The Journal of Precision Teaching is dedicated to the direct and continuous measurement of behavior, the recording of frequency and the representation of acceleration on the Standard Behavior Chart and Chart-based decision-making. The purpose of the Journal of Precision Teaching is to accelerate the sharing of scientific and practical information among its readers. To this end, both formal manuscripts and informal data-sharing are encouraged.

Material submitted for publication should meet the following criteria: (1) be written in plain English, (2) be limited to eight typed, double-spaced pages of narrative, (3) use the Journal of Precision Teaching Standard Glossary and Charting Conventions, (4) contain data displayed on the Standard Behavior Chart, (5) be submitted in triplicate to the editor, and (6) include one set of original charts or hand-drawn copies. Each formal manuscript will be reviewed by the editor and two consulting editors, two of whom must approve it prior to publication.

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As part of its goal to disseminate research, the University Affiliated Facility for Developmental Disabilities (UAF) at the University of Missouri in Kansas City, under the direction of Carl Calkins, assisted with the production of this Journal.
A literature review reveals six traditional ways of describing reading with problems and confusions. Two describe the reading stimuli and four measure reading performance. A solution is to measure the teaching product, learning. Reading learning is measured by ratios and becomes the seventh way of describing reading. The review of the six ordinal methods plus the ratio way to describe reading has both historical and systemic value. The review is divided into four parts: Part I - Lay categories, grade levels, readability formulas, rate, and accuracy; Part II - Reading levels; Part III - Problems and confusions of the six measures and introduction to Precision Teaching, the seventh measure; Part IV - Sixteen Precision Teaching picture
components, discussion, and conclusions. The present article represents Part II of the review.

Reading Levels

Reading levels were suggested early in the 20th century. W. S. Gray (1919), for example, suggested two types of oral-reading exercises be presented children each day: (1) one type was simple, interesting, and to be read "independently"; (2) the second type was carefully graded selections in basic readers designed for learning to recognize words not yet known.

Betts (1946) is credited with formalizing the four levels of reading from both pupil and teacher viewpoints. My step, teaching step, troublesome step, and hearing step are used by Betts for the pupil viewpoint. From the teacher viewpoint the steps are independent, instructional, frustration, and probable capacity, respectively.

Others have added to this description of reading level difficulty (see Table 1). Most use Betts' teacher viewpoint level names. Some suggest other names as substitutes or synonyms. Table 1 shows the author, reference year, and the names used for the four reading levels.

A level of reading is measured by the reader's accuracy and by an expert's opinion of other behavior responses (i.e., expressions of emotionality). Betts' criteria include both accuracy and emotional descriptions.

Table 2 shows 42 reading, comprehension, and interpretation percent accuracy scores suggested by 16 different sources for the four reading levels.

Seven experts suggested reading accuracy scores for the independent or mastery level. Their median reading accuracy was a nearly perfect score, 99%. Their suggestions ranged from 92% to 99.5%. Four experts suggested comprehension accuracy scores. These scores ranged from 75% to 100%, with a median of 92%. Karl in (1967) suggested a 99% accuracy score for interpretation at the independent or mastery level of reading.

Suggestions from ten sources resulted in a 95% median reading accuracy for the instructional level with a range from 79% to 97%. This median permits learning to read new words 5% of the time. Suggested comprehension scores resulted in an 85% median accuracy with a range from 75% to 90%. This median permits improvement in comprehension 15% of the time. Three contributors suggested 73% accuracy for interpreting the words read, permitting improvement 27% of the time. The instructional level permits greater opportunity for learning to interpret and comprehend. Learning to read new words appears less important.

It is difficult to determine where new word learning is recommended. Five reading authorities report 90% reading accuracy as frustration level. Four report 50% comprehension accuracy as frustration level. According to Betts (1946), pupils with less than 90% reading accuracy or 50% comprehension accuracy are apt to evidence signs of undesirable emotionality, that is, wiggling, lip or nail-biting, head movement, finger pointing, and signs of tension and withdrawal.
The capacity for potential reading attainment level is determined by comprehension accuracy after listening to material read. Betts (1946) stated that 75% accuracy establishes the "probable" capacity level. Spache (1963) stated that 60% accuracy will predict a reader's potential.

Spache (1964) further described the instructional and frustration levels, and described the standards of Betts and Smith as arbitrary and too high. In 1975, Davis found Spache's criteria describing the frustration level of reading acceptable as a general indicator, but unacceptable for determining

<table>
<thead>
<tr>
<th>Author-Year</th>
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<th>Frustration</th>
<th>Capacity</th>
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<td>--</td>
<td>79 85</td>
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<td>1964</td>
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<td>1966</td>
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<td>1967</td>
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<td>Dolch</td>
<td>1968</td>
<td>99 100 99</td>
<td>--</td>
<td>93 85 70</td>
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<tr>
<td>Davis</td>
<td>1975</td>
<td>--</td>
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<td>90 50</td>
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</table>

| Number | 16 | 7 | 4 | 1 | 10 | 7 | 3 | 5 | 4 | 0 | 0 | 2 | 0 |
| Range   | 7.5 | 25 | -- | 18 | 15 | 3 | 2 | 1 | -- | 15 | -- |
| Median  | 99 | 92 | 99 | 95 | 85 | 73 | 90 | 50 | -- | 68 | -- |

*Reading.Comprehension.Interpretation.
Individual pupil levels. To test these criteria, Davis used three measurements on a polygraph, the criteria of polygraph and neurological experts to test 62 children in grades 3, 4, and 5 from three major ethnic groups. Davis found that accuracy in comprehension ranged from zero to 99% during frustration, while oral reading errors ranged from zero to as high as 38%. Frustration, it would seem, is independent of reading and comprehension accuracy.

