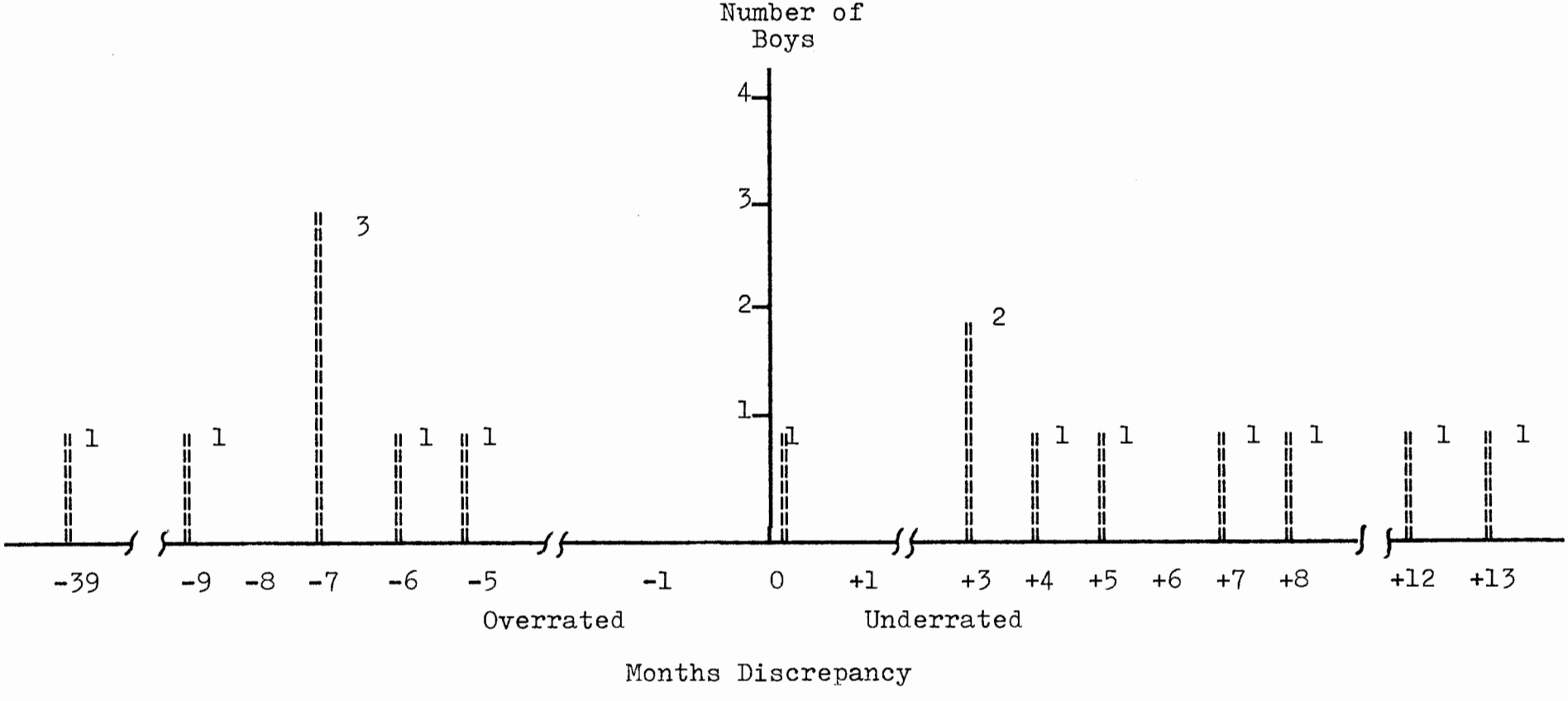
WRAT ARITHMETIC CONVERTED SCORE AND ADJUSTED TEACHER ARITHMETIC LEVEL N=16

	Mean	Standard Deviation	t-value
WRAT Arithmetic	30.06	6.42	
			.5096
Adjusted Arithmetic Level	31.63	13.60	

Table IV shows, of the sixteen male Ss in grades 1-3, one (6%) was matched exactly. That is, the achievement level as measured by the WRAT test, was equal to the adjusted teacher's arithmetic level. Also in Table IV, it is noted that eight Ss (50%) were underrated by three months or more, 25% of which had discrepancy scores of 6 months or more. In addition, Table IV, shows that seven (44%) of the male students were overrated with six (38%) having a discrepancy of six months or more.

TABLE IV

DIFFERENCES IN MONTHS BETWEEN THE WRAT ARITHMETIC CONVERTED SCORE AND THE ADJUSTED TEACHER'S ARITHMETIC LEVEL FOR BOYS (1-3) N=16



Hypothesis 3. There will be no significant difference between the mean grade level of the adjusted arithmetic text level and the mean grade level of the adjusted teacher's arithmetic level for boys.

