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Emphasis on Adolescents and Young Adults

THE BAYESIAN SCREENING PROCEDURE FOR
IDENTIFICATION OF LEARNING DISABLED ADOLESCENTS:
ADMINISTRATION, SCORING AND INTERPRETATION

Gordon R. Alley, Donald D. Deshler,
and Michael M. Warner

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Director: Donald D. Deshler

Research Coordinator: Jean B. Schumaker

Institute for Research in Learning Disabilities
The University of Kansas
313 Carruth-O'Leary Hall
Lawrence, Kansas 66045

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COOPERATING AGENCIES

Were it not for the cooperation of many agencies in the public and private sector, the research efforts of The University of Kansas Institute for Research in Learning Disabilities could not be conducted. The Institute has maintained an on-going dialogue with participating school districts and agencies to give focus to the research questions and issues that we address as an Institute. We see this dialogue as a means of reducing the gap between research and practice. This communication also allows us to design procedures that: (a) protect the LD adolescent or young adult, (b) disrupt the on-going program as little as possible, and (c) provide appropriate research data.

The majority of our research to this time has been conducted in public school settings in both Kansas and Missouri. School districts in Kansas which have or currently are participating in various studies include: Unified School District USD 384, Blue Valley; USD 500, Kansas City, Kansas; USD 469, Lansing; USD 497, Lawrence; USD 453, Leavenworth; USD 233, Olathe; USD 305, Salina; USD 450, Shawnee Heights; USD 512, Shawnee Mission; USD 464, Tonganoxie; USD 202, Turner; and USD 501, Topeka. Studies are also being conducted in several school districts in Missouri, including Center School District, Kansas City, Missouri; the New School for Human Education, Kansas City, Missouri; the Kansas City, Missouri School District; the Raytown, Missouri School District; and the School District of St. Joseph, St. Joseph, Missouri. Other participating districts include: Delta County, Colorado School District; Montrose County, Colorado School District; Elkhart Community Schools, Elkhart, Indiana; and Beaverton School District, Beaverton, Oregon. Many Child Service Demonstration Centers throughout the country have also contributed to our efforts.

Agencies currently participating in research in the juvenile justice system are the Overland Park, Kansas Youth Diversion Project, and the Douglas, Johnson, Leavenworth, and Sedgwick County, Kansas Juvenile Courts. Other agencies which have participated in out-of-school studies are: Penn House and Achievement Place of Lawrence, Kansas; Kansas State Industrial Reformatory, Hutchinson, Kansas; the U. S. Military; and Job Corps. Numerous employers in the public and private sector have also aided us with studies in employment.

While the agencies mentioned above allowed us to contact individuals and support our efforts, the cooperation of those individuals--LD adolescents and young adults; parents; professionals in education, the criminal justice system, the business community, and the military--have provided the valuable data for our research. This information will assist us in our research endeavors that have the potential of yielding greatest payoff for interventions with the LD adolescent and young adult.

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THE BAYESIAN SCREENING PROCEDURE FOR IDENTIFICATION
OF LEARNING DISABLED ADOLESCENTS: ADMINISTRATION,
SCORING AND INTERPRETATION

Overview

The Bayesian Screening Procedure is a generic methodology developed for the purpose of identifying exceptional children and youth. It consists of two levels of assessment:

1. Revised Checklist of Academic Problems
2. Psychometric Battery

Specific procedures are used to screen for learning disabled, educable mentally retarded, and gifted children and youth. The form to be described here is the Secondary Learning Disabilities Form of the Bayesian Screening Procedure.

The Revised Checklist of Academic Problems (Checklist) is a 30-item measure containing behavioral statements of classroom behavior covering four target behaviors (component disabilities). These component disabilities (CD) include: (a) decoding words, (b) word recognition, (c) mathematical algorithms, and (d) monitoring spelling errors.

The Psychometric Battery (Battery) includes subtests from five achievement measures: (a) Word Attack subtest of the Woodcock Reading Mastery Tests (AGS, 1973); Test 4: Reading Efficiency, Level 1, Form E Iowa Silent Reading Test (Harcourt, Brace, Jovanovich, 1973); Word Recognition subtest of the Peabody Individual Achievement Test (AGS, 1970); Test 6: Spelling Part A and Part B, Advanced, Form A Stanford Achievement Tests (Harcourt, Brace, Jovanovich, 1973); and the Test of Relevant and Irrelevant Information of the Ross Tests of Higher Cognitive Process (Academic Therapy Press, 1976). One test or subtest is used to measure each of the four component disabilities

ADMINISTRATION OF THE BAYESIAN SCREENING PROCEDURE

Administration of the Revised Checklist of Academic Problems (Teacher Checklist)

The Teacher Checklist is a 30-item measure of regular classroom behaviors. All items are observable and measurable behaviors. The behaviors are those that are frequently emitted by students and can be observed or recalled by secondary school teachers. Most behaviors are often demonstrated in language arts or social studies classrooms at both junior and senior high school levels. The student must have been attending class for approximately four to six weeks.

Two items related to the use of mathematical algorithms are included on the Teacher Checklist. Obviously, such behaviors are difficult to measure in language arts or social studies classrooms. Secondary teachers most often check these items as "no information." The scoring procedure of the Teacher Checklist accounts for this endorsement.

The Teacher Checklist is self-explanatory and most regular classroom teachers need little or no assistance in completing it. Nevertheless, some school districts have had a special education teacher, counselor or school psychologist present the rationale and purpose of the Bayesian Screening Procedure, and explain and demonstrate how to complete the Teacher Checklist. This procedure underscores the seriousness of the task to regular classroom teachers and is used to insure the reliability and validity of the screening measure. We have found short training workshops to be especially valuable when: (a) the Bayesian Screening Procedure is used for the first time in the school district, or (b) the Bayesian Screening Procedure has been used for several years and the process is currently yielding unusual results when compared to previous results.

The language arts or social studies teacher is provided with one Teacher Checklist for each secondary student s/he wishes to screen for learning disabilities. The teacher may either screen the entire class or only selected students experiencing serious academic difficulties in the regular classroom. The first statement on the Teacher Checklist assists the teacher in selecting which students should be screened:

"Based on your observations of the student, please check behaviors which are so severe that they seriously affect this student's school program."