Watching swimmers and other athletes perform would confirm this position. No matter how poorly coordinated and error-laden a beginning competitive swimmer seems to be, great elation can be observed each time a personal record is established. For beginners, this occurs nearly every time they compete. Swimming errors are opportunities for corrective practicing. Frustration enters later, as the consequences increase and high expectations are not met.

McCracken (1963) tied oral reading frequencies to the levels of reading. McCracken (1963) also reported both correct and error minimal oral reading rates for the independent, my step, or mastery level of reading. His data show pre-primer mastery to be 60 words per minute, with allowance for a little more than one error per minute. The frequencies increase in a straight line on multiply-divide chart paper to the fourth grade, where they flatten out to grade seven at 150 correct words per minute with two errors.

For the instructional level, the teaching step, McCracken (1963) suggested oral reading frequencies between 48 and 60 words per minute for pre-primer material. He also suggested 120-150 words per minute from fourth through seventh grade. Error frequencies ranged from 4-7.

Starlin's work (1970) appears to agree with McCracken's instructional ranges, showing oral reading frequencies as low as 100 correct words per minute in senior high school. However, Starlin's reported error frequencies were lower (one per minute).

Similar results were reported for correct oral reading frequencies by Kunzelmann (Washington State Superintendent of Public Instruction, 1974) and by Beck (1974), although neither reported the error frequencies.

Oral reading accuracy is more completely described when charted as frequencies correct and incorrect than merely stated as percent. To illustrate this, the reading accuracy percentages reported in Table 2 were charted in Chart 1 as words read correctly and incorrectly per minute, assuming 100 total words had been read in one minute. Chart 1 shows the ratio distances between corrects and errors. Most of these ratios across all three reading levels exceed x9. Very little learning can occur with greater than x9 beginning accuracies (Neely, 1978; Neely and Lindsley, 1978b; Sokolove, 1977-78). It is also evident from Chart 1 that "real" frequencies would show actual pupil performance, rather than logical achievement. For example, 94% correct logically results in 6 errors for every 100 words read. However, if only 50 total words had been read, the actual error frequency would have been less than logic, that is, 3, resulting in even fewer opportunities to learn.

The assumed data in Chart 1 were subjected to statistical analysis. No significant difference was found in reading words correctly between the independent and instructional levels (using the median test with Fisher's
Chart 1. Reading Percent Accuracy Scores Suggested by Ten Authorities for Four Reading Levels: Percent Correct Charted as Assumed Frequencies

INDEPENDENT LEVEL

COUNT PER MINUTE

INSTRUCTIONAL LEVEL

92% 99.5%
99% 97%
94% 99%
99%

.18

95% 95% 88%
95% 95% 79%
92% 97% 96%
93%

FRUSTRATION LEVEL

90% 90%
90% 88%
90%

.04 .02

10 Authorities in the field of Reading suggest reading % accuracy scores for 4 reading levels

(charted as words read correctly and incorrectly per minute, assuming 100 total words had been read in one minute)
exact $p = .18$). A significant statistical difference was found between the instructional and frustration mastery levels ($p = .04$).

In analyzing errors, no significant difference was found between the independent and instructional levels ($p = .18$). A significant statistical difference was found between the instructional and frustration levels ($p = .02$). However, Chart 1 indicates that 4 of 10 authorities suggested error frequencies at the instructional level approaching or greater than the most common frequency suggested for the frustration level.

The comprehension and interpretation percent accuracy scores reported in Table 2 were charted in Chart 2 as correct and incorrect responses per minute, assuming 10 total responses in a 10-minute exercise. No significant difference was found between the independent and instructional correct or error comprehension responses (the median test with the Fisher's exact $p = .30$ for both). The correct to error ratios ranged from $x3$ to $x9$ for both reading levels. Comprehension at the capacity level was also $x3$.

A significant difference was found between the instructional and frustration correct and error comprehension responses ($p = .045$). Interpretation data were similar to the comprehension data.

REFERENCES


Harris, Albert J. *How to increase reading ability*. New York: Longmans, Green, 1956.
<table>
<thead>
<tr>
<th>INDEPENDENT LEVEL</th>
<th>INSTRUCTIONAL LEVEL</th>
<th>FRUSTRATION LEVEL</th>
<th>CAPACITY LEVEL</th>
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<tr>
<td>Comp. 75%</td>
<td>Int. 99%</td>
<td>Comp. 75%</td>
<td>Int. 73%</td>
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<td>Int. 90%</td>
<td>Comp. 85%</td>
<td>Int. 50%</td>
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<tr>
<td>Comp. 95%</td>
<td>Int. 85%</td>
<td>Comp. 49%</td>
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<td>Int. 50%</td>
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<td>Comp. 100%</td>
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10 Authorities in the field of Reading suggest comprehension and interpretation % accuracy scores for 4 reading levels (charted as correct and incorrect responses per minute, assuming 10 total responses in a 10-minute exercise).
Hellman, A. W. *Principles and practices of teaching reading*. Columbus, Ohio: Charles E. Merrill, 1961.