As Table V shows, the hypothesis is accepted; there was no significant difference.

TABLE V

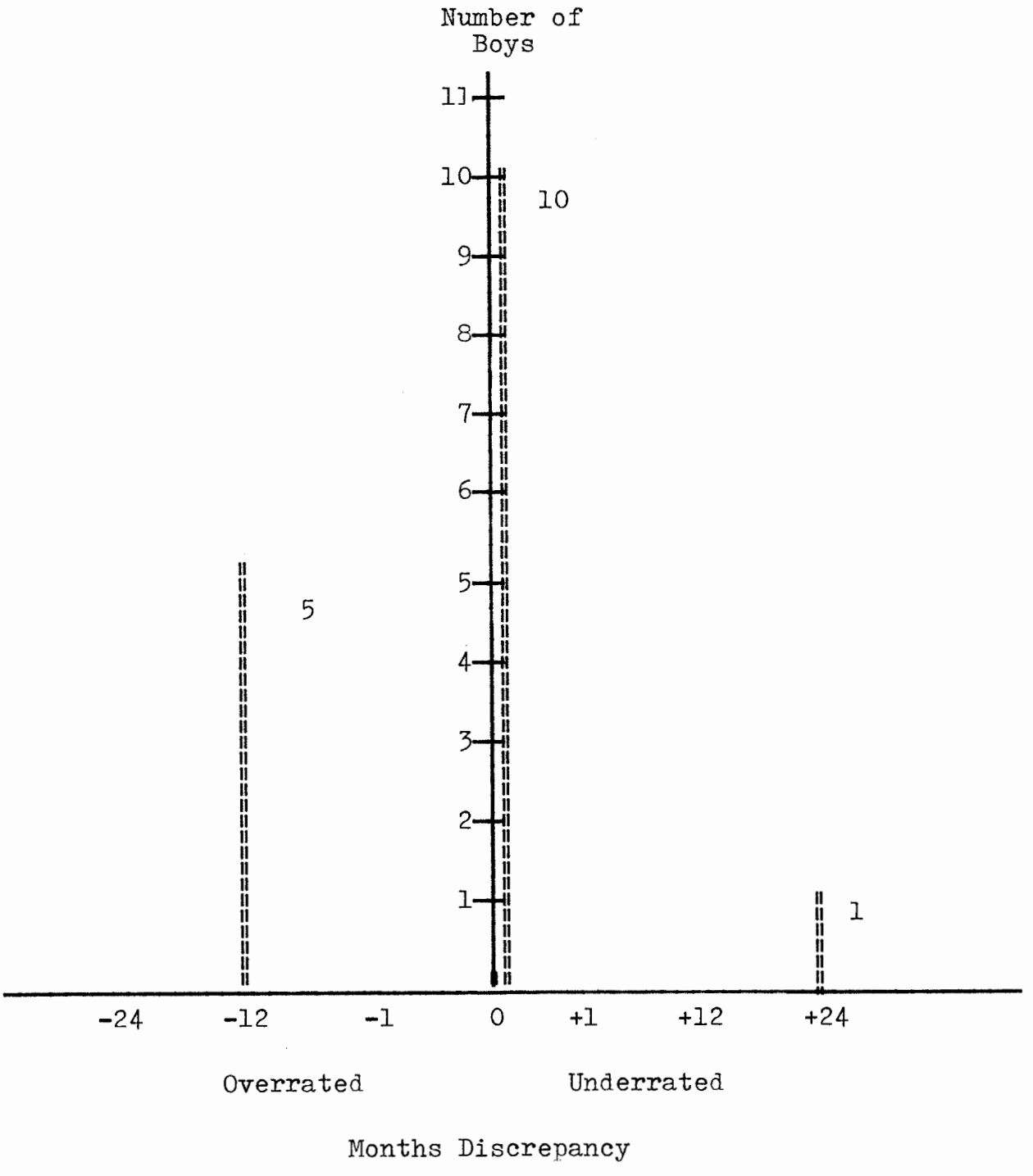
ADJUSTED ARITHMETIC TEXT LEVEL AND ADJUSTED TEACHER'S ARITHMETIC LEVEL N=16

	Mean	Standard Deviation	t-value
Adjusted Arithmetic Text Level	33.88	8.58	
			1.00
Adjusted Teacher's Arithmetic Level	31.63	13.60	

Table VI shows that of the sixteen male Ss in grades 1-3, ten (63%) were matched exactly. That is their adjusted arithmetic text level was equal to their adjusted teacher's arithmetic level. Table VI also shows that one (6%) subject was underrated by 24 months and the teacher used an arithmetic textbook that was below his ability level. Table VI shows further that five (31%) of the teachers overrated their Ss by using textbooks having a discrepancy of twelve months.