The teacher makes an initial judgment of whether the student's behaviors are so severe that they seriously affect a school program. We have found that approximately 65-75% of unselected secondary students do not meet this criterion. For students who do not meet this initial academic severity criterion, the Teacher Checklist does not need to be completed. Students who do meet this criterion require the teacher's judgment on the 30 items.

Each item requires the teacher to check one of three choices: (a) "Yes," the student's specific behavior is severe and seriously affects program progress; (b) "No," the behavior of the student is not severe and/or does not seriously affect program progress; and (c) "Don't know/No Information," the specific behavior is either inaccessible to the teacher or no observation has been made to determine whether the student demonstrates the behavior. The following item is an example:

"Unable to use context clues as aids to unlock words."

| <u>Yes</u> | <u>No</u> | <u>Don't Know/ No Information</u> |
|------------|-----------|---------------------------------------|
| — | — | — |

The teacher must check all 30 items. Only one choice can be made for each item. No intermediate choice, i.e., "maybe", "sometimes", etc., should be used. If the teacher has observed the behavior and the student has demonstrated the behavior one or more times with a concomitant effect on school progress, the teacher should check the "Yes" choice. Conversely, if the teacher has observed the behavior without a concomitant effect on school progress, the teacher should check the "No" choice.

This checking process continues for all 30 items. They are included in Figure 1. It has been found that of the 30-35% of students who require a completed Teacher Checklist fewer than 1% demonstrate all 30 behaviors. Most students demonstrate some behaviors and not others. It is our recommendation that if several students from a single classroom receive a "Yes" for all items, the learning disabilities (LD) teacher or school counselor review the endorsement procedure with the language arts/social studies teacher. This review will clarify whether or not the teacher understands the checking procedure.

Insert Figure 1 about here

The checking process required to complete the Teacher Checklist takes approximately five minutes per student. If it takes ten minutes or longer per student to check the items, the regular classroom teacher should be reminded that the purpose of the Bayesian Screening Procedure is to make rough judgments. Checking "Yes" does not identify a student as learning disabled. Checking "No" is not intended to mean the student has "no academic problems." A review of the checking process

will assist the teachers in a more efficient process of completing the Teacher Checklist.

Since the student(s) to be screened need not be present in the classroom during the checking process, the regular class teachers may complete the checklist under most conditions in most settings, i.e., during work period, during inservice day, in the teacher's lounge, at home, etc.

Regular class teachers should notify the special education teacher or whoever is designated to score the Teacher Checklist upon completion of the checking process. After collecting the Teacher Checklists from each regular classroom teacher participating in the screening process, the scorer should note the following:

1. Is the student's name present on the Teacher Checklist in the denoted space?
2. Is the teacher's name present in the denoted space?
3. Are all 30 items checked with only one choice?

(Optional) Is the starting time, ending time and total time included in their denoted spaces?

If any or all of the times are missing, the regular classroom teacher must provide the missing information. Upon completion of the missing data, there is sufficient information to score the Teacher Checklist. For scoring procedures, see Scoring the Teacher Checklist.

Administration of the Self-Rating Student Checklist

(Self-Rating Checklist)

The Self-Rating Checklist is a 35-item measure of a student's perception of his behaviors occurring during school. Thirty of the

items are in a multiple-choice format and reflect behaviors similar to those on the Teacher Checklist. One item, #31, is designed to screen for a person's reading level. A reading level below third grade, fifth month invalidates the results. Other item response types include a Likert-type scale and short answer.

The 30 multiple-choice items cover the four best discriminating component disabilities (CD):

1. Disability in recognizing sight words
2. Disability in decoding words
3. Disability in the use of mathematical algorithms
4. Disability in the production of themes of adequate length

The four high frequency CDs include:

1. Disability in test taking skills
2. Disability in using study skills
3. Disability in monitoring spelling errors
4. Disability in organization of written materials

Screening Items

The 30 screening items are written as agreement-type items, i.e.:

ITEM #1. Some people miss questions on tests because they don't check their answers:

- Always a problem for me
- Frequently a problem for me
- Not often a problem for me
- Not a problem for me

The student reads the root sentence and then checks one of the four forced choices.

The directions and the 30 items are written at reading levels which should present little difficulty for students demonstrating instructional reading at the mid third-grade level. Those students who have checked

"Always a problem for me" or "Often a problem for me" in response to item #31 should have the Self-Rating Checklist orally administered by an adult. The Self-Rating Checklist is not appropriate for students whose primary written language is not English.

Each student evaluates his own behavior. The Self-Rating Checklist may be group or individually administered. First, the teacher/counselor administering the Checklist provides a simple rationale for its use. For example, s/he may state that there are some students who need extra attention in reading, writing and mathematics, and the Self-Rating Checklist is used to identify such persons. The instructions printed on the Self-Rating Checklist are then read to the students. After orally presenting the instructions, the teacher/counselor asks if the students have any questions relating to the Self-Rating Checklist. If there are none at this point, the students are told that they may individually ask questions related to the items during the administration. The procedure for asking questions during the group administration should be dictated by the number of students and the setting. The administration of the Self-Rating Checklist does not require that the screening administrator be acquainted with the students.

The completion of the Self-Rating Checklist should take the student approximately 10 minutes. If the student is not finished after 15 minutes, the screening administrator should suggest that the Self-Rating Checklist be completed using the individual oral procedure. In this case, the student should not be read item #31. An example of the Self-Rating Student Checklist is presented in Figure 2.

Insert Figure 2 about here

The completed Self-Rating Checklist may be collected by the screening administrator after 15 minutes. The screening administrator notes if the following information is provided:

1. Is the identification information provided in the denoted space?
2. Are the first 31 screening items checked using only one choice?
(Optional) Are the responses to Items #32 to #35 completed?

If any of the required information is not provided, the student must provide the missing/incomplete information before leaving the screening session.

