DYNAMIC ASSESSMENT OF READING ABILITIES

by

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A thesis submitted in conformity with the requirements
for the degree of Masters of Arts
Graduate Department of Human Development and Applied Psychology
Ontario Institute for Studies in Education
University of Toronto

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Abstract

The effectiveness of dynamic assessment compared to static assessment of reading abilities was investigated in this study. Thirty nine children participated in this study who were reading below the 25th percentile for their chronological age based on the Wide Range Achievement Test 3 (WRAT 3). The participants were students who experienced word recognition difficulties, and ranged from 8 to 11 years of age. They were placed into three groups and were tested in three sessions: a pretest, treatment/assessment, and a posttest session. The main dependent variable was oral reading and the independent variable was dynamic assessment at three levels: a Static control (S); and two Dynamic reading groups (Phonemic Prompt, PP and Phonemic Prompt with Contextual Mediation, PPCM). The results showed that at posttest: (a) children in the PPCM group did not produce higher reading scores than children in the PP group, but did score higher than children in the S group; and, (b) children in the PP group scored higher on reading ability than children in the S group. These findings demonstrate that Dynamic Assessment of reading abilities compliments Static Assessment by providing more information about the student's reading profile.
Acknowledgements

The author expresses gratitude to Linda S. Siegel Ph.D. for her immeasurable support and direction as the thesis advisor during this research study. Appreciation is extended to Tom Humphries Ph.D. for acting as a member of the thesis committee. His inquiry and suggestions were most helpful to the editing process.

Thanks also to Earls court Child and Family Centre in Toronto for recognizing the relevance of this study, and to David Day Ph.D. for his comments regarding the manuscript.

Thank you to Wide Range, Inc, for granting copyright permission for the use of the Wide Range Achievement Test (WRAT 3) for reading.

The author wishes recognize the Metropolitan Separate School Board in Toronto for endorsing this study in their schools, and acknowledging this as a relevant project to education. Finally, thanks to the students who inspired this project.
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(vi)
Dynamic assessment attempts to modify the student's performance during testing by introducing material or instructions to elicit higher achievement levels (Embretson, 1987). The value of employing the dynamic model of assessment compared to static assessment for students with special needs has been postulated (Budoff, 1987b; Feuerstein, Rand, Jensen, Kaniel & Tzuriel 1987; Lidz, 1987). In order for dynamic assessment to be an accepted method of testing students, the dynamic assessment process should be evaluated. Laughon (1990) evaluated three approaches to dynamic assessment and concluded that there were difficulties with the reliability and validity of the measures used with dynamic assessment. Laughon suggested that more research was needed in this area.

Similarly, Lidz (1992) surveyed psychology trainers' perceptions of dynamic assessment as a viable method of cognitive assessment. It was reported that a lack of technical adequacy, research support, and time necessary for administration were major limitations for employing dynamic assessment in practice.

There are also few studies which examine the relationship between dynamic assessment and oral reading. The majority of articles appear to address dynamic assessment in reading from a theoretical framework rather than providing any empirical data (e.g., Carney & Cioffi, 1992; Carney & Cioffi, 1990; Cioffi & Carney, 1983).

Dynamic assessment of reading abilities should compliment the traditional static method which utilizes standardized norm
referenced instruments. Each model of assessment has its own particular strengths and weaknesses.

Static assessment aims to identify the student's word recognition skills related to grade level or chronological age (Carney & Cioffi, 1990). This is a product oriented model which follows the restorative approach to intervention in special education. In both the static assessment and dynamic assessment models the student may be referred for assessment outside the mainstream classroom setting (Jordan, Kircaali-Iftar & Diamond, 1993).

Static assessment of reading abilities measures the student's achievement in reading. The examiner may ask the student to read a word list until 10 consecutive words are missed. This usually reflects where the student stands relative to a normative group rank. Although decoding miscues can be analyzed, generally the aim is to determine the student's reading skills at one isolated point in time (Cioffi & Carney, 1983).

Conversely, dynamic assessment is designed to investigate how students respond to instruction during the assessment procedure. Therefore, when diagnosing reading problems, the emphasis is on collecting information related to the strategies that are used by the student during the reading decoding process (Carney & Cioffi, 1992). The dynamic assessment approach to diagnosing reading problems attempts to identify the student's learning potential as defined by Vygotsky's zone of proximal development. The zone of proximal development refers to the level
of performance a student can reach independently, compared to the level that can be reached guided by a more knowledgeable participant (Campione, Brown, Jones, Ferrara & Steinberg, 1985).

Two levels of development are determined in the dynamic assessment model: the "actual level of development," and the level of "potential development." The level of "actual development" incorporates the cognitive functions that have matured in the student as a result of already completed developmental cycles (Vygotsky, 1978). For instance, it is assumed that a student whose phonemic awareness skills are fully developed will orally decode the word "horizon" independently, or without the assistance of a peer or an adult. This "actual developmental level" is typically assessed by employing a standardized test, such as a norm referenced graded word list.

The second level, is the level of "potential development." This level defines the cognitive functions that have not yet matured in the student, but are in the process of maturation (Vygotsky, 1978). The level of "potential development" is determined during dynamic assessment. In this situation a standardized test is administered which also employs leading questions and hints provided by the assessor. When the student is unable to independently decode the word "horizon" the assessor may prompt the student by pointing and asking the student to emulate the sound of the letter "h". Should this fail the assessor may model or tell the letter and entire word to the student. When the student imitates or reads the word in
collaboration with the assessor, it indicates those reading skills that are still maturing in the student, hence the level of "potential development."