TEACHING THE DAILY STANDARD BEHAVIOR CHART: 
A DIRECT INSTRUCTION APPROXIMATION 

Michael Maloney 
Quinte Learning Centre 
Belleville, Ontario 

Introduction 

Many teachers are aware of Precision Teaching and are convinced of its benefits for making data-based curriculum decisions for their students. Many workers in a variety of educational and social service settings are trained in the techniques of Precision Teaching but have continual difficulty in collecting and analyzing data. In some situations, as many as 70% of the personnel who were trained in Precision Teaching had stopped daily charting by the end of two years (Beck, 1981). Reasons for non-continuance can be easily generated at 40-50 per minute. Summarized, they often indicate that all charting and decision-making was done by the change agent, not by the client. Given numerous clients and several data points per client, the change agent may have become overwhelmed with charting and decision-making. 

Lindsley (1980) indicated that children in regular education settings learn curriculum at $x1.1$ per week. Children in classrooms with adequate behavioral management learn at $x1.3$ per week. Children in classrooms where continuous data is charted on the Standard Behavior Chart learn at $x1.5$ per week. Classrooms in which Charts are kept by the children yield the highest rate of learning at $x2.0$ per week. 

It seems obvious that to promote excellence in classrooms and to encourage teachers to maintain their charting, the Charts should be put in the hands of the children. Ann Starlin pioneered this effort in 1970. Many teachers have attempted to follow in her footsteps, but have found it difficult to teach children how to chart. While they may be excellent in terms of collecting data and making decisions, it does not necessarily follow that they are excellent at programming concepts in instruction. 

Engelmann (1975) has described the essential components of a teaching methodology in which concepts are presented so that they have one and only one interpretation. Direct Instruction has developed a number of sophisticated precepts of good teaching to insure the learning of a concept or operation by any child. This is done by teaching both instances and non-instances of the concept or operation; by reinforcing correct responses and carefully correcting incorrect responses immediately; by pacing the task and arranging the environment for maximum learner attention, participation and reinforcement; and by teaching the task until the most unskilled child in the group responds quickly and correctly. 

In applying this instructional methodology to the key concepts embodied in the Standard Behavior Chart, we would provide teachers with a means to teach the children to chart. The combination of good instruction and good measurement, coupled with sufficient direct practice, should result in fluent charting by the student with greater gains for everyone.
1. **Arranging the environment**  Seat the students in a semi-circle, close enough to you so that you can easily touch any child from where you stand. Place those who are likely to perform well at the ends of the semi-circle, or in a second row. Place those who are likely to have difficulty directly in front of you. Look to see that you can watch each child respond. If the group is too large to work with as one unit, divide them into three groups. The first group should include all of your high performers, typically the majority of the students. The second group should consist of all those students who are "average" performers. This group should be somewhat smaller than the first group. The difficult performers should be the smallest group, typically 15-20% of the children. Teach the groups so that the top and middle group can be given independent practice while you spend the bulk of your instructional time with the difficult performers.

2. **Pacing**  Learners attend significantly better to high-paced instruction (200 plus wds/min) than they do to low-paced presentations (100 wds/min) (Carnine, 1978). Rewards for learning occur more quickly and maintain on-task behavior. Slow-paced presentations allow children to learn and still have time to attend to other stimuli (such as the pigtails to be pulled), which promotes off-task behavior which takes time to correct.

3. **Signals**  When you are teaching a group, you must ensure that each child is initiating his own response and not merely modelling the behavior of faster performers. A child might give the impression of learning, but be unable to perform on an individual turn. This can result in embarrassment for the child and frustration for the teacher. Engelmann's direct instruction method utilizes signals as stimuli to instigate the responses of the group in unison. Typically, the teacher will hold her hand, palm facing outwards toward the group, while the task direction is given. This is followed by a verbal signal ("Ready") and a half second pause. The teacher then drops her hand quickly as a signal for the children to respond. It is critical that the period of time between the "Ready" signal and the "Do it" signal be kept constant so that children can respond together. The period of time between the task signal and the "Ready" signal can be varied to heighten on-task behavior. Sometimes children will respond before or after the "Do it" signal, instead of in chorus. The correction is simply to say that someone was too soon or too late and to repeat the sequence, reinforcing those who are doing it correctly.

4. **Corrections**  Children will make errors in even the best teaching sequence. Corrections must be immediate, continuous and effective to insure fast, efficient learning. Engelmann provides a number of correction procedures depending on the type of error (Engelmann 1975, Unit 3). Errors are minimized by a three-part sequence in which the correct response is demonstrated (model), then practiced with the children (lead), and then checked for learning (test). This model-lead-test format is designed so that the teaching can only proceed when the children can successfully respond. The sequence also makes a handy correction procedure in many instances.

5. **Presentation materials**  A large wall version of the Daily Standard Behavior Chart or a mylar transparency of the Chart displayed on an overhead
projector can be used.

6. **Presenting the tasks** Some teachers may look at the following script and feel that it is too long or too complex or too technical for their students. It only looks complex. The teacher should first decide on how best to present the tasks. With older children the entire procedure can be accomplished in 15 to 30 minutes. With younger children the tasks may be presented for ten minutes each day until the child has completed his learning of all of the concepts and operations. Daily review from the beginning will firm the children's learning of the concepts and operations.

