Effects of Private versus Public Assessment on the Reading Fluency of Middle School Students with Mild Disabilities

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Abstract: Students with disabilities often have difficulties acquiring basic reading skills. The purpose of this study was to determine if private or public timed assessment readings with the Corrective Reading Program were more effective in improving students’ reading fluency. An alternating treatments design was used with three male middle school students with mild mental disabilities and other health impairments that were identified as needing special education services for reading. Both methods of timed reading appeared to be effective in improving students’ reading fluency; however, the students preferred the public assessment and reading last. Future directions related to assessment method and order of readers, and limitations are discussed.

The number of students in the United States with reading difficulties is problematic. According to Mercer, Campbell, Miller, Mercer, and Lane (2000) “only 25% of students in grade 4, 28% of students in grade 8, and 34% of students in grade 12 achieve proficient reading standards” (p. 179). Reading is important to one’s ability to live independently. Thus, being a better reader will help students function more independently upon exiting school. Students with disabilities often have difficulties acquiring basic reading skills. Apel and Swank (1999) suggest that “students who experience early and continuing reading difficulties, specifically with decoding, have fewer experiences with reading, decreased exposure to new vocabulary and general word knowledge, poor self images as learners, and are less motivated to learn” (p. 231). This is especially true in older students who typically experience 5 or more years of reading difficulties and failures. Such a history may cause these students to have a negative attitude toward reading and this attitude can be as challenging to deal with for the teacher as the reading impairment itself.

Since reading is a primary skill, poor readers often become frustrated when asked to perform a reading task. Most teachers can easily identify the proficient readers and the poor readers in their classrooms. According to Beach and Kincade (1996) “poor readers often have difficulty comprehending what they read, organizing the information read into an accurate sequence of events, or remembering the relationship among major events and/or characters of the story or, they may simply stumble over so many words that the major points of a piece of text are never perceived” (p. 273). Thus, poor readers do not pronounce words accurately or quickly.

Decoding skills are a necessary prerequisite for comprehension and skilled reading. Decoding refers to a student’s knowledge of the print to sound relationship. Decoding does not mean receiving meaning from the word, only the ability to produce sound correspondence to the printed letters. However, when a student is a proficient decoder, their comprehension of material read is increased (Samuels, 1998). To become a proficient reader, a student needs strategies for decoding unfamiliar words. Proficient readers use multiple strategies to help decode unknown words. For example, they may attempt to use contextual clues to determine the word. If this does not work, they may then look for parts of the unfamiliar word that are like parts of known words. They also may sound out the unfamiliar word by identifying the possible sounds contained within the word and then apply
sound blending to produce the sounds of the unfamiliar word. The process of decoding occurs quickly and nearly spontaneously for proficient readers. Once a student becomes a proficient decoder his/her fluency rate should increase. To become a proficient reader, one must develop the ability to rapidly recognize whole words.

According to Tyler and Chard (2000) “fluency is the appropriate grouping or chunking of words into phrases that are characterized by correct intonation, stress, and pauses” (p. 163). More simply, fluency is the combination of accuracy and rate. Fluency for correct words per minute can be determined by calculating the total number of words read in a minute minus the errors. High levels of fluency help students develop automaticity in reading. The higher the fluency rate the better the reader is able to understand and interpret text. Thus, proficient readers read more fluently than poor readers.

During middle and high school, students spend much of their time learning knowledge presented via text. Without the necessary reading skills to interpret these materials, older students with reading problems are bound to have difficulties and continue to face failure in their academic endeavors. Apel and Swank (1999) state that “direct intervention on skills known to affect decoding abilities leads to improvement in reading and gives hope to lessening the severity of reading deficits” (p. 233). Strategies for improving reading fluency include repeated readings and direct instruction.