TABLE VI

DIFFERENCES IN MONTHS BETWEEN THE ADJUSTED ARITHMETIC TEXT LEVEL AND THE ADJUSTED TEACHER ARITHMETIC LEVEL FOR BOYS (1-3) N=16



Hypothesis 4. There will be no significant difference between the mean WRAT reading converted score and the mean grade level of the adjusted reading text level for boys.

Table VII shows that the null hypothesis was accepted.

TABLE VII

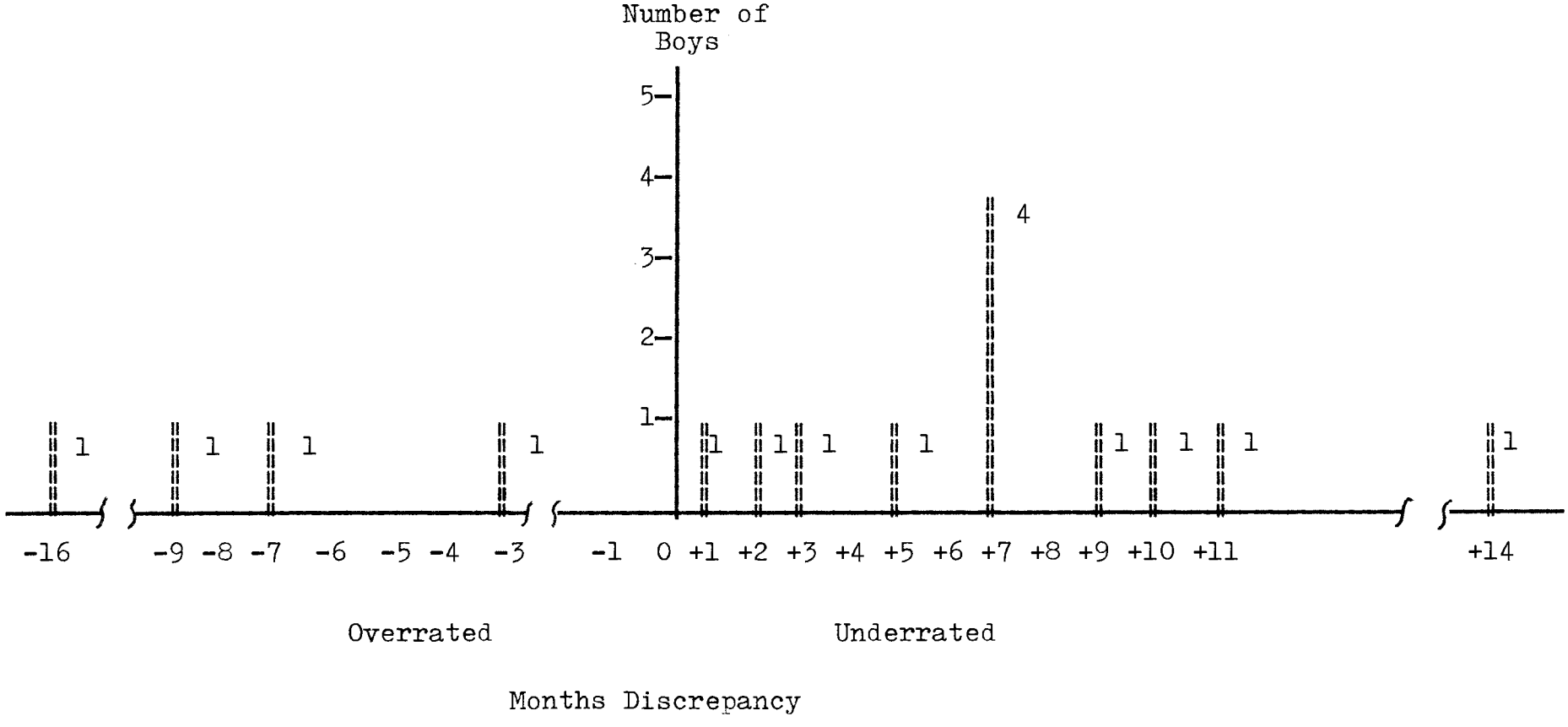
WRAT READING CONVERTED SCORE AND ADJUSTED READING TEXT LEVEL N=16

	Mean	Standard Deviation	t-value
WRAT Reading	31.63	9.96	
			1.4815
Adjusted Reading Text Level	28.63	11.67	

In Table VIII, it is noted that twelve Ss (75%) were underrated from +1 to +14 months when compared with the WRAT converted test scores. Eight of these Ss (50%) had a six month or more discrepancy score. Table VIII also shows that four Ss (25%) were overrated with three of these Ss (19%) having a discrepancy score of six months or more.