There are a number of basic ideas which may assist the teacher:

A. Arrange the children in a semi-circle close enough to be able to touch the ones in front of you;

B. Place the children who will require the greatest amount of teaching directly in front of you in the front row; place your best learners at the ends and in the second row; break up cliques in the group by establishing a seating plan;

C. Know your script; teach it to a wall or to another teacher before you attempt to teach the children;

D. Arrange daily sessions so that you can cover the material quickly and easily; usually, ten minutes at the beginning of a class for a ten-day period will reach your objectives;

E. Give practice sessions until the children reach the aims on charting; one-minute timed practices work well;

F. Keep data on how well the children are learning to chart; count dots placed on the Chart per minute as the dependent variable;

G. Remember that each child you teach to chart learns better, has more control over his learning, can become a monitor for himself and other children, can become a decision-maker, and can help you save precious classroom time and teacher energy.

In the presentation material that follows items are marked to assist the teacher. Tasks the teacher performs are in parentheses, while statements the teacher makes are in regular type. Student responses are enclosed in quotation marks.

7. **The presentation**

Use Chart 1.

**Task 1 - Charting behaviors above the 1 line**

**Model:** (Touch the 1 line on Chart 1) (Say) This is the one per minute line. There's a rule about this line. Any behavior that occurs more than one time in a minute is charted above this line. Listen again. (Pause) (Touch the 1 line) (Say) Any behavior that happens more than one time in a minute is charted above the 1 line.

**Lead:** (Say) Say it with me. Ready. (Pause) (Signal) Any behavior that happens more than one time in a minute is charted above the 1 line. (Repeat until students can hear and say rule at 150 words/minute)

**Test:** (Say) Your turn. Say the rule all by yourselves. Ready. (Pause) (Signal) (Repeat until students can think and say rule without errors at 150
DAILY BEHAVIOR CHART (DCM-9EN)
6 CYCLE - 140 DAYS (20 WKS)
BEHAVIOR RESEARCH CO
BOX 3361 - KANSAS CITY, KANS 66103

CALENDAR WEEKS

COUNT PER MINUTE

0 1000 500 100 50 10 1

0 .005 .01 .05 .1 1

0 1000 100 10 1

Chart 1. A Practice Sheet for Tasks I-IV

SUCCESSIVE CALENDAR DAYS

Eric and Elizabeth
Quinte Learning Centre Belleville, Ontario
SUPERVISOR ADVISER MANAGER
Paul
DEPOSITOR AGENCY TIMER COUNTER

A Practice Sheet for:
Paul
BEHAVIOR
15
AGE
8 see and say
LABEL COUNTED
location of dots

Task II - Charting behaviors below the 1 line

Model: (Say) New Rule. Listen. My turn. (Touch the 1 line) This is the 1 line. Any behavior that happens less than one time in a minute is charted below this line. Listen again. Any behavior that happens less than 1 time in a minute is charted below this line. 
Lead: (Say) Say the rule with me. Ready. (Pause) (Signal) (Say) Any behavior that happens less than 1 time in a minute is charted below this line. (Repeat until students can hear and say rule at 150 plus words per minute without error) 
Test: (Say) Your turn. Say the rule all by yourselves. Ready. (Pause) (Signal) (Repeat until students can think and say the rule at 150 plus wds/min without error) (Give individual turns)

Task III - Charting behaviors on the 1 line

Model: (Say) New Rule. Listen. A behavior that happens 1 time in 1 minute is charted on the 1 line. Listen again. A behavior that happens 1 time in 1 minute is charted on the 1 line. 
Lead: (Say) Say it with me. Ready. (Pause) (Signal) (Say) A behavior that happens 1 time in 1 minute is charted on the 1 line. (Repeat until students can hear and say the rule at 150 plus words per minute without error) 
Test: (Say) Your turn. Say the rule all by yourselves. Ready. (Pause) (Signal) (Repeat until students can think and say rule at 150 plus words per minute without error) (Give individual turns)

Task IV - Students discriminate dots above, below and on the 1 line

(Touch the first dot on Chart 1) (Say) Look at this dot. Tell me if it is above the 1 line, below the 1 line or on the 1 line. Ready. (Pause) (Signal) "Above the 1 line." (Say) That's right. (Touch the second dot) (Say) Now look at this dot. Is this dot above the 1 line, below the 1 line or on the 1 line? Ready. (Signal) "Below the 1 line." (Say) That's correct. (Repeat for dots 1-20) (Give individual turns with dots 21-40)

Use Chart 2.

Task V - Students learn day lines rule

Model: (Say) New Rule. My turn. Listen. Lines that go up and down are day lines. Listen again. Lines that go up and down are day lines. 
Lead: (Say) Say it with me. Ready. (Pause) (Signal) Lines that go up and down are day lines. (Repeat with students until they can hear and say rule at 150 plus words per minute without error) 
Test: (Say) Your turn. Say the rule about day lines. Ready (Pause) (Signal) "Lines that go up and down are day lines." (Say) That's right - you've got it. (Repeat until students can think and say rule at 150 plus words per minute without error) (Give individual turns to some students)

Task VI - Students discriminate day lines and non-day lines

Model: (Say) I'm going to touch some lines on the chart. Tell me if they
Chart 2. A Practice Sheet for Tasks V-VI
are day lines or not day lines. If I touch a day line say 'day line.' If I

touch a line that is not a day line say 'No.'