Repeated Readings and Direct Instruction

Repeated Reading (RR) is a remedial method in which students read and reread a passage until read fluently (Tyler & Chard, 2000). For example, Conte and Humphreys (1989) examined the fluency rates of 30 middle school students using RR with high interest low vocabulary stories. On average, students were 4 years below age expected levels in oral reading and more than 2 years behind in silent reading and word attack skills. Reading passages were first reviewed by students looking at the title, pictures, and headings. Then students listened to the audio-taped passage once or twice. Next, students listened and tracked the words. Finally, students read the passage without the audio-tape until criterion was achieved. Findings indicated a positive effect on student oral reading fluency and isolated word reading achievement as well as most students gaining one year in overall oral reading ability. In another study, Mercer et al. (2000) examined the effects of a RR program, Great Leaps Reading Program developed by Campbell (1996), on the reading achievement of 49 middle school students with learning disabilities over a 3 year period. Sessions were conducted one-on-one and lasted 5 to 6 minutes each day. Reading instruction focused on phonics, sight phrases, and oral reading. All the students made significant progress in reading fluency during the intervention. The RR strategy appears to be an effective reading intervention for students with disabilities, especially in the area of fluency.

Direct instruction is an evidence-based practice that teaches various skills to students whose academic levels are below national norms (Mather & Proctor, 1998) and that can be used to address the fluency needs of poor readers. One such direct instruction program is Corrective Reading (Engelmann et al., 1999). For example, Ball, Polloway, Epstein, Polloway, and Patton (1986) investigated the effectiveness of Corrective Reading with 78 students with learning disabilities and 41 students who were educable mentally retarded enrolled in middle or secondary special education programs. To participate in this study, sixth and seventh graders had to be reading 3 years below grade level, eighth graders had to be reading at a fourth grade level or below, and ninth through twelfth graders had to be reading below a fifth grade level. The Corrective Reading Program was used as the basis of instruction for 12 weeks. Results indicated that greater academic achievement occurred with the Corrective Reading Program than the previously used basal series. The mean change in students’ reading abilities was approximately half a year (5 to 6 months) for word recognition and comprehension.

In another study, Ashworth (1999) examined the effectiveness of the Corrective Reading Program as compared to a basal approach on the reading achievement of 23 second graders taught by the same teacher. During the direct instruction lesson the teacher modeled the
skills, led the class in practicing the skills, and then assessed individual students over the skills. In the basal approach, meaning and whole word recognition was the basis for instruction. Results of this study indicated that students who were taught using direct instruction had achievement scores between 5 and 13 percent higher than students provided with the basal reading program.

Martella, Martella, Orlob, and Ebey (2000) investigated effects of the Corrective Reading Program on the fluency of 22 high school students with special needs with reading instruction occurring 4 days a week for 50 minutes each for 10 weeks. Sessions were conducted in two parts. In the first part, word attack focused on identifying and reading words in isolation. The second part focused on reading words in context and answering questions about what was read. Students then orally read passages for 1 minute. All students made gains in their fluency rate. They also improved in comprehension and vocabulary.

Greenberg, Fredrick, Hughes, and Bunting (2002) investigated use of the Corrective Reading Program on reading skills of adult poor readers ages 21 to 71 years. Participants were placed in the B1 level of the program (which targets reading skills at the second to mid-third grade level) and were provided with reading instruction 45 minutes a day, five days a week. After 80 hours of instruction, participants were assessed on their reading fluency. Assessment results indicated that 60% were ready for the next higher level of the program, which corresponded to reading skills from a mid-third grade to a beginning fifth grade level. Participant perceptions of the program also were positive.

In another study, Malmgren and Leone (2000) investigated effects of the Corrective Reading Program on reading abilities of 45 low achieving incarcerated youth ages 13 to 18 years. Sessions were conducted five days a week for two hours and fifty minutes over a 6 week period. Results indicated a significant gain in reading skills for all participants.

Repeated reading strategies and the Corrective Reading Program appear to be beneficial for improving reading skills of learners of a variety of abilities and ages, as well as in different settings. However, it remains unclear as to whether students who received the Corrective Reading Program also were privy to aspects of repeated reading (i.e., same passage being read aloud by other(s) during small group instruction with teacher corrective feedback) prior to the individual assessment. For example, the above Corrective Reading Program studies used public assessment as a means to determine reading fluency, which means that the second and subsequent students in the group being taught were provided with a repeated reading model as peers read the assigned reading probe. The purpose of this study was to determine whether public fluency assessment or private fluency assessment was most effective in improving the fluency skills of students with mild disabilities who were provided with the Corrective Reading Program. In addition, which method of assessment (public or private) was preferred by these students?