Furthermore, when a student has difficulty reading a word, the tester modifies the testing format with cues and mediation strategies that are hypothesized to foster success. By exploring the student's responses to reading in dynamic assessment, the examiner not only identifies the level at which the student is functioning, but also identifies the instructional programming strategies which when implemented, may lead to a higher reading level, or an improved reading ability. In the dynamic assessment process the distance between the "actual developmental level" as determined by independent problem solving, and the level of "potential development" as determined through collaboration with peers or adults, is defined as the zone of proximal development. (Vygotsky, 1978).

The zone of proximal development may be determined in the following manner. When a 12 year old student achieves an "actual developmental level" score at the at the 30th percentile, and a "potential developmental level" score at the 75th percentile with adult collaboration, the zone of proximal development is the difference between 75 and 30, or 45 percentile points. The range of 45 indicates the student's learning potential as achieved with peer or adult assistance. According to Vygotsky (1978), the level of "potential development" today will become the "actual developmental level" tomorrow. The student will achieve the
"actual level of development" with specialized instructional intervention.

Dynamic assessment may be useful when investigating the relationships between reading and memory. In a recent study of 129 children and young adults between the ages of 5 to 18 years Swanson (1992) studied whether dynamic assessment can modify working memory as a predictor of reading ability. He used a dynamic probing procedure, which included graduated prompts and hints, to analyze responses when the participants failed to recall words from their working memories. For example, when the participant did not recall the correct order of words in a rhyming task the experimenter tells the participant one of the words: "the last word in the sequence is "far", now can you tell me the words in order" (p.482). The dynamic assessment model used in this study was based on the work of Campione, Brown, Ferrara, Jones & Steinberg (1985) which focused on measuring cognition by the number of hints which are necessary to achieve success in a task. This model is known as cognitive modifiability. Swanson found that reading performance related to recalling words from the participant's working memory improved with dynamic assessment. These results supported the notion that dynamic testing procedures enhance predictions of reading.

Spector (1992) compared the effects of dynamic assessment versus static assessment on predicting phonemic awareness in 38 kindergarten students over a one year period. The study compared static phonemic awareness tasks with a dynamic phonemic awareness
The static assessment was the Yopp-Singer phoneme segmentation task. The dynamic assessment procedure was the same test, but included tasks with prompts in the form of corrective feedback when children experienced difficulty with letter recognition and phonemic segmentation tasks. For instance when a child was unable to pronounce a target word, the assessor asked the child to identify the first sound of the word. Also, the segments of the word were modeled by using pennies to represent each sound in the word. The children were assessed in the fall on receptive vocabulary, letter and word recognition, invented spelling, phoneme segmentation, phoneme deletion and dynamic phoneme segmentation. The participants were retested at the end of the school year on reading spelling and phoneme awareness. Spector found that dynamic assessment of phonemic segmentation tasks was a better predictor of year end reading scores than static assessment procedures. These scores increased by approximately one half standard deviation.

In a study which compared dynamic and static assessment of reading abilities for student placement in remedial programmes, Kragler (1991) examined 21 third grade students who were experiencing reading problems. The participants were administered the Houghton Mifflin Informal Reading Inventory as the pretest. This was a criterion referenced graded reading passage. Vocabulary was selected from the pretest and was used in the treatment measure. The control group received a traditional
lesson format for learning the vocabulary which resembled a static teaching method. The participants were taught a repeated reading method followed by story telling. The participants in the dynamic group were administered a mediated procedure which included learning and reading vocabulary in context. For instance, after a word was read to the student a series of guiding questions were presented to assist the student with a definition, and creating a sentence using that word. The posttest was the same assessment that was employed as the pretest. There was a significant difference between the participants in the dynamic group compared to participants in the static group. The participants in the dynamic assessment group achieved higher reading scores in the posttest.

The emphasis in the Kragler's study was to employ dynamic assessment of reading skills during interactive complex individualized instruction. The design of this study modeled a regular classroom environment while examining static and dynamic assessment for instruction. This method reflects the preventative model in special education where remedial intervention is provided in a mainstream setting with collaboration between the resource and the regular classroom teachers (Jordan, Kircaali-Iftar & Diamond, 1993).

However, dynamic assessment of reading abilities can also be administered within a restorative special education framework. This is a method of special education intervention which is common in many Ontario school boards (Ontario Regulation, 1988).
In order to identify a pupil as exceptional the Identification Placement and Review Committee (IPRC) must employ a standardized psychological assessment, which usually includes an assessment of the students reading performance. In this model a dynamic assessment approach to testing may be used. For instance, a standardized test is modified with brief prompts and mediation strategies. This is known as "testing the limits" of a standardized test, to determine the student's learning potential in reading (Spector, 1992).

Dynamic assessment compliments static assessment in this method of testing. In addition to identifying the student's zone of proximal development, observations of the student's reading miscues are recorded in more detail compared to static assessment, which does not utilize prompts or cues. In dynamic assessment the assessor prompts the student with phonemic cues, or models entire words. For instance, we may find that the student's reading scores are higher with dynamic prompts and mediation compared to the static scores which do not use these strategies. Moreover, assessor and student collaboration during dynamic assessment may provide more information with respect to word analysis skills, compared to static assessment where the student is not involved in mediation with the assessor. Reading comprehension skills may also be examined during reciprocal teaching strategies that are employed with dynamic assessment (Carney & Cioffi, 1990).