**Lead:** (Say) What do you say if I touch a day line? Ready. (Pause) (Signal)
"Day line." (Say) That's good. And what do you say if I touch a line that
is not a day line? Ready. (Pause) (Signal) "No." (Say) That's very good.
(Touch line No. 1 on Chart 2) (Say) Is this a day line? Ready. (Pause)
(Signal) "Day line." (Say) Good remembering. You got it right.

**Test:** (Touch line No. 2 on Chart 2) (Say) Look at this line. Is this a day
line? Ready. (Pause) (Signal) "No." (Say) Very good. (Repeat with lines 3-
30 on Chart 2 until students can see and say 30 to 40 instances or non-
instances of day lines per minute without error)

**Task VII - Students learn rule about Sunday lines**

**Model:** (Say) New Rule. My turn. Listen. Fat lines that go up and down are
Sunday lines.

**Lead:** (Say) Say it with me. Ready. (Pause) (Signal) (Say) Fat lines that go
up and down are Sunday lines. (Repeat until students can hear and say the
rule at 150 plus words per minute without error)

**Test:** (Say) Your turn. Say the rule about Sunday lines. Ready. (Pause)
(Signal) (Repeat until students can think and say rule at 150 plus words per
minute without error) (Give individual turns)

---------------

**Task VIII - Students discriminate Sunday lines and non-Sunday lines**

**Model:** (Say) I'm going to touch some lines on the Chart. Tell me if they
are Sunday lines or not Sunday lines. If I touch a Sunday line, say 'Sunday
line.' If I touch a line that is not a Sunday line, say 'No.'

**Lead:** (Say) What will you say if I touch a Sunday line? Ready. (Pause)
(Signal) "Sunday line." (Say) Very good. And what will you say if I touch a
line that is not a Sunday line? Ready. (Pause) (Signal) "No." (Say) Good
remembering.

**Test:** (Touch line No. 1 on Chart 3) (Say) Is this a Sunday line? Ready.
(Pause) (Signal) "No." (Say) Good. That is not a Sunday line. (Touch line
No. 2) (Say) Is this a Sunday line? Ready. (Pause) (Signal) "Sunday line."
(Say) Nice work. I think you've got it. (Touch lines 3 to 20) (Repeat until
students can see and say 30 to 40 Sunday line or non-Sunday line
discriminations per minute without error)

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**Task IX - Students discriminate day lines by name**

**Model:** (Say) Listen. What day comes after Sunday? Ready. (Pause) (Signal)
"Monday." (Say) That's right. So what day lines come after a Sunday line?
Ready. (Pause) (Signal) "A Monday line." (Say) That is also right. Say the
days of the week. Ready. (Pause) (Clap for each day) (Repeat until students
think and say days of the week at 40 to 60 per minute)

**Model:** (Say) I'm going to touch day lines and say their names. My turn.
Watch. (Touch a Sunday line on Chart 4) (Say) Sunday. (Touch a Monday line)
Chart 3. A Practice Sheet for Task VIII

SUCCESSIVE CALENDAR DAYS

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DAILY BEHAVIOR CHART (DCM-SEN)

CALENDAR WEEKS

CYCLE - 140 DAYS (20 WKS)

BEHAVIOR RESEARCH CO
BOX 3351 - KANSAS CITY, KANS 66103

Chart 4. A Practice Sheet for Tasks IX-XIV

Successive Calendar Days

A Practice Sheet for:

Angela (14 years old)

See and say

Beleville, Ontario

Quinte Learning Centre

Depositor

Timer

Counter

Charter

(Say) Monday. (Repeat in order for each day of the week)

Lead: (Say) Say the names of the day lines with me. (Touch a Sunday line)
        Ready. (Pause) (Signal) (Say) Sunday. (Touch a Monday line) Ready. (Pause)
        (Signal) (Say) Monday. (Repeat for all the days of the week)

Test: (Say) Your turn to say the day lines when I touch them. Ready.
        (Pause) (Touch a Sunday line) "Sunday." (Say) Ready. (Pause) (Touch a Monday
        line) (Repeat for all days in order until students can see and say day lines
        in order at 40 to 60 lines per minute without error)

Task X - Students discriminate day lines in random order

Model: (Say) I'm going to touch some dots on day lines, and say the name of
        the day line. Watch. (Touch dot No. 1) (Say) My turn. What day? Monday.
        My turn again. (Touch dot No. 2) (Say) What day line is this dot on? Ready.
        (Pause) (Signal) "Monday." (Say) That's right.

Test: (Say) Now it's your turn. When I touch the dot, you tell me what day
        line it is on. Think big. Look at this dot. What day? Ready. (Pause)
        (Touch dot No. 1) "Monday." (Say) That's right. (Repeat for other dots on
        Chart 4 until students can see and say day lines at 40 to 60 per minute
        without error)

Correction procedure (After error, Say) No, that is not correct. Start from
        the Sunday line and count to the dot. Say each day Sunday, Monday, Tuesday.
        Yes. What day? Tuesday.

Task XI - Students see and say counting lines

Model: (Say) New Rule. My turn. Listen. Lines that go across are counting
        lines. Listen again. Lines that go across are counting lines.