Scoring Procedures

Teacher Checklist

The Teacher Checklist includes four best discriminating component disabilities: (a) Word Recognition, (b) Decoding Words, (c) Monitoring Spelling Errors, (d) Mathematical Algorithms, and four high-frequency component disabilities: (a) writing themes of adequate length, (b) test-taking skills, (c) study skills, and (d) organizing written materials. These eight component disabilities (CDs) are measured by 29 items on the Teacher Checklist. Figure 3 shows each of the item numbers as they occur on the Teacher Checklist. After transferring the item information from the

Insert Figure 3 about here

checklist to the answer sheet, the scorer records the CD score. The scorer then circles the item number on the Answer Sheet (Figures 3 and 4) which corresponds to the items on the checklist checked in the "Yes" column.

Insert Figure 4 about here

Items checked in the "No" column on the checklist are not recorded on the Answer Sheet. A slash is drawn through the item number on the answer sheet for each item on the checklist checked in the "Don't Know/No Information" column. The person scoring the Teacher Checklist records an "X" in the box below the target CD if one or more of the item numbers in the CD column is circled. The scorer records an "0" in the CD box, if no item numbers were circled in the CD and if no item numbers were slashed. Finally, the scorer records a slash in any CD box only when all item numbers have been slashed. This scoring procedure is described in the "Directions" section on the Score Sheet for Checklists of Academic Problems (Teacher Checklist). An example of the scoring procedure is shown in Figure 4.

Computation Options

Option 1: The arithmetical procedure used to obtain the probability of learning disabilities offers the scorer two options. The first option requires the use of the Bayesian formula. The symbolic formula is as follows:

$$P_{LD} = \frac{PP_{LD} (LR_{WR}^X LR_{DW}^X LR_{MSE}^X LR_{MA}^X LR_{Theme}^X LR_{TT}^X LR_{SS}^X LR_{OWM})}{PP_{LD} (LR_{WR}^X LR_{DW}^X LR_{MSE}^X LR_{MA}^X LR_{Theme}^X LR_{TT}^X LR_{SS}^X LR_{OWM}) + 1}$$

The narrative equivalent of this symbolic formula is stated as follows:

The probability of a learning disability is equal to the prior probability of a learning disability (PP_{LD}) which is multiplied by the aggregate product of the likelihood ratios ($LR_{1, 2-8}$) assigned each component disability; this numerator of the equation is divided by the prior probability of learning disability (PP_{LD}) which is multiplied by the aggregate product of the likelihood ratios assigned each component disability ($LR_{1, 2, . . . , 8}$) and adding unity (1).

Nine pieces of information are required for the solution of this equation. The required information is provided in table form, the Table of Likelihoods for Checklists (Table 1). The following example

Insert Table 1 about here

demonstrates how the first option is applied:

1. Transfer information from checklist to answer sheet by circling or slashing out item numbers.
2. Record "X's" and "0's" in the 8 CD boxes. For example, using the information from Figure 4

| Word Recog. | Decoding Words | Spelling | Math | Theme | Test | Study | Organize |
|----------------|-------------------|----------|------|-------|------|-------|----------|
| X | X | X | 0 | X | X | X | X |

3. Use Table 1 to obtain PP_{LD} and the LR for each of the 4 best discriminating CDs (in this example, $PP_{LD} = 0.05$)

LRs 6.0 4.4 4.0 0.8

4. The PP_{LD} and the LRs of these 4 best discriminating CDs are entered in the Bayesian formula. In this example,

$$P_{LD} = \frac{0.05 (6.0 \times 4.4 \times 4.0 \times 0.8)}{0.05 (6.0 \times 4.4 \times 4.0 \times 0.8) + 1}$$

5. Solve the equation. In this example,

$$P_{LD} = \frac{0.05 (84.48)}{0.05 (84.48) + 1} = \frac{4.22}{4.22 + 1} = \frac{4.22}{5.22}$$

6. The result is the probability of LD. In this example,

$$P_{LD} = .81$$

The probability resulting from this scoring procedure is that the student may be classified as learning disabled by secondary learning disabilities teachers.

Option 2: The secondary scoring option for use with the Teacher Checklist provides a fairly close estimate of the more precise results obtained using Option 1. Using the second scoring option the scorer follows the Steps 1 and 2 of the first option and proceeds as follows:

3. The scorer divides the 8 CDs into two groups, i.e., the best discriminating $CD_{(1-4)}$ and high frequency $CD_{(5-8)}$.
4. The scorer looks to see if three of the four best discriminating CD boxes are marked with "X's."
5. All the high frequency CDs must be marked with "X's."
6. If seven of the eight CDs are marked with "X's" as in Figure 4, it is better than chance ($p \geq .59$) that the student is learning disabled.

This estimation provides enough precision for initial screening purposes.

Self-Rating Checklist

The Self-Rating Checklist is a 35-item measure. Thirty-one items are multiple choice. These items include 30 screening items used to calculate the probability of learning disabilities and one item related to readability. Three items are concerned with consumer validity. They include: (a) two Likert-type items judged on a seven-point scale, and (b) one item requiring a short answer. Finally, an item has been prepared in which the student judges the prevalence of behaviors measured by the 30 screening items occurring in the general population, i.e., 5%.

The 30 LD screening items force the student to choose among four alternative responses (see Figure 2). They are:

Step 4. Upon finding the matched pattern of "X's" on the Worksheet, look across the rows to the number appearing under the column P_{LD2} , i.e., 0.03, 0.03, . . ., 0.59, 0.96.

Step 5. This number is the "Probability of LD", i.e., in this case the "Probability of LD" = 0.96.

Interpretation of the Checklist(s) Results

The results (probability of LD) of the Teacher Checklist and Self-Rating Checklist are interpreted identically. The probability figure ranges from 0.01 to 1.00. As the probability of learning disabilities approaches 1.00, the greater the likelihood that the student should be evaluated by standardized measures. This decision is made using a cut-off probability of LD.

The probability equal to or greater than 0.59 has been used as an effective cut-off point in secondary settings. Those students who obtain probabilities of LD less than 0.59 are not administered the Battery (See Note 1). Those students who obtain a probability of LD equal to 0.59 or higher are to be administered the Battery portion of the Bayesian Screening Procedure.