Carney and Cioffi (1992) proposed the idea that dynamic
assessment of word recognition skills should include different instructional episodes with varying levels of complexity. For instance, when the student fails to read a new word the assessor may begin with prompting syllables. Should this fail, the word could be placed into a context and presented in a sentence. In theory, different dynamic approaches to assessment will provide a more elaborate profile of the student's oral reading abilities.

There are still very few studies examining the relationship between reading and dynamic assessment. More studies are needed which examine this relationship (Spector, 1992). Furthermore, there appears to be a lack of studies which investigate the "testing the limits" approach to standardized tests of reading performance. A more detailed account of students' strengths and weaknesses can be provided by using a dynamic assessment approach to assessing reading abilities in special education students. This information would lead to more effective instructional programming during remediation, resulting in improved reading abilities for the student.

The main purpose of this study was to examine the differences between the dynamic and static assessment of reading abilities, while employing a restorative special education model, with students who were experiencing word recognition reading problems, and who were reading below the 25th percentile for their chronological age. This study also compared the differences between the two dynamic assessments employed as the treatment/assessment measures: Phonemic Prompt (Dynamic
Assessment 1, PP: prompting the student with phonemic cues) and Phonemic Prompt with Contextual Mediation (Dynamic Assessment 2, PPCM: teaching the student words in context).

Hypothesis

Students in the dynamic assessment groups are expected to produce higher reading scores than students in the static assessment group. Students in the Phonemic Prompt with Contextual Mediation group are expected to produce higher reading scores than students in the Phonemic Prompt group. The second research hypothesis was based on work by Carney and Cioffi (1992) who proposed that more assessor intervention during testing could elicit higher reading scores.

Method

Participants

The participants were 39 elementary students between grades 3 and 5, who were experiencing word recognition reading difficulties. These students exhibited the following characteristics as described by their teachers: difficulty with word recognition skills, or reading words in a connected text. The sample included both female and male students who were between the ages of 8 and 11 years. One-way ANOVA's across groups (S, PP and PPCM) were conducted, and no significant differences were found for the following variables: age F (2, 36) = .16 p > ns, and percent in reading lag on the WRAT 3 reading subtest F (2, 36) = 1.79 p > ns. Characteristics of participants are given in Table 1.
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>S</th>
<th>PP</th>
<th>PPCM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female (n=18)</td>
<td>4</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Male (n=21)</td>
<td>7</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td><strong>WRAT 3 Reading Lag</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25th Percentile or Less</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>20.1</td>
<td>17.2</td>
<td>15.1</td>
</tr>
<tr>
<td>SD</td>
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<td>.9</td>
<td>.7</td>
</tr>
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<td><strong>Chronological Age</strong></td>
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<tr>
<td>In Months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>120.23</td>
<td>120.64</td>
<td>121.93</td>
</tr>
<tr>
<td>SD</td>
<td>10.47</td>
<td>10.39</td>
<td>9.96</td>
</tr>
</tbody>
</table>

*S = Static Group; PP = Phonemic Prompt
PPCM = Phonemic Prompt Contextual Mediation*
The participants were from eight elementary schools in the Toronto area. Three of the schools were located in suburban residential areas, and five schools were from inner city neighbourhoods. The selection of the participants was based on recommendations of the students' teachers along with a signed consent from the parent(s) or guardian(s).

**Design**

The procedure for the administration of the experiment followed the restorative model of assessment. In this model the assessor usually has had little previous contact with the participants. The restorative model also requires that a standardized assessment procedure is employed, and that the assessment is completed in one or two sessions within a short period of time (Jordan, Kricaalli-Iftar & Diamond, 1993).

The experiment was composed of a randomized 3 group pretest, posttest, control group design. The experimental design is shown in Table 2. The instrument used in this study was the Wide Range Achievement Test 3 for Reading (WRAT 3), and two dynamic assessments designed by the researcher (Wilkinson, 1993). The WRAT 3 reading subtest included Blue and Tan equivalent forms for word recognition. Both standardized reading forms were used in the design. Half of the participants received the Blue form and half received the Tan form. This procedure was implemented to control for between form reliability; bias in the forms; and, to assure that all participants had an opportunity to be tested using both the Tan and Blue forms. Administration time using one
Table 2

Pretest Treatment/Assessment Posttest Design for Static and Dynamic Assessment Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>Treatments/Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(T1)Pretest</td>
</tr>
<tr>
<td>1(n=11)</td>
<td>S</td>
</tr>
<tr>
<td>2(n=13)</td>
<td>S</td>
</tr>
<tr>
<td>3(n=15)</td>
<td>S</td>
</tr>
</tbody>
</table>

S = Static Control Treatment/Assessment (S)
P = Dynamic 1 Phonemic Prompt Treatment/Assessment (PP)
PPCM = Dynamic 2 Phonemic Prompt Contextual Mediation (PPCM)
form of the WRAT 3 reading subtest was 30 minutes. Since each participant received both forms, and the administration time was kept consistent, the study was conducted in two 30 minute sessions one week apart.