Lead: (Say) Say it with me. Ready. (Pause) (Signal) "Lines that go across
        are counting lines." (Say) Good saying that rule. (Repeat until students can
        say the rule with you at 150 plus words per minute without error)

Test: (Say) Your turn. Say the rule all by yourselves. Ready. (Pause)
        (Signal) (Repeat until students can think and say rule at 150 plus words per
        minute without error)

Task XII - Students learn to discriminate counting lines

(Say) I'm going to touch some lines. Tell me if I touch a counting line or
        a line that is not a counting line. (Touch a Sunday line) (Say) Is this a
        counting line? Ready. (Pause) (Signal) (Reinforce) (Touch a counting line)
        (Say) Is this a counting line? Ready. (Pause) (Signal) (Reinforce) (Repeat
        for many lines on Chart 4 until students can see and say counting lines at
        40-60/minute without error)

Task XIII - Students learn rule about counting cycles

Model: (Say) Listen. New Rule. My turn. Big numbers in the margin that
        start with 1 tell you what to count by and what to count from. Listen
        again. Big numbers in the margin that start with 1 tell you what to count
        by and what to count from.

Lead: (Say) I'll say the first part, then you say the last part with me.
Big numbers in the margin that start with 1... Ready. (Pause) (Signal) (Say) ...tell you what to count by and what to count from. (Repeat until students can hear and say the last part of the rule at 150 plus words per minute without error)

**Lead:** (Say) Now I will say the last part of the rule and you say the first part of the rule. (Say) ...tell you what to count by and what to count from. Ready. (Pause) (Signal) "Big numbers in the margin that start with 1...

Repeat until students can hear and say the first part of the rule at 150 plus words per minute without error. (Say) Now say the whole rule with me. Ready. (Pause) (Signal) (Say rule) (Say) Now catch the beat. Ready. (Pause) (Signal) (Say rule)

**Test:** (Say) Your turn. Say the whole rule all by yourselves. Ready. (Pause) (Signal) (Repeat until the students can think and say the rule at 150 plus words per minute without error)

**Task XIV** - Students counting on the counting lines

(Point to the number 1) (Say) What is this big number? Ready. (Pause) (Signal) (Reinforce) (Say) What does it tell you to count by? Ready. (Pause) (Signal) (Reinforce) (Say) What does it tell you to count from? Ready. (Pause) (Signal) (Reinforce)

**Model:** (Say) My turn to count the lines. Ready. (Touch the 1 line and each successive line up to 10 while counting)

**Lead:** (Say) Count the lines with me. (Touch the 1 line) Ready. (Pause) (Signal) (Say) Which value of each counting line from 1 to 10 as you touch it?

**Test:** (Say) All by yourselves. Count the lines. (Touch the 1 line) (Say) Ready. (Pause) (Signal) (Reinforce)

Use this sequence for 10 and 100 picking up the Model, Lead, and Test sequence for each cycle.

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Use Chart 5.

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**Task XV** - Students see and say counting line scores

(Say) I'm going to touch some dots on counting lines. When I touch the dot you tell me the score. Watch closely. (Touch the first dot on Chart 5 and say) What is this score? Ready. (Pause) (Signal) (Reinforce) (Repeat for all dots in the first three weeks of Chart 5)

**Correction procedure:** (Say) What is this score? Ready. (Pause) (Signal) (Say) No, that is not correct. This score is 20. What is the big number in the margin that starts with 1? Ready. (Pause) (Signal) (Say) Count the lines from the big number until you get to the dot. Ready. (Pause) (Signal) (Touch each line as students count until you reach the score) (Say) What's this score? Ready. (Pause) (Signal) (Reinforce) (Give individual turns)

**Task XVI** - Students see and say day line and score

(Say) New Rule. Now you must figure out the day and the score for each dot. **Model:** (Say) My turn. Watch. (Touch the first dot on Chart 5 and say) What day? Monday. What score? One.

**Lead:** (Say) Do it with me. (Touch the first dot) (Say) What day? Ready. (Pause) (Signal) (Say) Monday. What score? One. Ready. (Pause) (Signal)

Chart 5. A Practice Sheet for Tasks XV-XVIII

**CALENDAR WEEKS**

**COUNT PER MINUTE**

- **see and estimate scores**
- **see and say directions of celerations**
- **see and say score**
- **see and say day line and score**

**SUCCESSIVE CALENDAR DAYS**

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**DEPOSITOR**

**A Practice Sheet for:**

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(Say) Tuesday. What score? Two. (Repeat for all dots in the first three weeks of Chart 5)

Test: (Say) All by yourselves. (Touch the first dot on Chart 5) (Say) Tell me what day this dot is on. Ready. (Pause) (Signal) (Say) What score? Ready. (Pause) (Signal) (Reinforce) (Say) Next dot. First tell me the day, then tell me the score. What day? Ready. (Pause) (Signal) (Say) What score? Ready. (Pause) (Signal) (Touch each dot in the first 3 weeks of Chart 5 until students see and say day lines and counting line scores at 60 plus per minute with no learning opportunities)