Administration of the Battery

Originally the Battery consisted of five subtests of five different multitrait standardized measures. Two subtests from the Woodcock Reading Mastery Tests and the Iowa Silent Reading Test were used to measure the Decoding Words CD. However, research results have suggested that the Woodcock Word Attack subtest be deleted because of its low content validity with Teacher Checklist items representing the Decoding Words CD.

Currently, one subtest represents each of the four CDs that best differentiate LD students from non-LD students. The Reading Efficiency

subtest of the Iowa Silent Reading Test, the PIAT Word Recognition subtest, the Relevant and Irrelevant Information subtest of the Ross Tests of Higher Cognitive Process, and the Spelling subtest of the Stanford Achievement Tests are used.

The Iowa-Reading Efficiency subtest includes one sample item and 40 multiple-choice items. The student reads a passage requiring the choice of a word from four alternative choices. The word provides meaning to the passage. Decoding, as measured by this subtest, is word meaning rather than sound-symbol relationship of letters and letter groups. The subtest is timed. The examinee is expected to be both accurate and rapid in his choices. Directions provided by the test manual must be strictly followed. The score used in the procedure is "number of correct choices."

The second subtest used in the Battery is the PIAT-Word Recognition subtest which includes 84 items. The examinee is to rapidly pronounce correctly as many words as he/she can. The suggested time limit provided in the PIAT is used for the response to each stimulus word. A basal level is obtained when the examinee gives five (5) consecutive correct responses within the allotted time limits. A ceiling level is reached when the examinee makes five (5) errors on seven (7) consecutive responses. The raw score is used in calculating the Battery score. This raw score is found using the "Raw Score Calculation" procedure described on the PIAT Response Form. For use with the Bayesian Screening Procedure, two modifications have been made on this subtest. First, all examinees begin at Item 19 (Plate 16) and the basal and ceiling levels are obtained using this reference point. Second, the instructions are read to the examinee.

The Ross-Relevant and Irrelevant Information subtest is the third measure used in the Battery. This is a test of mathematics problem solving

consisting of 14 word problems. For each word problem, the student is asked to provide one of three responses. These responses are:

- A. Cannot be solved; not enough information given
- B. Can be solved; exactly enough information
- C. Can be solved; extra and unnecessary information given

Generally, this subtest takes approximately 15 minutes when the 14 items and all responses are read to the student. The total number correct is used in the Battery scoring. The only modification on this subtest is that the items and all possible responses are read to the student.

The final subtest used in the Psychometric Battery is the Stanford-Spelling subtest which contains 60 multiple-choice item sets. The task requires the examinee to search four words to determine which one word in each of the 60 sets is misspelled. There is no time limit. The completion of the subtest generally takes 10 minutes. The student begins with the first set of four words and continues until he completes all 60 sets. The total number correct is used in the scoring. No word on the 60-word groups is pronounced by the examiner, even upon request by the student.

Several modifications are made on all tests of the Battery. One general modification is that the directions are always read to student. The directions may be repeated whenever necessary. The student may be assisted by the examiner when answering sample or trial items. Battery subtest scores may be used from previous testing if the scores are dated less than one calendar year from the time of the proposed administration of the Battery. Finally, the order of the administration of the Psychometric Battery subtests is not important. In fact, examiners are discouraged from repeatedly using the identical subtest order.

Scoring the Battery and Use of the Tables of Likelihood Ratios

To score the Battery, the scorer must complete the following steps. First, use the answer key provided for each subtest to obtain a subtest score. Second, record the score for each subtest in the designated space on the Battery Test Scoring Worksheet (Table 3). Third, refer to the Tables of Likelihood Ratios (Tables 4-7). Each table contains

Insert Tables 3, 4, 5, 6, and 7 about here

two pieces of information. In the left column is the full range of raw scores possible on each subtest, i.e., Ross-Relevant and Irrelevant Information (total number correct 1-14). In the column directly to the right of the subtest raw scores is the likelihood ratio associated with each subtest raw score. One finds the raw score and follows the row to obtain the LR. For example,

TABLE OF LIKELIHOOD RATIOS

Stanford Spelling

| <u>Subtest Scores</u> | | <u>Likelihood Ratios</u> | |
|-----------------------|----|--------------------------|------|
| | 01 | | 1.0 |
| | 02 | | 1.0 |
| Examinee's | 15 | Examinee's like- | 6.68 |
| score | 29 | lihood ratio | 0.07 |
| | 30 | | 0.05 |

Fourth, record this tabled likelihood ratio in the appropriate space on the Scoring Form. The same recording must be carried out for all four subtests. An example is provided below.

| <u>Psychometric Battery Subtest</u> | <u>Subtest Score</u> | <u>Likelihood Ratio</u> |
|---|--------------------------|-----------------------------|
| Stanford, Spelling | 12 | 8.20 LR ₁ |
| ROSS-Relevant and Irrelevant Information | 6 | 1.08 LR ₂ |
| PIAT, Word Recognition | 45 | 4.88 LR ₃ |
| Iowa Word Efficiency | 11 | 1.82 LR ₄ |

Fifth, enter the subtest likelihood ratios for each examinee in the formula. Space is provided within each set of parentheses for the numerical values of each CD, i.e., LR₁, LR₂, LR₃, and LR₄.

The updated prior probability used is the cut-off "probability of LD" used on the checklists to refer students for the Battery, i.e., PP_{LD} = 0.50. This probability is used because all students completing the Battery have the "probability of LD" equal to or higher than this cut-off probability.

Sixth, updated "probability of LD" is calculated using this Bayesian formula. The calculations made on the Checklist are repeated for clarification. The likelihood ratios within the parenthesis of the numerator are multiplied to obtain an aggregate value of likelihoods. This product is multiplied by the updated prior probability (PP_{LD} = 0.50). The result is the numerator value of the formula. The denominator value equals the numerator value plus 1.00. The numerator value is then divided by the denominator value to yield the updated probability of LD for each examinee. The "probability of LD" is calculated by the following procedure.

$$P_{LD} = \frac{0.50 (8.20 LR_1) (1.08 LR_2) (4.88 LR_3) (1.82 LR_4)}{0.50 (8.20 LR_1) (1.08 LR_2) (4.88 LR_3) (1.82 LR_4) + 1}$$

$$P_{LD} = \frac{0.50 (78.66)}{0.50 (78.66) + 1.00} = \frac{39.33}{40.33} = .98$$

Interpreting the Psychometric Battery Result

The calculated result of the Battery is the "updated probability of learning disabilities." The more the "updated probability of learning disabilities" approaches 1.00, the greater the likelihood the educators will perceive the student as learning disabled.