All the participants were administered a pretest. Half of the participants received the WRAT 3 Blue reading form, and the other half of the participants received the WRAT 3 Tan reading form (see Appendix C and Appendix D). This pretest was used in the standardized format and was also employed as a screening instrument for participant selection. Participants were selected as having reading difficulties if they scored below the 25th percentile on the WRAT 3 reading subtest. The pretest took 30 minutes per participant.

One week after the pretest, the participants were randomly assigned to 1 control group (Static Assessment) and to 2 treatment/assessment groups (PP and PPCM). One half of the control group were administered the WRAT 3 Tan form and the other half of these participants received the WRAT 3 Blue form (see Appendix E). The assessor adhered to the normal administration procedures as outlined in the WRAT 3 administration manual.

The treatment/assessment groups were administered modified versions of either the WRAT 3 Tan and Blue forms which included Phonemic Prompts (PP) and Phonemic Prompts with Contextual Mediation (PPCM). Each assessment session lasted a duration of 30 minutes. These modified assessments are described in the Task section below.
Immediately after the control and treatment/assessment measures, both the control and treatment/assessment groups received a near transfer posttest as a criterion learning measure. The participants were tested by the researcher in rooms designated for psycho-educational assessments at the schools where the students attended classes.

**Tasks**

The pretest and control group measures followed the standardized assessment procedures as outlined in the WRAT 3 administration manual. The test was discontinued when the individual missed 10 consecutive words. Ten seconds were allowed for the individual to respond (Wilkinson, 1993 p. 12). The last correct letter or word was recorded along with the raw score for each participant. In addition, the reading errors that were made by the participant were recorded on cassette tape. The authors of the WRAT 3 measured the stability of their test by using a test retest method. They reported corrected stability coefficients that ranged from .91 to .98. Correlations on raw scores between the alternate Tan and Blue forms ranged from .87 to .99 (Wilkinson, 1993).

For the Phonemic Prompt strategy (PP), the participant read from the Tan or Blue form reading subtest. Each participant read from the alternate form which he or she received in the pretest. The procedures followed the instructions as outlined in the WRAT 3 administration manual. When the participant experienced difficulties with decoding, the assessor began the Phonemic
Prompt strategy. The test was discontinued when the student failed to decode ten consecutive words with the Phonemic Prompt strategy in place. The last word correctly read by the student was recorded.

This dynamic measure was developed by the researcher and was based on previous studies related to dynamic assessment and learning potential (Budoff, 1987a; Spector (1992). In this treatment/assessment measure the participant was given phonemic cues from modified WRAT 3 Tan and Blue reading forms. This reflected how well the student read with assistance from the assessor. The objective was twofold. First, to gather information related to the phonemic awareness abilities of the student, and second, to test the limits or learning potential related to the participant's decoding skills (see Appendix A).

The second dynamic measure was the Phonemic Prompt Contextual Mediation strategy (PPCM) which was administered to the second treatment/assessment group. This measure was developed by the researcher and was based on the previous research conducted by Palinscar and Brown (1984) related to inductive teaching strategies. The aim of this dynamic contextual mediation strategy was to engage the student in dialogue during the process of learning to read a new word.

In this task a word from the WRAT 3 graded word list was placed into meaningful context for the participants. The student attempted to learn the word as the assessor used a series of teaching models in the form of questions, clarifications,
extensions and summaries. This strategy was also used with Phonemic Prompts. Contextual Mediation was employed as soon as the student had difficulty decoding a word with prompts. This strategy was discontinued when the participant experienced frustration with the task. Throughout the task the participant was told the word by using the following teaching strategies: modelling, prompting, and mediation. All the words that the participant experienced success with during this mediation task were recorded. The dialogue between the participant and the assessor was also recorded on cassette tape. This information included the assessors questions and the participants responses to the contextual mediation task (see Appendix B).

The final stage of the experiment was the posttest which was designed as a near transfer learning test. The goal was to measure the participants ability to transfer knowledge of the words immediately after they were learned in the control and treatment/assessment phases. In this task the student read modified sentences which contained words from the WRAT 3 Tan and Blue graded word lists. These were the same words used in the treatment/assessment phase. The participants received the alternate form to the one they received in the pretest. Accordingly, half of the students in each group received the Blue form and half received the Tan form. This task was the same for all groups. This test was designed by the researcher. It focused on sentence structure that was at the grade one and two reading levels. The purpose of this test was to facilitate the transfer
process for all groups by controlling for new words that might present difficulty for the participant. The words for the sentences were selected from graded word lists found in The Brigance Diagnostic Inventory of Basis Skills (Brigance, 1982) and The Instant Words reading inventory (Fry, 1972).

The transfer task was administered to all groups immediately after the control and treatment/assessment interventions. Half of the participants in each group received the Blue form and half received the Tan form. The students were asked to read the sentences which contained the WRAT 3 words independently, without prompts or mediation. The test was discontinued after the participant experienced difficulty, or appeared frustrated with at least 5 consecutive sentences. The target words from the Tan and Blue WRAT 3 word lists which were read correctly by the participant in the sentence, were recorded (see Appendix C and D). A raw score of one was assigned to each word read correctly.