Task XVII - Students estimate value of scores

(Touch a dot on the 10 line) (Say) Tell me this score. Ready. (Pause) (Signal) (Touch a dot on the 20 line) (Say) Tell me this score. Ready. (Pause) (Signal) (Touch a dot with a value of 15) (Say) Look at this dot. Is this score greater than 10? Ready. (Pause) (Signal) (Reinforce) (Say) Look again. Is this dot greater than 20? Ready. (Pause) (Signal) (Reinforce) (Say) This dot is halfway between 10 and 20. What is this score? Ready. (Pause) (Signal) (Reinforce) (Touch a dot with a value of 17) (Say) Look at this dot. Is this score greater than 15? Ready. (Pause) (Signal) (Say) Is this score greater than 20? Ready. (Pause) (Signal) (Reinforce) (Say) So this dot is halfway between 15 and 20. What is this score? Ready. (Pause) (Signal) (Reinforce) (Touch a dot with a value of 19) (Say) Look at this dot. Is this score greater than 20? Ready. (Pause) (Signal) (Reinforce) (Say) What is this score? Ready. (Pause) (Signal) (Reinforce) (Repeat for other scores from 30 to 1000)

Task XVIII - Students see and say directions of celerations

(Touch a score of 150 on the 6th week of Chart 5) (Say) Look at this score. Can you tell me if this score is exactly 150 or exactly 152? Ready. (Pause) (Signal)

(Touch a score of 175) (Say) Can you tell me this exact score? Ready. (Pause) (Signal) (Repeat for several scores on successive day lines) (Say) Listen. It is not important to be able to tell the exact score. It is more important to be able to say if the scores are going up or going down. (Touch this group of dots) (Say) Are these dots going up or going down? Ready. (Pause) (Signal)

(Touch the second group of scores) (Say) Are these dots going up, going down or staying the same? Ready. (Pause) (Signal) (Repeat for all groups of dots on Chart 5) (Repeat until students can see and say direction of celerations at 60 plus words per minute without learning opportunities)

Use Chart 6.

Task XIX - Students see and say record floors

Model: (Say) My turn. New Rule. Listen. A record floor tells me how long the measurement lasted. Listen again. A record floor tells me how long the measurement lasted.

Lead: (Say) Say the rule about a record floor with me. Ready. (Pause) (Signal) (Say) A record floor tells me how long the measurement lasted. (Repeat until students can hear and say the rule at 150 plus words per minute without learning opportunities)

Chart 6. A Practice Sheet for Tasks XIX-XXI
Test: (Say) All by yourselves. Say the rule about what a record floor tells. Ready. (Pause) (Signal) (Reinforce) (Repeat until students can think and say rule at 150 plus words per minute without learning opportunities)
(Say) Listen. Think big. How many times does 1 minute happen in 1 minute? Ready. (Pause) (Signal)
(Say) 1 minute happens 1 time in 1 minute, so we put the record floor on the 1 line. (Draw in record floor)
(Say) How many times does 30 seconds happen in 1 minute? Ready. (Signal) (Say) That's right. Two times. So if the measurement lasted for 30 seconds we put the record floor on the 2 line. (Say) How many times does 20 seconds happen in 1 minute? Ready. (Pause) (Signal) (Say) That's correct, three times. So we put the record floor on the 3 line. (Say) How many times does 15 seconds happen in 1 minute? Ready. (Pause) (Signal) (Say) So where do we put the record floor? Ready. (Pause) (Signal) (Reinforce)
(Say) I'm going to touch some record floors on the Chart. You tell me how long the measurement lasted. (Touch 1 minute record floor) (Say) How long was this measurement? Ready. (Pause) (Signal)
(Touch each record floor on Chart 6 and repeat the instruction) (Repeat until students can see and say record floors at 60 plus words per minute without learning opportunities)

Task XX - Students learn to identify chart symbols

Model: (Say) Listen. We mark corrects with a dot and learning opportunities with an 'x'. Listen again. (Repeat rule)
Lead: (Say) Say the rule with me. Ready. (Pause) (Signal) (Say rule with students until they can hear and say the rule at 150 plus words per minute without learning opportunities)
Test: (Say) Your turn to say the rule about dots and 'x's'. Ready. (Pause) (Signal) (Reinforce) (Repeat until students think and say rule at 150 plus words per minute without learning opportunities)

Repeat the above sequence for each of these concepts:
(Say) A question mark under the record floor tells me there were zero learning opportunities.
(Say) A box tells me how many I skipped.
(Say) A triangle tells me when someone helped me with the answer.
(Say) A straight line across day lines tells me the record floor.

(Say) I'm going to touch some symbols on the Chart (Chart 6) (Say) You say what each symbol tells. (Touch a dot) (Say) What does this symbol tell? Ready. (Pause) (Signal) (Reinforce) (Repeat for other symbols until students can see and say symbols at 60 plus words per minute without learning opportunities)

Task XXI - Students learn labels for charts

Model: (Say) Look at the bottom of the Chart. (Chart 6) (Say) There are labels for you to fill in to help us keep our charts better. I'm going to teach you what goes in each blank above a label. Look at the blank that says Behaver. (Touch behaver) (Say) This blank is where you put your name because you are the behaver. Listen again. This blank is where you put your name because you are the behaver. (Touch behaver)
Lead: (Say) Your turn. What do I write in this blank? Ready. (Pause) (Signal)
(Say) Look at this blank. This label says Age. So in this blank you write how old you are. What do you write in this blank marked age? Ready. (Pause) (Signal) (Reinforce)

(Repeat procedure for other labels listed below)
Label tells what grade you are in now.
Counted tells what you measured.
Charter tells who marked the chart.
Counter tells who counted up how much you did.
Timer tells who ran the clock.
Agency tells what school you go to.
Manager tells who looks after your charts.
Advisor tells who helps you make decisions.
Supervisor tells who helps your teacher.