The cut-off updated probability for the interpretation of the Battery has been arbitrarily set at 0.86. Those students who obtained an "updated probability of LD" equal to 0.86 or higher are referred for a comprehensive evaluation by the multidisciplinary team as described in PL 94-142. Those students who obtain an "updated probability of LD of less than 0.86 are not referred for a full evaluation.

IMPORTANT: If an examinee does not meet the cut-off, but parents, teachers, administrators, psychologist or significant other persons strongly feel a learning disability is evident, a referral for a full evaluation can still be made.

Note from the Developers of the Bayesian Screening Procedure

The Bayesian Screening Procedure has been used by several school districts to identify learning disabled students. It has also been used as a research instrument. The developers are continually modifying the Bayesian Screening Procedure to better meet the needs of persons engaged in the identification of learning disabilities. Finally, the developers wish to hear about problems encountered when using the Bayesian Screening Procedure so modifications may be made to reduce such problems.

Figure 1

STARTING TIME: _____

(Student's Name)

ENDING TIME: _____

(Teacher's Name)

TOTAL TIME: _____

DATE

CHECKLIST OF ACADEMIC PROBLEMS
Gordon R. Alley and Donald D. Deshler, 1977 ©
(revised 3-12-79)

Based on your observations of the student, please check behaviors which are so severe that they seriously affect this student's school program.

| | <u>YES</u> | <u>NO</u> | <u>NO INFOR-</u> <u>MATION</u> |
|---|------------|-----------|-----------------------------------|
| 1. Unable to outline/take notes on material. In-class notes are sketchy and much doodling evident. | _____ | _____ | _____ |
| 2. Unable to read with flexibility, i.e., does take an equal amount of time to read easy and difficult passages. | _____ | _____ | _____ |
| 3. Unable to apply appropriate test taking skills within specific subject areas., i.e., does not estimate answers in math. | _____ | _____ | _____ |
| 4. Unable to consult with teacher a few days before the test concerning the major emphasis of the test, does not attend review sessions that meet before or after school. | _____ | _____ | _____ |
| 5. Unable to structure materials into a logical sequence. Cannot organize two or more sources of information into one idea or topic. | _____ | _____ | _____ |
| 6. Unable to differentiate one paragraph from another. Does not recognize when one major point should be separated from a second major point, or fails to use transition sentences. | _____ | _____ | _____ |
| 7. Unable to use context clues as aids in unlocking words. | _____ | _____ | _____ |
| 8. Unable to produce themes of adequate length for the student's given grade level in English. | _____ | _____ | _____ |
| 9. Unable to recognize words that are common across content areas, i.e., knowledge, suggestion, selected, etc. | _____ | _____ | _____ |

- | | | | | |
|-----|--|-------|-------|-------|
| 10. | Unable to survey material before studying in depth. Does not scan for major points before reading material intensively. | _____ | _____ | _____ |
| 11. | Unable to use reference materials or resources, i.e., does not use dictionary, encyclopedia, or the library. | _____ | _____ | _____ |
| 12. | Unable to choose correct spelling of words in multiple choice format, by recognition of correct word among incorrect words. | _____ | _____ | _____ |
| 13. | Unable to detect errors that he/she makes in composition writing. | _____ | _____ | _____ |
| 14. | Unable to apply appropriate test taking skills across subject areas. i.e., does not thoroughly read instructions, preview the entire test before responding, checking answers, does not recognize "give away" questions, or obvious answers, or chooses an answer that is obviously wrong. | _____ | _____ | _____ |
| 15. | Unable to construct a logical paragraph which includes a topic sentence, supporting facts, and a concluding sentence. | _____ | _____ | _____ |
| 16. | Unable to use rules to solve mathematics problems, i.e., cannot read graphs or has difficulty constructing a simple graph. | _____ | _____ | _____ |
| 17. | Unable to recognize words that are specific to a given content area. i.e., composition, author, irony, poetry, perpendicular, radius, constitution, meteors, photosynthesis, etc. | _____ | _____ | _____ |
| 18. | Unable to review materials, i.e., does not re-read assigned materials. | _____ | _____ | _____ |
| 19. | Unable to summarize information, i.e., cannot identify main points and important facts of a selection in two or three sentences. | _____ | _____ | _____ |
| 20. | Unable to classify/organize materials, i.e., notebook is disorganized. | _____ | _____ | _____ |
| 21. | Unable to produce research papers of adequate length for the student's given grade level specific to a content area, i.e., Science, History, Health, etc. | _____ | _____ | _____ |
| 22. | Unable to use structural skills to unlock words, i.e. does not divide word into smaller units - "candidate" into can-did-ate, root words and ending - "playing" into play and ing, and prefixes, roots and endings - "reporter" into re-port-er. | _____ | _____ | _____ |

- | | | | | |
|-----|---|-------|-------|-------|
| 23. | Unable to allot a reasonable amount of study time i.e., does not use study time appropriately in class. | _____ | _____ | _____ |
| 24. | Unable to use mathematics rules which are specific to application type problems, i.e., has difficulty changing units of measure as dollars to cents, inches to yards, and minutes to hours. | _____ | _____ | _____ |
| 25. | Unable to use rules specific to mathematics content, i.e., difficulty counting number of errors or calculating percent correctly on tests, etc. | _____ | _____ | _____ |
| 26. | Unable to apply questioning skills. Ask inappropriate questions to the discussion or content topic, or does not ask questions during the class period. | _____ | _____ | _____ |
| 27. | Unable to follow a sequence of directions, verbal or written. | _____ | _____ | _____ |
| 28. | Unable to sound out words. | _____ | _____ | _____ |
| 29. | Unable to use word attack skills. | _____ | _____ | _____ |
| 30. | Please add any other specific problems of which you may be aware. | _____ | _____ | _____ |

3. Although some books are easier than others, some people read all books at the same speed.

_____ ALWAYS A PROBLEM FOR ME

_____ OFTEN A PROBLEM FOR ME

_____ NOT OFTEN A PROBLEM FOR ME

_____ NOT A PROBLEM FOR ME

4. Some people miss questions on tests because they don't check their answers.

_____ ALWAYS A PROBLEM FOR ME

_____ OFTEN A PROBLEM FOR ME

_____ NOT OFTEN A PROBLEM FOR ME

_____ NOT A PROBLEM FOR ME

5. It is hard for some people to break up long words into their parts: for example, candidate into can-di-date, or reporter into re-port-er.