TABLE VIII

DIFFERENCES IN MONTHS BETWEEN THE WRAT READING CONVERTED SCORE AND THE ADJUSTED READING TEXT LEVEL FOR BOYS (1-3) N=16



Hypothesis 5. There will be no significant difference between the mean WRAT reading converted score and the mean grade of the adjusted teacher's reading level for boys.

Table IX shows that the null hypothesis is accepted since there was no significant difference between the means.

TABLE IX

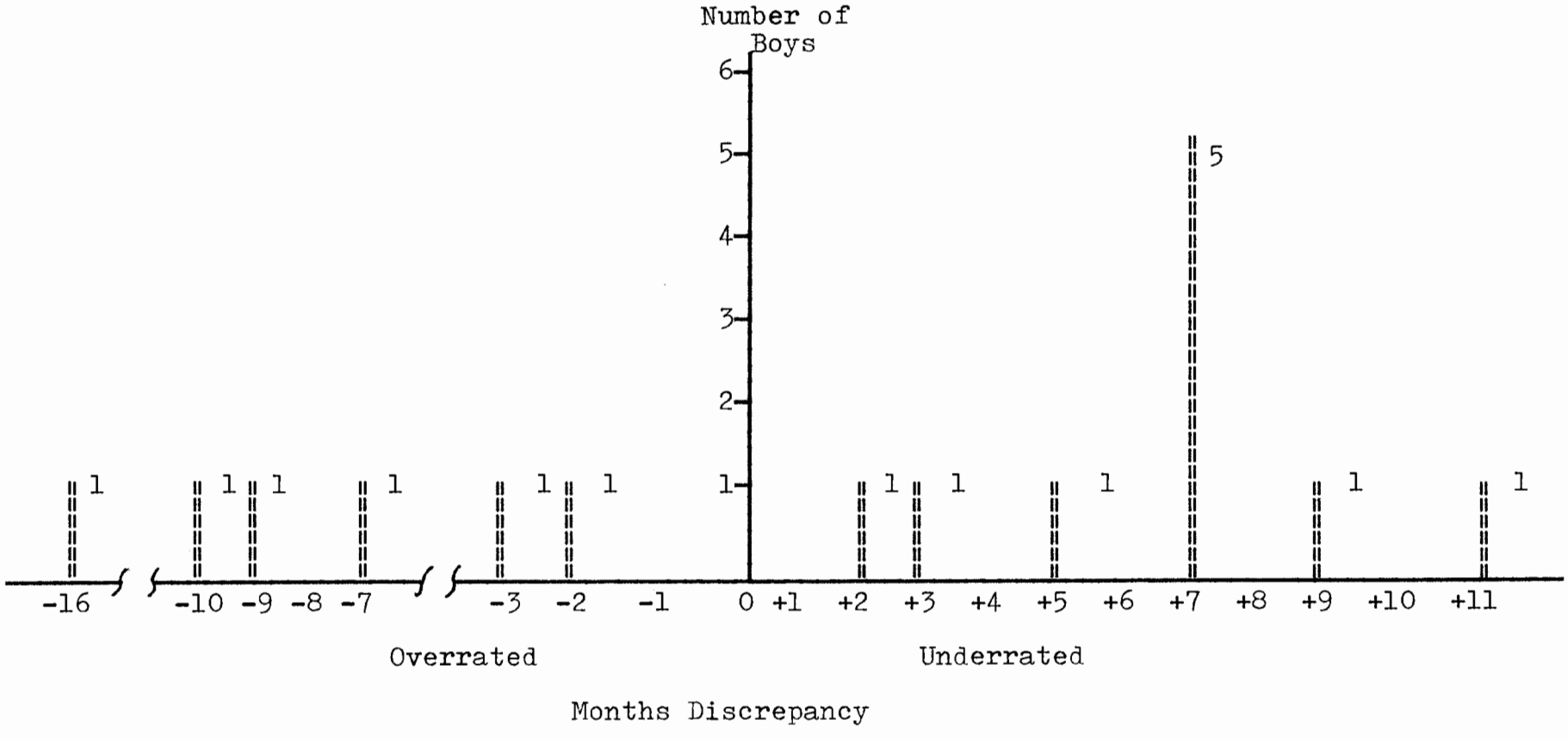
WRAT READING CONVERTED SCORE AND ADJUSTED TEACHER READING LEVEL N=16

	Mean	Standard Deviation	t-value
WRAT Reading	31.63	9.96	
			.5614
Adjusted Teacher Reading Level	30.50	11.71	

In Table X, it is noted that ten Ss (62%) were underrated from +2 to +11 months since their adjusted teacher's reading level was above their reading achievement level, as measured by the WRAT test. Also, seven Ss (44%) had a six month or more discrepancy. Table X also shows that six Ss (38%) were overrated from -2 to -16 months, four of which have a discrepancy of six months or more.