Data Analysis

The dependent variable for this study was oral reading from the reading subtest list found in the Tan and Blue alternate forms of the Wide Range Achievement Test 3 (WRAT 3). The independent variable was three different assessment strategies: Static Assessment (S); Dynamic Assessment 1 (PP); and Dynamic Assessment 2 (PPCM). The findings for both raw (posttest) and gain scores confirmed the main research hypotheses for this study: that students in the dynamic assessment groups (PP & PPCM) were expected to produce higher reading scores than students in
the static assessment group (S); however students in Dynamic Assessment 2 (PPCM) did not produce higher reading scores than students in the Dynamic Assessment 1 group (PP) as was predicted in the second research hypothesis.

The statistical design for this study was a One-way ANOVA with three levels of the independent variable; which was group (S, PP, PPCM). Separate ANOVAS were run for each of the three sessions. Table 3 shows the mean scores for each group (S, PP, PPCM) during the three sessions (Pretest, Treatment/Assessment, and Transfer), and Table 4 shows the means for the gain scores. Table 5 shows a series of one-way ANOVA comparisons for the following group results: the groups were not significantly different at the pretest session, $F(2,36) = .65$ $p > ns$; but significant effects were observed at the treatment/assessment session; $F(2,36) = 33.10$, $p < .01$; at the posttest session, $F(2,36) = 5.44$, $p < .01$; and, the gain scores, $F(2,36) = 20.76$, $p < .01$. Post hoc comparisons for the raw scores using the Tukey-HSD procedure indicated that the PPCM Group scored significantly higher than participants in the S Group during the posttest session, $p < .05$. However, no significant differences were observed between the PPCM Group and the PP Group. Finally, for gain scores the Tukey-HSD test showed that the PP and PPCM Groups scored significantly higher than the S Group, $p < .05$, but the PP Group and the PPCM Group were not significantly different from each other. An independent group t Test showed no significant differences by sex, and Spearman Correlation Coefficients were
### Table 3
Mean Raw Reading Scores (SD) for Static and Dynamic Groups in each Session

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest Mean (SD)</th>
<th>Treatment/Assessment Mean (SD)</th>
<th>Posttest Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(R) S</td>
<td>25.6 (4.10)</td>
<td>26.3 (4.50)</td>
<td>26.6 (4.61)</td>
</tr>
<tr>
<td>(R) PP</td>
<td>24.3 (3.90)</td>
<td>34.7 (5.40)</td>
<td>29.5 (4.80)</td>
</tr>
<tr>
<td>(R) PPCM</td>
<td>25.9 (3.23)</td>
<td>39.0 (0.00)*</td>
<td>32.9 (4.97)</td>
</tr>
</tbody>
</table>

* S = Static; PP = Dynamic 1 Phonemic Prompt; PPCM = Dynamic 2 Phonemic Prompt Contextual Mediation
* The Test Ceiling Was Reached Since Student Was Told The Word

### Table 4
Mean Gain Scores (SD) For Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>(R) S</td>
<td>1.00</td>
<td>1.79</td>
</tr>
<tr>
<td>(R) PP</td>
<td>5.15</td>
<td>2.34</td>
</tr>
<tr>
<td>(R) PPCM</td>
<td>7.00</td>
<td>2.73</td>
</tr>
</tbody>
</table>

* S = Static; PP = Dynamic 1 Phonemic Prompt; PPCM = Dynamic 2 Phonemic Prompt Contextual Mediation

### Table 5
One-way ANOVA Comparisons for Group By Pretest, Treatment/Assessment, Posttest and Gain Scores

<table>
<thead>
<tr>
<th>Variables</th>
<th>F(2,36)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest X Group</td>
<td>.65</td>
<td>&gt;.52</td>
</tr>
<tr>
<td>Treatment/Assessment X Group</td>
<td>33.10</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Posttest X Group</td>
<td>5.44</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Gain X Group</td>
<td>20.76</td>
<td>&lt;.01</td>
</tr>
</tbody>
</table>
not significantly different for sex by gain, and age by gain ($p > ns$).

**Discussion**

This experiment showed that participants in dynamic assessment with Phonemic Prompts, and Phonemic Prompts with Contextual Mediation, produced higher reading scores on the WRAT 3 reading subtest, compared to participants in the static assessment group which followed standardized procedures in the testing manual. Differences in reading scores were not observed between the two dynamic groups: Phonemic Prompts and Phonemic Prompts with Contextual Mediation.

The results of this study may be beneficial in the field of special education in two ways. First, dynamic assessment could provide a more detailed reading profile of the student as illustrated by the zone of proximal development theory where both the independent and dynamic reading levels are observed. Second, information pertaining to dynamic assessment would provide insights into assessment for those in the field of education who employ standardized tests regularly.

Several observations may be made of a student who scores at a higher reading level with dynamic assessment than a student who is assessed using only the static method. Embretson (1987) suggested that dynamic assessment may improve the "true ability" of a student to perform on a task. This idea may be applied to phonemic awareness. By employing Phonemic Prompts for word recognition skills in a standardized graded word list,
information may be gathered regarding phonemic awareness (Carney and Cioffi, 1990). For instance, words may be segmented into initial consonant sounds, vowel rules, digraphs, syllables and morphemes. By probing for this information the assessor may gain a broader profile of the student's phonemic awareness abilities compared to static assessment where assistance on tasks is not permitted.