_____ ALWAYS A PROBLEM FOR ME

_____ OFTEN A PROBLEM FOR ME

_____ NOT OFTEN A PROBLEM FOR ME

_____ NOT A PROBLEM FOR ME

6. Some people have trouble writing essay tests

_____ ALWAYS A PROBLEM FOR ME

_____ OFTEN A PROBLEM FOR ME

_____ NOT OFTEN A PROBLEM FOR ME

_____ NOT A PROBLEM FOR ME

7. Some people can not sound out hard words.

_____ ALWAYS A PROBLEM FOR ME

_____ OFTEN A PROBLEM FOR ME

_____ NOT OFTEN A PROBLEM FOR ME

_____ NOT A PROBLEM FOR ME

8. Some people have a hard time changing dollars to cents, inches to yards, or minutes to hours.

- ALWAYS A PROBLEM FOR ME
- OFTEN A PROBLEM FOR ME
- NOT OFTEN A PROBLEM FOR ME
- NOT A PROBLEM FOR ME

9. Some people do not know the meaning of big words like photosynthesis, radius, or irony.

- ALWAYS A PROBLEM FOR ME
- OFTEN A PROBLEM FOR ME
- NOT OFTEN A PROBLEM FOR ME
- NOT A PROBLEM FOR ME

10. Some people do not recognize "give-away" questions on tests.

- ALWAYS A PROBLEM FOR ME
- OFTEN A PROBLEM FOR ME
- NOT OFTEN A PROBLEM FOR ME
- NOT A PROBLEM FOR ME

11. Some people do not look over a chapter in a book before reading it carefully.

- ALWAYS A PROBLEM FOR ME
- OFTEN A PROBLEM FOR ME
- NOT OFTEN A PROBLEM FOR ME
- NOT A PROBLEM FOR ME

12. When writing, some people have trouble knowing when to start a new paragraph.

- ALWAYS A PROBLEM FOR ME
- OFTEN A PROBLEM FOR ME
- NOT OFTEN A PROBLEM FOR ME
- NOT A PROBLEM FOR ME

13. Some people do not take good notes in class.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

14. Some people miss questions on tests because they did not read the directions carefully.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

15. Some people can not guess the meaning of a word by reading the rest of the sentence.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

16. It is difficult for some people to write a paragraph that hangs together and makes sense.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

17. Some people do not review their notes and book work before a test.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

18. Some people do not know how to look things up or use library material (for example, dictionaries and encyclopedias).

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

19. It is hard for some people to take several ideas and see how they fit together.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

20. Some people have trouble writing papers that teachers think are long enough.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

21. It is difficult for some people to follow directions in the right order.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

22. In school, some people's notebooks are not in order.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

23. Some people do not know how to ask questions about new material.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

24. Some people have trouble knowing what "knowledge", "suggestion", and "selected" mean.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

25. Some people can not use graphs when working math problems.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

26. Some people can not pick out the words spelled right from those that are spelled wrong when taking a spelling test.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

27. It is hard for some people to read a chapter and then tell what it means in a few words.

ALWAYS A PROBLEM FOR ME

OFTEN A PROBLEM FOR ME

NOT OFTEN A PROBLEM FOR ME

NOT A PROBLEM FOR ME

28. Some people do not use their study time the way they should.

- ALWAYS A PROBLEM FOR ME
- OFTEN A PROBLEM FOR ME
- NOT OFTEN A PROBLEM FOR ME
- NOT A PROBLEM FOR ME

29. When some people come to a word they can not read they do not look for clues to help them sound it out.

- ALWAYS A PROBLEM FOR ME
- OFTEN A PROBLEM FOR ME
- NOT OFTEN A PROBLEM FOR ME
- NOT A PROBLEM FOR ME

30. Before a test some people do not ask what a test will cover.

- ALWAYS A PROBLEM FOR ME
- OFTEN A PROBLEM FOR ME
- NOT OFTEN A PROBLEM FOR ME
- NOT A PROBLEM FOR ME

31. Some people find sentences like this hard to read: THE PALM NUT, FROM WHICH OIL IS MADE, IS ONE OF THE CONGO'S LEADING PRODUCTS.

- ALWAYS A PROBLEM FOR ME
- OFTEN A PROBLEM FOR ME
- NOT OFTEN A PROBLEM FOR ME
- NOT A PROBLEM FOR ME

32. Were the directions on this form clear to you?

Not
Clear / 1 / 2 / 3 / 4 / 5 / 6 / 7 Clear

33. How important do you think filling out this form is to you or the School?

Not
Important / 1 / 2 / 3 / 4 / 5 / 6 / 7 Important

34. How do you feel about filling out this form?

35. What percent of persons do you think have major trouble with school work because they have some of the problems listed on this form?