TABLE X

DIFFERENCES IN MONTHS BETWEEN THE WRAT READING CONVERTED SCORE AND THE ADJUSTED READING TEACHER'S LEVEL FOR BOYS (1-3) N=16



Hypothesis 6. There will be no significant difference between the mean grade level of the adjusted reading text level and the mean grade level of the adjusted teacher's reading level, for boys.

As Table XI shows, the null hypothesis is accepted as there was no significant difference between the means.

TABLE XI

ADJUSTED READING TEXTBOOK LEVEL AND ADJUSTED TEACHER'S READING LEVEL N=16

	Mean	Standard Deviation	t-value
Adjusted Reading Textbook Level	28.63	11.67	
			1.098
Adjusted Teacher's Reading Level	30.50	11.71	

Table XII shows that of the sixteen male Ss in grades 1-3 ten (62%) were matched exactly. That is, their adjusted reading text level was equal to their adjusted teacher's reading level. Table XII also shows that four (25%) Ss were underrated by twelve months. In addition Table XII shows two (13%) of the teachers used texts above the Ss estimated level (six months and a year).

TABLE XII

DIFFERENCES IN MONTHS BETWEEN THE ADJUSTED READING TEXT LEVEL AND THE ADJUSTED TEACHER'S READING LEVEL FOR BOYS (1-3) N=16