Test: (Say) I'm going to touch some labels. You tell me what the label says and what goes in the blank above the label. First tell me what the label says; then tell me what goes in the blank. (Touch Behaver) (Say) What does this label say? Ready, (Pause) (Signal) (Say) Yes, Behaver. And what do you write in this blank above the word Behaver? Ready. (Signal) (Repeat for other labels until students can see and say labels at 60 plus words per minute without learning opportunities.)

Use Chart 7.

Task XXII - Students discriminate instances, zero and non-instances of corrects accelerating

(Touch the first series of dots on Chart 7) (Say) Look at these dots. Are these dots going up, going down or going across? Ready, (Pause) (Signal) (Reinforce) Repeat sequence for each set of dots on Chart 7 until children can see and say lines of dots at 60 plus words per minute with no learning opportunities)

Task XXIII - Students discriminate instances and non-instances of learning opportunities decelerating

(Touch the first series of X's on Chart 7) (Say) Look at these X's. Are these X's going up, going down or going across? Ready, (Pause) (Signal) (Reinforce) Repeat sequence for each set of X's on Chart 7 until children can see and say lines of X's at 60 plus words per minute with no learning opportunities)

Task XXIV - Students learn the rule for learning

Model: (Say) Listen. Here is a new rule. You are learning when corrects go up or learning opportunities go down. Listen again. You are learning when corrects go up or learning opportunities go down.

Lead: (Say) Say the rule with me. Ready, (Pause) (Signal) You are learning when corrects go up or learning opportunities go down. (Repeat until students hear and say rule at 150 plus words per minute without error)

Test: (Say) Your turn. Say the rule about when you are learning. Ready.
CALENDAR WEEKS

COUNT PER MINUTE

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

SUCCESSIVE CALENDAR DAYS

Chart 7. A Practice Sheet for Tasks XXII-XXIII

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A Practice Sheet for: David

(Pause) (Signal) (Reinforce) (Give individual turns to check students) (Repeat until students can think and say rule at 150 plus words per minute with zero learning opportunities)

**Task XXV - Students learn the rule for non-learning**

**Model:** (Say) Listen. Here's a new rule. You are not learning if corrects are going down or across and if learning opportunities are going up or across. My turn to say the rule. Listen. You are not learning if corrects are going down or across and if learning opportunities are going up or across. (Repeat until students can hear and say rule at 150 plus words per minute with zero learning opportunities)

**Test:** (Say) Your turn. Say the rule about when you are not learning. Ready. (Pause) (Signal) (Reinforce) (Give individual turns to check students) (Repeat until students can think and say rule at 150 plus words per minute with zero learning opportunities)

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Use Chart 8.
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**Task XXVI - Students learn to Interpret learning pictures**

(Say) Listen. I'm going to touch some learning pictures on the Chart. Look to see if the person is learning. Use your rules about learning and not learning. (Touch the first learning picture on Chart 8) (Say) Are the corrects going up, down or across? Are the learning opportunities going up, down or across? Is this person learning or not learning? Ready. (Pause) (Signal) (Reinforce) (Touch each learning picture and repeat sequence)

**Task XXVII - Students drop dots on the chart** (Practice)

(Give each student a Standard Behavior Chart. Instruct them to fill in the labels. Check to see if they did so correctly. Direct their attention to the data grid on the blackboard (See Table 1). You may also give this out as a handout instead of using the blackboard. I prefer the blackboard presentation because it focuses attention on the teacher instead of on a piece of paper which is difficult to monitor. Corrections can be done by placing dots on a wall chart or mylar overhead for comparison)

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Chart 8. A Practice Sheet for Task XXVI

A Practice Sheet for:

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<th>Pam and Annie</th>
<th>Lisa</th>
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see and say
Michael Pam and Annie Lisa Lisa learning pictures

Look at the first score on this exercise. It says a score of 1 on Sunday. What score? Ready. (Pause) (Signal) "One." (Say) Yes. What day? Ready. (Pause) (Signal) (Reinforce) (Say) Watch. Here's how you score 1 correct in 1 minute on a Sunday. (Put a dot on the first Sunday line and the 1 line) (Say) Is this a Sunday line? Ready. (Pause) (Signal) "Yes." (Say) Is this the 1 line? Ready. (Pause) (Signal) "Yes." (Say) So does this dot show a score of 1 correct in 1 minute on a Sunday? Ready. (Pause) (Signal) "Yes." (Say) Look at the next dot. (Repeat procedure for first row of dots)

Now it's your turn. Put a dot on the Sunday line to show a score of 1. Put a dot on the Monday line to show a score of 2 correct in 1 minute.

Let's check over your work. (Repeat for all scores on the data grid until students can see and drop dots at 40-20 dots per minute with zero learning opportunities).

Task XXVIII - Students chart their own data

Now take a fresh chart and the sheet of add facts I gave you. Fill out the bottom of the chart. Under Counted write See/Write add facts. What are you going to write in the blank marked Counted? Ready. (Pause) (Signal) (Check children's work) (Say) Now set your chart aside. Take your add fact sheet and get ready for a 1-minute measurement of add facts. Raise your pencils. Get ready to write answers. Work until I say 'thank you.'

REFERENCES

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