_____ %

Figure 3
SCORE SHEET FOR "CHECKLIST OF ACADEMIC PROBLEMS"

STUDENT'S NAME _____ TEACHER'S NAME _____

DATE OF SCREENING _____ CLASS _____

Directions: Step 1. Circle the number below that corresponds with items that have been checked "YES" on the Checklist. Step 2. If any item has been checked "YES" in an area, fill in the box at the bottom of the page under that area. Step 3. If at least three of the boxes in Category I have been filled in and all four of the boxes in Category II have been filled in circle "YES" for further testing. If not circle "NO" for further testing. If more than one teacher has completed a Checklist for a given student, circle the item number only if both the following conditions are true:

- a. 1 or more teachers have checked "YES" for that item
- b. No teacher has checked "NO" for that item

| | | | | | | | |
|-----------|----------|--------------|------------|--------|-------------|--------|----------------------|
| Word Rec. | Decoding | Detect/Spell | Math. Alg. | Themes | Test-taking | Study | Word Organization |
| AREA A | AREA B | AREA C | AREA D | AREA E | AREA F | AREA G | AREA H |

| | | | | | | | |
|---|---|----------|----|---|---|---|--------------------------------------|
| 9 | 7 | 12 13 | 16 | 8 | 3 | 1 2 4 10 11 14 18 23 26 27 | 5 6 15 19 20 |
|---|---|----------|----|---|---|---|--------------------------------------|

CATEGORY I - Best Discriminators

CATEGORY II - High Frequency

Refer to Battery administration YES

NO

FIGURE 5
SCORE SHEET FOR SELF-RATING STUDENT CHECKLIST (SRSC)
 (Modified for Self-Administration 6-1-80)

STUDENT'S NAME _____ TEACHER'S NAME _____
 DATE OF SCREENING ____/____/____ CLASS _____

Directions: 1. Circle the item number if the student checks "a serious problem for me" or "frequently a problem for me" on the checklist. NOTE: Item 1 is a pre-organizer and not used in scoring. 2. If any item has been circled in an area, fill in the box at the bottom of the page under that area. 3. If at least three of the boxes in Category I have been filled in and all four of the boxes in Category II have been filled in, circle "YES" for Battery administration. If not, circle "NO" for Battery administration.

| | | | | | | | |
|-----------|----------|---------------|-----------|--------|-------------|--------|-------------------|
| Word Rec. | Decoding | Detect/Spell. | Math/Alg. | Themes | Test Taking | Study | Word Organization |
| AREA A | AREA B | AREA C | AREA D | AREA E | AREA F | AREA G | AREA H |

| | | | | | | | |
|----|----------|----|----|--------|--------------------|---|----------------------------|
| 9 | 5 7 | | 8 | a 2 | 4 6 10 14 | 3 11 13 17 18 21 23 28 30 31 | 12 16 19 22 27 |
| 24 | 15 29 | 26 | 25 | 20 | | | |

| | |
|--|---|
| Best discriminating CD's | High frequency CD's |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| CATEGORY I | CATEGORY II |
| Refer for Battery Administration | YES <input type="checkbox"/> NO <input type="checkbox"/> |

^aQuestion 1 on the SRSC is not used in the scoring procedure

TABLE 1
TABLE OF LIKELIHOODS FOR CHECKLISTS

| | | Likelihood Ratios (LR) | | |
|---------------------|---|------------------------|---------------|------------------|
| | | "Present" | "Not Present" | "No Information" |
| Best discriminating | Component Disability (CD) | | | |
| | Word Recognition | 6.0 | 0.4 | a |
| | Decoding Words | 4.4 | 0.3 | a |
| | Monitoring Spelling | 4.0 | 0.5 | a |
| | Mathematics Algorithms | 4.0 | 0.8 | a |
| High frequency | Writing Themes ¹ | 3.0 | 0.3 | a |
| | Test Taking ¹ | 3.0 | 0.3 | a |
| | Study Skills ¹ | 1.8 | 0.6 | a |
| | Organizing Written Materials ¹ | 2.5 | 0.4 | a |
| Prior Probability | | Probability | | |
| PP _{LD} | | 0.05 | | |

¹High frequency component disabilities. The likelihood ratios are not included in the Bayesian formula. Their likelihood ratios are provided for the interest of the reader.

^aNo likelihood ratio is used when no information exists on the component disability (ies).

TABLE 2

ALTERNATIVE COMPUTATION OPTIONS WORKSHEET

Directions: Select the one option below which reflects the scoring pattern obtained after using the Checklist Score Sheet. The probability of LD appears under the PP_{LD} column at the far right.

Component Disabilities₁

| | PATTERN OPTIONS | CD1 | CD2 | CD3 | CD4 | P_{LD}^2 |
|--------------------|--------------------|-----|-----|-----|-----|------------|
| 1 CD with "X" | 1 | X | 0 | 0 | 0 | 0.03 |
| | 2 | 0 | X | 0 | 0 | 0.03 |
| | 3 | 0 | 0 | X | 0 | 0.02 |
| | 4 | 0 | 0 | 0 | X | 0.01 |
| 2 CDs with "X"s | 5 | X | X | 0 | 0 | 0.35 |
| | 6 | 0 | X | X | 0 | 0.22 |
| | 7 | 0 | 0 | X | X | 0.09 |
| | 8 | X | 0 | X | 0 | 0.22 |
| | 9 | X | 0 | 0 | X | 0.15 |
| | 10 | 0 | X | 0 | X | 0.15 |
| 3 CDs with "X"s | 11 | X | X | X | 0 | 0.31 |
| | 12 | X | X | 0 | X | 0.63 |
| | 13 | X | 0 | X | X | 0.59 |
| | 14 | 0 | X | X | X | 0.59 |
| 4 CDs with "X"s | 15 | X | X | X | X | 0.96 |

¹CD5, CD6, CD7, and CD8 must be present or "No Information" available

²Computed from CD likelihood ratios and PP_{LD} on Table 1

TABLE 3
TEST SCORING WORKSHEET

STUDENT'S NAME _____ EXAMINER _____

DATE OF TESTING _____

- Directions:
1. Score each subtest using test answer key. Enter the number correct in the appropriate space below.
 2. Using the Table of Likelihood Ratios determine and enter the LR for each test score in the appropriate space.
 3. Calculate the student's probability of being LD by entering the LR for each subtest in the formula. Multiply the numerator and denominator and divide. If the answer is .85 or greater refer the student for further assessment.