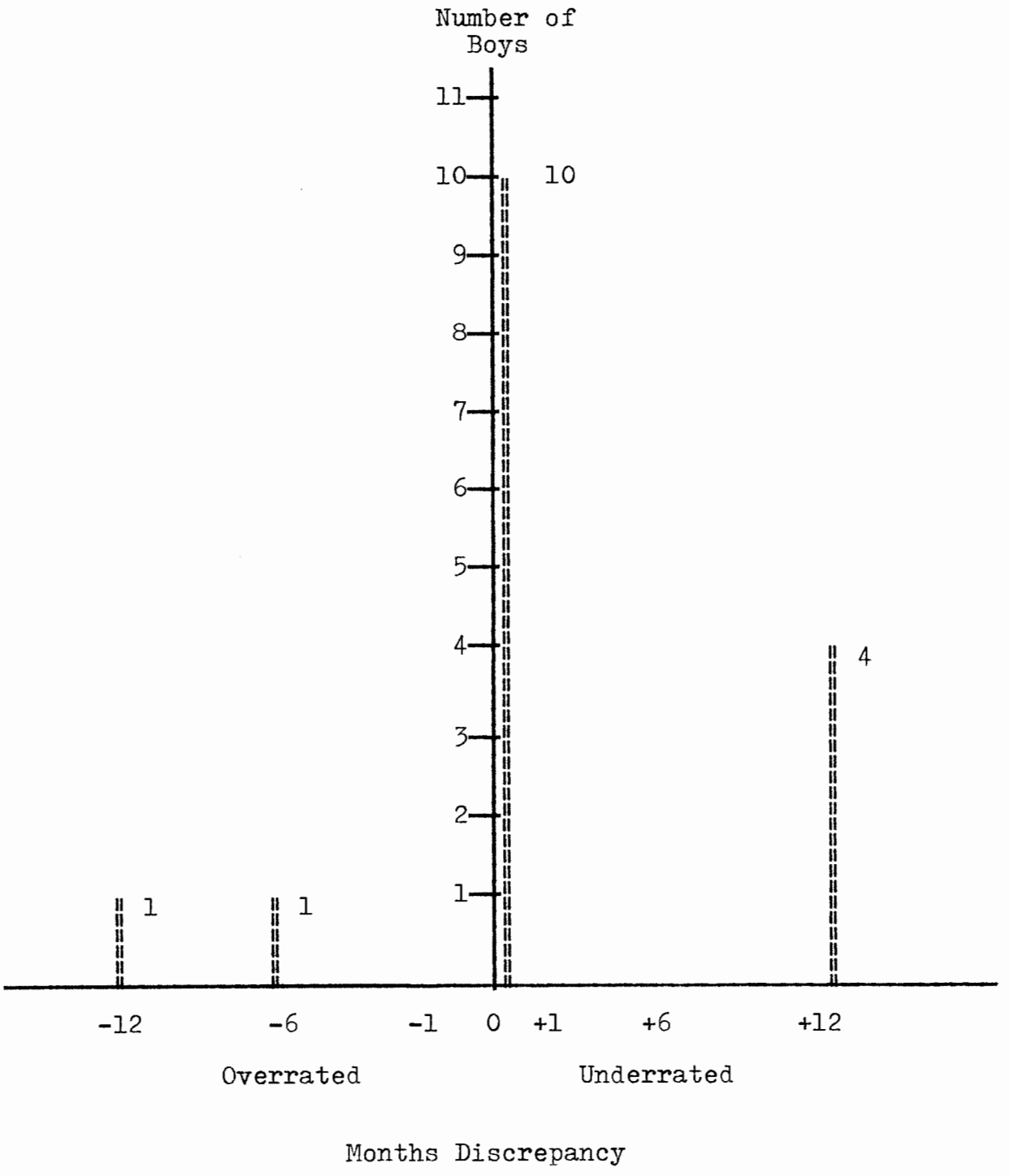


Table XIII summarizes percentages of discrepancies for the arithmetic and reading investigations. For example, the WRAT arithmetic and the adjusted arithmetic text were overrated by 62%, underrated by 25%, and 13% matched. It also shows 44% of these subjects in arithmetic were overrated by six months or more.

Table XIII shows that there is a tendency of the male Ss to be overrated in arithmetic and underrated in reading.

TABLE XIII

SUMMARY OF TABLES II, IV, VI, VIII, X, XII
EXPRESSED AS PERCENTAGES OF DISCREPANCIES

	Overrated	Underrated	Matched
Arithmetic Adj. Text vs. WRAT Arithmetic	62 (44)*	25 (0)	13
Adj. Teacher's Arithmetic Level vs. WRAT Arithmetic	44 (38)	50 (25)	6
Adj. Teacher's Arithmetic Level vs. Arithmetic Adj. Text	31 (31)	6 (6)	63
Reading Adj. Text vs. WRAT Reading	25 (19)	75 (50)	0
Adj. Teacher's Reading Level vs. WRAT Reading	38 (25)	62 (44)	0
Adj. Teacher's Reading Level vs. Reading Adj. Text	13 (13)	25 (25)	62

(*) % of discrepancy exceeding 6 months in parenthesis.

CHAPTER IV

SUMMARY AND RECOMMENDATIONS

This study has focused on the extent to which sixteen boys, who were experiencing learning difficulties, were "matched" for individualized instruction in arithmetic and reading prior to referral for an educational assessment. Comparisons were made between teacher estimate of ability, text level provided, and actual achievement measured, based on the Wide Range Achievement Test (WRAT). The original plan was to examine some relationships between the above three variables in the areas of reading, arithmetic and spelling. However, few teachers indicated the students' appropriate text level in spelling and the scope of the study was therefore restricted to the subject areas of reading and arithmetic. Even though spelling was not included some comments deemed important can be found in Appendix I (See Appendix).

One of the basic assumptions made was that if today's teachers are proponents of individualized instruction they will provide learning experiences appropriate for each individual learner and one would further assume that the first to receive an individualized program would be the children that are having difficulty in their educational environment.

The following null hypotheses were used:

Hypothesis 1. There will be no significant difference between the mean WRAT arithmetic converted score and the mean grade level of the adjusted arithmetic text level for boys.

Hypothesis 2. There will be no significant difference between the mean WRAT arithmetic converted score and the mean grade level of the adjusted teacher's arithmetic level for boys.

Hypothesis 3. There will be no significant difference between the mean grade level of the adjusted arithmetic text level and the mean grade level of the adjusted teacher's arithmetic level for boys.

Hypothesis 4. There will be no significant difference between the mean WRAT reading converted score and the mean grade level of the adjusted reading text level for boys.

Hypothesis 5. There will be no significant difference between the mean WRAT reading converted score and the mean grade of the adjusted teacher's reading level for boys.

Hypothesis 6. There will be no significant difference between the mean grade level of the adjusted reading text level and the mean grade level of the adjusted teacher's reading level for boys.

Only one out of the six hypotheses was refuted and that was Hypothesis 1 which compared the arithmetic text and Ss ability as measured by the WRAT. Since the sample had to go across grades to achieve 16 Ss, there would be a tendency to weaken the assumption that one month growth in chronological age is the same as one month growth in achievement. It should also be noted that it is fully possible that the individual teacher was compelled to use texts that were available; therefore, this could account for some of the discrepancies found.

The Wide Range converted score referred to a student's achievement as measured by the WRAT adjusted to months. Adjusted text level referred to the level of text adjusted to the month that the WRAT was taken. Adjusted teacher level referred to the level of achievement estimated by the teacher and then adjusted to the month that the WRAT was taken. The extent of the mismatching (overrated or underrated) of students was determined by computing the difference between the adjusted scores.