The findings support the theory that dynamic assessment of reading abilities is a valid method of observing reading behaviour. It compliments static assessment by providing more elaborate information regarding the student's reading profile. Therefore, these findings provide research support for the relevance of dynamic assessment to cognitive processes. For instance, cuing or prompting is not permitted during the administration of the WRAT 3 reading subtest. Conversely, by prompting the student during the dynamic segment of the test, the student was able to read the word correctly. The short "u" sound is a typical substitution for the "hu" consonant vowel blend in the word "huge" from the Tan reading form. Often the student reads the word "huge" as "hug". When this error is made the assessor points to the letter "u", and through the method of guided discovery instructs the student to retry the word by changing the short "u" to a long "u" sound. The student then reads the word correctly. Two deductions may be drawn from this mediated reading intervention. First, the student achieves a higher reading score. Second, the error made by the student with
respect to the letter "u" sound defines the phonemic processes that are still maturing in the student's reading skills. This gives the assessor an indication of the cognitive processes that will eventually become a part of the student's completed development (Vygotsky, 1978). In other words, we know that the student is capable of mastering the word "huge", and may be able to assimilate the learned information into a new reading task.

It is possible that the significance observed in the group by posttest session (PPCM) was biased. The treatment/assessment phase of the study required that the WRAT 3 words be placed into contextually meaningful sentences during student-assessor dialogue. The posttest was also composed of the WRAT 3 target words placed into contextual sentences to be read by the student. Therefore, the treatment/assessment phase resembled the posttest and may have affected the results.

On the other hand the group by gain score results showed that participants in both dynamic groups scored significantly higher than participants in the static group. Furthermore, no differences were observed between the two dynamic teaching levels: Phonemic Prompt and Phonemic Prompt with Contextual Mediation. Hence, both strategies appear equally as effective in producing higher reading scores when compared to static assessment and the Phonemic Prompt strategy (treatment/assessment) stands on its own merit since it did not resemble the posttest.

Both dynamic methods require inductive teaching strategies
and dialogue between the assessor and student. This idea is based on Vygotsky's (1978) theory that we can assess developmental achievement by observing the interaction between instruction and learning. By using prompting and mediation during a standardized reading assessment we obtain a clearer picture of the student's learning potential. The aim is to provide a more accurate reading placement for the student by analysing and reporting the independent and learning potential levels.

The information collected during prompting and mediation activities in dynamic assessment, such as phonemic awareness and reading comprehension, then could translate into instructional programming recommendations designed to meet the remedial reading needs of the student. This information may be useful for the teacher since more reading behaviours are observed during dynamic assessment compared to static assessment. This would be profitable for special education students since successful academic experiences foster the development of self esteem, and programming for self esteem is an important outcome for these students (Winzer, Rogow & David, 1986).

The results of the present study address the concerns raised by Laughon (1990) regarding the reliability and validity of the measures used with dynamic assessment. Furthermore, this study deals with the issues of technical adequacy and time necessary for administration as was pointed out by Lidz (1992).

By "testing the limits" of a standardized test, as was shown with the WRAT 3 reading subtest, the validity and the reliability
of the instrument was maintained in relation to the zone of proximal development theory. The WRAT 3 was implemented according to the procedures specified in the instruction manual. Subsequently, an independent reading level was obtained for each participant. Unlike most research related to dynamic assessment this study recommends the inclusion of static assessment as a part of the dynamic assessment process. However, it is recommended that more research be conducted in developing the reliability and validity of the learning potential component of dynamic assessment in future studies.

In conclusion, the findings of this study support the hypothesis that dynamic assessment is not a replacement for static assessment, but a procedure which compliments traditional methods of assessing students in a restorative special education framework. Referring students for assessment in a restorative setting is still a policy of many school boards (Ontario Regulation, 1988). Therefore, by using dynamic assessment procedures with standardized test instruments we gain more insight into the reading profile of the student. This may be advantageous to the assessor, who may be the school resource or regular classroom teacher, because the results of a dynamic assessment in reading may provide information for instructional programming. Most importantly, it is the students who may profit most from dynamic assessment because their reading abilities may be more accurately assessed. This in turn may lead to higher levels of independent reading.
Limitations

Possible threats to internal validity should be considered when interpreting the results of this research study. The major areas of concern are: instrumentation, gain scores, assessment time differences between dynamic groups, and experimenter bias.

The threat to instrumentation is the transfer task (posttest) which was created by the researcher in this study. This task was designed as a maintenance score to observe reading transfer performances from the treatment/assessment sessions. The participants used their recognition memory skills during this task. It was administered to all three groups including the control group and the two dynamic assessment groups. It would be preferable to employ a validated standardized instrument for this transfer task. Hence, a threat to internal validity should be considered when interpreting the results related to the transfer task.

A gain score was administered to measure improvement in reading abilities. Accordingly, the results may be limited by scores that have unequal interval values. For instance two students may have achieved a gain score of 5, but one student had to read more difficult words. Therefore the gain score does represent the same level of learning and development for the two students.

The duration time of administration is a valid concern when assessing students with dynamic assessment in a restorative model. This is particularly true for some dynamic assessments.
which require an extensive teaching component in a lesson format to determine the student's true reading levels (Kragler, 1991). After conducting an ANOVA between the groups the researcher of this study found a significant difference between the static and dynamic groups with respect to administration time. The dynamic measures required more time to complete. However, the time required to attain the independent and learning potential levels was approximately 30 minutes which seems reflective of a typical standardized testing format.