| <u>Test</u> | <u>Score</u> | <u>Likelihood Ratio</u> |
|---------------------------|--------------|-------------------------|
| STANFORD - Spelling | | LR ₁ |
| ROSS - Algorithms | | LR ₂ |
| PIAT - Word Recognition | | LR ₃ |
| WOODCOCK - Word Attack | | LR ₄ |
| IOWA - Reading Efficiency | | LR ₅ |

Probability of LD =

$$\frac{0.50 (LR_1) (LR_2) (LR_3) (LR_4) (LR_5)}{0.50 (LR_1) (LR_2) (LR_3) (LR_4) (LR_5) + 1} = \underline{\hspace{2cm}}$$

Recommend Comprehensive Evaluation YES NO

TABLE 4

Iowa Test of Reading Efficiency

| Raw Score | LR ₁ | Raw Score | LR ₁ |
|-----------|-----------------|-----------|-----------------|
| 1 | 127 | 31 | .05 |
| 2 | 31.75 | 32 | .04 |
| 3 | 17.57 | 33 | .04 |
| 4 | 10.45 | 34 | .02 |
| 5 | 8.38 | 35 | .02 |
| 6 | 6.0 | 36 | .03 |
| 7 | 4.57 | 37 | .03 |
| 8 | 3.48 | 38 | .04 |
| 9 | 2.83 | 39 | .07 |
| 10 | 2.41 | 40 | .17 |
| 11 | 1.82 | | |
| 12 | 1.6 | | |
| 13 | 1.32 | | |
| 14 | 1.08 | | |
| 15 | .92 | | |
| 16 | .80 | | |
| 17 | .67 | | |
| 18 | .59 | | |
| 19 | .48 | | |
| 20 | .42 | | |
| 21 | .37 | | |
| 22 | .30 | | |
| 23 | .25 | | |
| 24 | .21 | | |
| 25 | .21 | | |
| 26 | .15 | | |
| 27 | .12 | | |
| 28 | .11 | | |
| 29 | .09 | | |
| 30 | .07 | | |

TABLE 5

PIAT - WORD RECOGNITION

| Raw Score | LR ₂ | Raw Score | LR ₂ | Raw Score | LR ₂ |
|-----------|-----------------|-----------|-----------------|-----------|-----------------|
| 1 | 1 | 29 | 87 | 57 | .15 |
| 2 | 1 | 30 | 95 | 58 | .11 |
| 3 | 1 | 31 | 52 | 59 | .08 |
| 4 | 1 | 32 | 56 | 60 | .05 |
| 5 | 1 | 33 | 59.5 | 61 | .04 |
| 6 | 1 | 34 | 41.33 | 62 | .02 |
| 7 | 1 | 35 | 31.25 | 63 | .01 |
| 8 | 1 | 36 | 25.2 | 64 | .01 |
| 9 | 1 | 37 | 25.2 | 65 | .01 |
| 10 | 1 | 38 | 21 | 66 | .01 |
| 11 | 1 | 39 | 18 | 67 | .01 |
| 12 | 1 | 40 | 15.38 | 68 | .01 |
| 13 | 1 | 41 | 11.6 | 69 | .01 |
| 14 | 1 | 42 | 9.08 | 70 | .01 |
| 15 | 3 | 43 | 7.7 | 71 | .01 |
| 16 | 4 | 44 | 6.2 | 72 | .01 |
| 17 | 5 | 45 | 4.88 | 73 | .01 |
| 18 | 7 | 46 | 3.9 | 74 | .01 |
| 19 | 11 | 47 | 2.91 | 75 | .01 |
| 20 | 14 | 48 | 3.63 | 76 | .01 |
| 21 | 20 | 49 | 2.78 | 77 | .01 |
| 22 | 24 | 50 | 1.39 | 78 | .01 |
| 23 | 32 | 51 | 1 | 79 | .02 |
| 24 | 40 | 52 | .79 | 80 | .02 |
| 25 | 50 | 53 | .58 | 81 | .02 |
| 26 | 59 | 54 | .40 | 82 | .03 |
| 27 | 67 | 55 | .29 | 83 | .04 |
| 28 | 68 | 56 | .23 | 84 | .07 |

TABLE 6

Ross Test (necessary information)

| Raw Score | LR_3 |
|-----------|--------|
| 1 | 15.16 |
| 2 | 5.71 |
| 3 | 3.26 |
| 4 | 2.19 |
| 5 | 1.52 |
| 6 | 1.08 |
| 7 | .77 |
| 8 | .55 |
| 9 | .38 |
| 10 | .25 |
| 11 | .16 |
| 12 | .09 |
| 13 | .03 |
| 14 | .20 |

TABLE 7

STANFORD - SPELLING SUBTEST - ERROR DETECTION

| Raw Score | LR ₄ | Raw Score | LR ₄ |
|--------------|-----------------|--------------|-----------------|
| 01 | 1 | 31 | .05 |
| 02 | 1 | 32 | .02 |
| 03 | 1 | 33 | .02 |
| 04 | .50 | 34 | .02 |
| 05 | 1.33 | 35 | .02 |
| 06 | 2.5 | 36 | .02 |
| 07 | 3.8 | 37 | .02 |
| 08 | 4.86 | 38 | .02 |
| 09 | 6.5 | 39 | .02 |
| 10 | 7.5 | 40 | .02 |
| 11 | 7.5 | 41 | .02 |
| 12 | 8.2 | 42 | .02 |
| 13 | 8.07 | 43 | .03 |
| 14 | 7.88 | 44 | .03 |
| 15 | 6.68 | 45 | .03 |
| 16 | 6 | 46 | .03 |
| 17 | 5.09 | 47 | .03 |
| 18 | 4.2 | 48 | .03 |
| 19 | 3.37 | 49 | .04 |
| 20 | 2.71 | 50 | .04 |
| 21 | 1.97 | 51 | .04 |
| 22 | 1.47 | 52 | .05 |
| 23 | 1.12 | 53 | .05 |
| 24 | .77 | 54 | .06 |
| 25 | .51 | 55 | .07 |
| 26 | .38 | 56 | .09 |
| 27 | .23 | 57 | .13 |
| 28 | .15 | 58 | .17 |
| 29 | .07 | 59 | |
| 30 | .05 | 60 | .50 |