As one reviews the finding of percentages of Ss who were overrated or underrated, (WRAT overrated discrepancies occurred when the child was asked to do work beyond his capabilities as compared against the WRAT; in teacher estimate vs. text, a child was overrated if the text was too difficult for him) there is reason to believe that subject area may have a bearing on whether a child referred for educational help beyond the classroom is overrated or underrated by the teacher. In general the percentages showed that the males tended to be overrated in arithmetic and underrated in reading. If additional research should support this it would be instructive to determine why teachers are inclined to overrate or underrate by subject area. One possible explanation may be that in recent years much attention has been given to individualized reading, while arithmetic has received less emphasis in this respect. Another possible explanation is that children encountering learning difficulties may actually be manifesting educational problems stemming from a limited base of overlearned material such as

the addition, subtraction, or multiplication tables. Teachers may need help in understanding the possible frequency of interaction between learning difficulties and special help with arithmetic. It should also be noted that this might suggest the presence of emotional and affective factors in as much as a faulty base of overlearned information has been linked to an environment which fails to consistently stimulate learning.[28]

These findings also suggest the possible value of in-service instruction which acquaint teachers with intra-child profiles and the need to recognize that a child's level of functioning may vary widely depending on a broad range of circumstances.

Due to the limitations of the sample size, further investigation at a larger scale should be implemented as there is a need to study individualization utilized in today's curriculum. Also, more studies are needed to examine whether individualized instruction does foster a greater degree of learning than the traditional methods of teaching.

---

[28]Raymond B. Cattell, Abilities: Their Structure, Growth, and Action, ed. John E. Horrocks (Boston: Houghton Mifflin Company, 1971), pp. 262-282.

BIBLIOGRAPHY

Books

Cattell, Raymond B. Abilities: Their Structure, Growth and Action, ed. John E. Horrocks. Boston: Houghton Mifflin Company, 1971.

Frandsen, Arden N. Educational Psychology. New York: McGraw-Hill Book Company, Inc., 1969.

Hunt, J. McVicker. The Challenge of Incompetence and Poverty. Chicago: University of Illinois Press, 1969.

Kirk, S. and J. Paraskevopoulos. The Development and Psychometric Characteristics of the Revised Illinois Test of Psycholinguistic Abilities. Urbana: University of Illinois, 1969.

Mussen, Paul H. and Mark R. Rosenzweig (eds.). Annual Review of Psychology. Palo Alto: Annual Reviews, Inc., 1972.

Periodicals

Arena, John E. "An Instrument for Individualizing Instruction," Educational Leadership, XXVII (May, 1970), 784.

Baker, Gail L. and Isadore Goldberg. "The Individualized Learning System," Educational Leadership, XXVII (May, 1970), 775-80.

Bergeson, J. B. and C. Roettger. "Two Experiences in Individualizing," Instructor, LXXX (February, 1971), 70-73.

Bolvin, John O. and Robert Glaser. "Developmental Aspects of Individually Prescribed Instruction," Audiovisual Instruction, XIII (October, 1968), 828-831.

Carrier, Robert. "Individualizing in One Room," Instructor, LXXX (April, 1970), 79.

Davis, Floyd W. and James S. Lucas. "An Experiment in Individualized Reading," The Reading Teacher, XXIV No. 8 (May, 1971), 737-743.

Edling, Jack V. "Individualized Instruction the Way it is... 1970," Audiovisual Instructor, XV (February 1970), 16.

Hancock, Jerry. "There's a Better Way," Art Education, XXIV (April, 1971), 6-9.

Harris, Emily C. and R. Dale Hudelson (eds.). "Rand Team Searches for Answers to 'What Works?'," Report on Education, IV, No. 9 (April, 1973), 11-12.

Hunter, Madeline. "Individualized Instruction," Instructor, LXXXIX (March, 1970), 53-63.

LaPlante, William A. "Real Reforms Still Needed on Individualization," Nation's Schools, LXXXVII No. 2 (February, 1971), 64.

Melton, Joseph. "Arithmetic for Individuals," School Science and Mathematics, LXXI (April, 1971), 298-302.

Scanlon, Robert G. and Mary V. Brown. "Inservice Education for Individualized Instruction," Educational Technology, X (February, 1970) 62.

Scott, Ralph, E. R. Kell, and Donald L. Salisbury. "Cognitive Profiles of 'Retarded' Children: A Survey of Inter- and Intra-Child Differences," Psychology in the Schools, VII No. 3, (July, 1970), 288-291.

Spollen, Joseph C. "The Effect of Instruction on Cognitive and Perceptual Functioning of Kindergarten Children with a Developmental Lag," Dissertation Abstracts International, XXXI No. 7 (January, 1971), 3355A.

Trusty, Kay. "Principles of Learning and Individualized Reading," Reading Teacher, XXIV No. 8 (May, 1971), 730-739.

Wolf, Mildred. "Individualized Reading - How I Broke the Mold," Grade Teacher, LXXXVII (September, 1969), 158.

APPENDIX

APPENDIX I

The Wide Range Achievement Subtest in spelling was to to be included in the study; however, only 29 out of the 69 teachers filled out the spelling text level. It should be noted that only six teachers filled out the spelling text level form for the sixteen male Ss used in the final study.