It may be claimed that participants in the dynamic groups scored higher because more time was spent assessing their reading abilities. This study demonstrated that students may have attained higher reading scores because of assessor-student mediation during the testing procedure, and not because more time was spent with the participants in the dynamic groups. In other words, students scored higher when the nature of the testing instrument was changed with assessor-student mediation. A static assessment, or more specifically the WRAT 3 reading test, would not likely produce higher scores regardless of the amount of time spent with the student because static assessment does not permit cuing or prompting from the assessor. Time and mediation are inextricably related in dynamic assessment. If the aim of dynamic assessment is to elicit the two reading levels (independent and learning potential levels) demonstrated by the zone of proximal development theory, then more time may be necessary to administer the test.
Finally, this study was designed by the researcher who views dynamic assessment as an effective method of testing reading performance. The experimenter may have unknowingly influenced the participants during the treatment/assessment task completion with extra motivation. Therefore, the threat of experimenter bias should be weighed when interpreting the results of this study.
References


WRAT 3 TAN WORDS

1. see
2. red
3. milk
4. was
5. then
6. jar
7. letter
8. city
9. between
10. cliff
11. stalk
12. grunt
13. huge
14. plot
15. sour
16. humidity
17. clarify
18. residence
19. urge
20. rancid
21. conspiracy
22. deny
23. quarantine
24. deteriorate
**Phonemic Prompts (Dynamic Assessment 1) Time: 30 Minutes**

Begin when a student does not respond to a word for 10 seconds.

**Level 1: Visual Prompt**
- Point to letter and ask "what letter is this?" (c in city)
- Student: "c" Teacher: "good what sound does it make"
- Student: "ssss" Teacher: "good, now sound out the rest of the letters in the word.
- If student is successful go to next word
- If student is not successful not go to Level 2.

**Level 2: Audio Prompt of Unit Phoneme (vowels & consonants)**
- Model the sound for the student. "c" makes the "ss" sound.
- Student emulates the sound. Teacher: "good, now try saying it with the next letter."
- If student does not blend the sound, move to level 3.

**Level 3: Audio Prompt of Digraphs,Clusters, (split syllables)**
- Model the sound of the first syllable for student "ci"
- Student emulates the sound, then model "ty".
- Teacher: "now try reading all the letters together."
- If the student does not read the word, discontinue prompts and attempts at new words.

**Analysis of Graphemic Units of Words Which May Require Prompting; and Recording of Participant's Responses on Word List**
1. See - initial consonant and vowel digraph
2. Red - initial/final consonant, short vowel sound
3. Milk - Initial consonant short vowel sound, final cluster
4. Was - initial/final consonant and short vowel sound
5. Then - consonant digraph, short vowel, final consonant.
6. Jar - initial/final consonant, short vowel sound
7. Letter - consonant vowel blend and diphthong
8. City - consonant vowel blend, suffix
9. Between - long vowel sound, vowel digraph
10. Cliff - consonant blend short vowel sound
11. Stalk -two initial consonants with vowel blend, silent letter
12. Grunt - consonant blending and short vowel sound
13. Huge - blend one consonant with vowel, vowel rule
14. Plot - consonant blending and short vowel sound
15. Sour - initial consonant, vowel digraph
16. Humidity - long and short vowel consonant blend, syllabication
17. Clarify - consonant vowel blend, short and long vowel sound
18. Residence - consonant short vowel blend, suffix
19. Urge - short vowel and consonant irregularity
20. Rancid - short vowel consonant blend, consonant irregularity
21. Conspiracy - consonant and short vowel blend, irregularity
22. Deny - Consonant vowel blend, suffix
23. Quarantine - consonant vowel blend, vowel rule
24. Deteriorate - long vowel rule, diphthong, syllabication
**Phonemic Prompt Contextual Mediation (Dynamic Assessment 2)**

**Time: 30 minutes**

Begin with at the end of Level Three from Phonemic Prompt. Model by saying the entire word and begin Contextual Mediation.

A. Question
   Teacher: "What does city mean?"
   Student: "It's where we live!"

B. Clarification
   Teacher: "It's where we live?"
   Student: "Yea."
   Teacher: "You mean Toronto."
   Student: "Yea"

C. Extension (Question)
   Teacher: "OK, can you make up a sentence with the words city and Toronto in it?"
   Student: "Yea we live in a city called Toronto."
   Teacher: "Good"

D. Summary
   Teacher: "OK, tell me what city means."
   Student: "It's a place where people live..... like Toronto"

- Amount of prompting and mediation will vary with student. The assessor will record student responses to dialogue.
- Discontinue when student experiences frustration with pronunciation of word even after modelling, prompting, and mediation. This is to be done at the discretion of the assessor if the student appears frustrated even after the word has been told and put it into contextually meaningful example.
WRAT 3 TAN WORDS corresponding to transfer sentences