Results from this study suggest that teacher awareness of individualized needs may be arranged in a hierarchy according to subject matter. Awareness of individual needs appears to be least well developed in spelling because many teachers had not filled out the referral form in regard to the text level used or stated their estimated ability in spelling. Arithmetic appears to be the next area of least development as there was a significant difference between the arithmetic text and the Ss ability as measured by the WRAT. The area of reading suggested that this area was the most developed for individualized instruction.

9. As you see it, what is this child's main problem (s) with which the Clinic might give help?

10. When did the school first become aware of a problem?

11. Describe attempts by the school to handle or resolve the problem:

12. Are the parents co-operating with the school?_____ Describe:

13. What facilities are there in your school system or community for handling the suspected problem?

14. Has the child ever had special testing or psychological examination as arranged by school officials?_____If yes, please give details:

15. How have this child's siblings gotten along in school?_____

16. To your knowledge, who recommended that the child be examined at the Clinic?

_____ _____
NAME POSITION

17. Reports from the Educational Clinic are sent to school superintendents, counselors or principals. Please give here the name and exact address of the person who should receive the report in this instance:_____

_____

Please add on the reverse side any other information you think might be pertinent to an understanding of this child. Attach examples of his written work, etc., as seems appropriate.

_____

_____

Name and position of person preparing this referral blank.

NERVOUS & OTHER CONDITIONS: Underline those items descriptive of child.

Bites nails	Stutters	Enuretic
Sucks thumbs	Lisps	Sex Problems
Blinks eyes	Poor muscular co-ordination	

Others: _____

Comments: _____

3. What series of readers is being used in the child's classroom for the basic reading program? _____

4. What book is the child now using for his reading (give title and level)?

_____

5. What other texts does the child use regularly?

Subjects	Text Used (Title)	Text-Book Grade Level

6. What arithmetic processes are being studied by the child currently?

In what series and level of texts? _____

_____

7. What is the general mental level of the class or grade with which the child is placed?

BELOW AVERAGE	AVERAGE	ABOVE AVERAGE

8. In what mental, physical, and behavioral respects does the child differ from the group? Indicate your conception of the causes (if applicable):

1. School Record (To be copied from permanent record card)

Age on entering kindergarten____First grade____Grades repeated_____

No. of schools attended_____Attendance: Irregular?_____Truant?_____

Permanent Record Card

If your system of grading differs from the usual A-B-C-etc.- Please explain your code here: _____

School	Grade	Date Ent'd	Read.	Arith.	Spell.	Lang.	Soc.St.	Writ.	Art	Music	Man'l Arts	P.E.

2. Standardized Intelligence and Educational Tests.

Date Given	Name of Test	C. A.	Test Results	By whom given (Tr.Psychol.etc.)

PERSONALITY & BEHAVIOR TRAITS. Underline those terms which best describe child. Check the four (4) most outstanding traits.

Obedient--Disobedient	Affectionate--Cruel	Outgoing--Withdrawn
Passive--Hyperactive	Polite--Inpertinent	Poor work habits
Alert--Indifferent	Cheerful--Unhappy	Honest--Dishonest
Friendly--Shy	Truthful--Untruthful	Calm--Moody
Aggressive--Passive	Kind--Mean	Creative--Destructive
Socially immature	Others: _____	

REFERRAL BLANK FOR EDUCATIONAL AND PSYCHOLOGICAL EVALUATION
EDUCATIONAL CLINIC - UNIVERSITY OF NORTHERN IOWA
CEDAR FALLS, IOWA

TO BE SIGNED BY PARENTS: PART II

I have arranged for _____ to be examined by the Educational Clinic, Room 37, Basement of the Auditorium Building, State College of Iowa, Cedar Falls, Iowa. Inasmuch as any test results or pertinent information which the school may be able to give concerning my child will be helpful to the Clinic. I am requesting that the school fill out the following questionnaire as fully as possible, and send it directly to the Clinic at the above address as soon as possible. It is my understanding that the Clinic will forward a complete report on the results of the examination to the school principal or counselor.

_____
Parent's Signature

* *

TO BE FILLED OUT BY SCHOOL, AND MAILED DIRECTLY TO CLINIC - Date _____

Name of Child _____ - Age ___ Sex ___ Birthplace _____

Birthdate _____ How verified _____

Name of School _____ Grade ___ School Address _____

School Phone number _____ School Superintendent's name _____

Reason for referral: _____

_____

Teacher's estimate of grade level child is working at (e.g. 2-A, 3-B, etc.)
Test results are not wanted here, but rather the teacher's own estimate.

Read.	Arith.	Spell.	Lang.	Soc.St.	Writ.	Art	Music	Manual arts	P.E.

Special abilities of child _____

Special disabilities _____

Comments: _____

_____

_____