1. see
2. red
3. milk
4. was
5. then
6. jar
7. letter
8. city
9. between
10. cliff
11. stalk
12. grunt
13. huge
14. plot
15. sour
16. humidity
17. clarify
18. residence
19. urge
20. rancid
21. conspiracy
22. deny
23. quarantine
24. deteriorate
1. I see with my eyes.
2. The ball is red.
3. Milk is good for you.
4. He was a good boy.
5. The cat came home, then it had some milk.
6. The jam is in the jar.
7. I got a letter in the mail.
8. I live in the city of Toronto.
9. I like to sit between my two friends.
10. The house is on the cliff by the sea.
11. I saw the corn stalk in the field.
12. The boy who fell let out a big grunt.
13. A huge tree was cut down in front of the school.
14. The story had a scary plot.
15. Lemons taste sour.
16. It was hot out side because of the humidity.
17. Please clarify what you said, I did not understand you.
18. My sister lives in the school's residence.
19. If you would like a better mark on the test I urge you to study.
20. Food that is rotten often has a rancid smell.
21. They were planning a conspiracy against him.
22. You should not deny people the right to be free.
23. The sick boy was kept in quarantine for five days.
24. If the old house on the street is not fixed up fast it will deteriorate soon.
I live in a house.

My cat has green eyes.

This book is good.

The tree is tall.

How fast can you run?

The animal has sharp claws.

He was still hungry even after he ate a Big Mac.

Please spell this word for me.

She has a cut on her finger.

My shirt is one size too big for me.

The boy felt sad because his puppy died.

He ate a banana split for dessert.

The bird was lame and could not fly.

Hockey players should always stretch before playing.

The bulk food store sells large bags of potato chips.

Today we must all try to prevent the abuse of our planet by keeping it clean.

The radio station plays contemporary music.

During an earthquake many buildings collapse.

The flu bug is very contagious.

The winning team lifted the cup in triumph.

I like to sit and read by the window in the alcove.

The bibliography in my school project lists the books I read.

The sun set over the horizon.

The mayor has an office in the municipal building.
<table>
<thead>
<tr>
<th>Word</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>in</td>
<td>initial short vowel</td>
</tr>
<tr>
<td>cat</td>
<td>consonant, short vowel blend</td>
</tr>
<tr>
<td>book</td>
<td>initial consonant short vowel blend, digraph</td>
</tr>
<tr>
<td>tree</td>
<td>two initial consonant and short vowel sound, digraph</td>
</tr>
<tr>
<td>how</td>
<td>consonant vowel blend</td>
</tr>
<tr>
<td>animal</td>
<td>short vowel sounds with consonant blend, syllabication</td>
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<tr>
<td>even</td>
<td>long and short consonant vowel blend</td>
</tr>
<tr>
<td>spell</td>
<td>two consonant and vowel blend, final cluster</td>
</tr>
<tr>
<td>finger</td>
<td>initial consonant short vowel blend, diphthong</td>
</tr>
<tr>
<td>size</td>
<td>consonant blend with short vowel sound, vowel rule</td>
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<tr>
<td>felt</td>
<td>initial consonant short vowel blend, final cluster</td>
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<td>split</td>
<td>three consonant blending and short vowel sound</td>
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<tr>
<td>lame</td>
<td>initial consonant short vowel rule</td>
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<td>stretch</td>
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<td>initial consonant vowel blend, final cluster</td>
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<tr>
<td>abuse</td>
<td>long vowel consonant blend, long vowel rule</td>
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<tr>
<td>contemporary</td>
<td>prefix, short vowel sounds, suffix, syllabication</td>
</tr>
<tr>
<td>collapse</td>
<td>initial consonant short vowel blend, irregularity</td>
</tr>
<tr>
<td>contagious</td>
<td>prefix, long vowel, irregularity, suffix</td>
</tr>
<tr>
<td>triumph</td>
<td>two consonant vowel blend, silent letter</td>
</tr>
<tr>
<td>alcove</td>
<td>short vowel two consonant blend, short vowel rule</td>
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<tr>
<td>bibliography</td>
<td>consonant short and long vowel blend, silent letter, syllabication</td>
</tr>
<tr>
<td>horizon</td>
<td>consonant short and long vowel blending</td>
</tr>
<tr>
<td>municipal</td>
<td>initial consonant long vowel blend, irregularity</td>
</tr>
</tbody>
</table>
Method of Administration for Blue and Tan Wrat 3 Forms
Half of Participants Receive Blue and Other Half Receive Tan
To Control for Between Forms Reliability

<table>
<thead>
<tr>
<th>Groups</th>
<th>(T1)Pretest</th>
<th>(T3)Treatment</th>
<th>(T2)Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (n=10) (2)</td>
<td>n=5a Blue</td>
<td>n=5a Tan</td>
<td>n=5a Tan</td>
</tr>
<tr>
<td></td>
<td>n=5b Tan</td>
<td>n=5b Blue</td>
<td>n=5b Blue</td>
</tr>
<tr>
<td>PP (n=10) (2)</td>
<td>n=5a Blue</td>
<td>n=5a Tan</td>
<td>n=5a Tan</td>
</tr>
<tr>
<td></td>
<td>n=5b Tan</td>
<td>n=5b Blue</td>
<td>n=5b Blue</td>
</tr>
<tr>
<td>PPCM (n=10) (2)</td>
<td>n=5a Blue</td>
<td>n=5a Tan</td>
<td>n=5a Tan</td>
</tr>
<tr>
<td></td>
<td>n=5b Tan</td>
<td>n=5b Blue</td>
<td>n=5b Blue</td>
</tr>
</tbody>
</table>

S = Static Control
PP = Dynamic 1 Phonemic Prompt
PPCM = Dynamic 2 Phonemic Prompt Contextual Mediation