### Method

#### Participants

Students selected met the following criteria: (a) a consistent attendance record (i.e., fewer than three absences per grading period); (b) existing IEP goal and objectives targeting reading fluency; and (c) the ability to attend to the teacher or task for 30 to 35 consecutive minutes due to the length of the teacher directed portion of Corrective Reading lessons. These criteria were assessed by reviewing student IEPs, conducting classroom observations of student behavior, interviewing teachers, and reviewing records.

All three participants were male ages 12 to 14 years with mild mental disabilities or other health impairments, who receive special education services in a middle school resource classroom for all academic classes (i.e., language arts, reading, math, social studies, and science) and also qualified for free and reduced lunch. Each participant was reading four or more grade levels below their same age peers. Table 1 summarizes participant descriptions.

#### Dependent Variable

The oral fluency rate of each participant was measured using the following dependent pro-
A correct response was counted if the student pronounced the word correctly. An incorrect response was marked when the student mispronounced a word or added a word to the text. Self corrects were not counted as incorrect. No response was marked if the student skipped a word or words during reading or if the student paused for 5 seconds. For a pause the teacher orally provided the student with the correct word. Both skipped words and pauses in which the teacher provided the word were counted as errors. Correct responses provided during each probe were graphed as the rate of correct words per minute (CWPM).

Instructional Setting, Materials, and Procedures

Instruction took place in a special education resource classroom for sixth through eighth grade students who have a variety of disabilities. During all sessions, there were 10 students in the classroom with one teacher and one assistant. The instructional arrangement for participants was small group (the teacher and the three participating students). Participants were seated with their backs to the other students and activities occurring in the classroom. Instruction occurred every other day during the students’ 50 minute reading class at a kidney shaped table in the classroom set apart from the reading probe area. Off days were for regularly scheduled reading instruction for the other six students in the class. Participants received all reading instruction using a Corrective Reading workbook and story book (level B1; as determined by the Corrective Reading placement test) as a group.

Before each session began the teacher secured the attention of each participating student by stating “Please get ready for reading group.” The teacher then led the students through the scripted Corrective Reading lesson for that day. Each lesson consisted of the student and teacher sounding out words, spelling words that do not follow phonetic rules, talking about various word endings, reading a story and answering comprehension questions, reviewing materials via a workbook page, and conducting timed readings. At the end of each lesson students participated in a timed reading probe. Reading probes were taken directly from the Corrective Reading Program. These reading probes were counter balanced between private or public assessments and data on the dependent variables were collected every session. These probes were conducted either at the kidney shaped table (public) or at a table located at the far end of the classroom (private). While at this table, participants were engaged in the reading probe and were supervised by the teacher.

Students were randomly assigned a reading order by placing students’ names on index cards. A correct response was counted if the student pronounced the word correctly. An incorrect response was marked when the student mispronounced a word or added a word to the text. Self corrects were not counted as incorrect. No response was marked if the student skipped a word or words during reading or if the student paused for 5 seconds. For a pause the teacher orally provided the student with the correct word. Both skipped words and pauses in which the teacher provided the word were counted as errors. Correct responses provided during each probe were graphed as the rate of correct words per minute (CWPM).

TABLE 1
Student Demographics

<table>
<thead>
<tr>
<th>Student</th>
<th>Age/Grade</th>
<th>Diagnosis</th>
<th>IQ</th>
<th>IEP Goal</th>
<th>Reading Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles</td>
<td>13 years/7th</td>
<td>Mild mental disability</td>
<td>WISC-III 70</td>
<td>Given a third grade level passage, he will orally read 100 words with no errors per minute</td>
<td>SRI Lexile – 31 Star Reading Grade Equivalent – 2.2</td>
</tr>
<tr>
<td>Frank</td>
<td>14 years/8th</td>
<td>Mild mental disability</td>
<td>WISC-III 65</td>
<td>Given a 2.5 grade level passage, he will orally read 100 words with no errors per minute</td>
<td>SRI Lexile – 27 Star Reading Grade Equivalent – 1.7</td>
</tr>
<tr>
<td>Steven</td>
<td>13 years/7th</td>
<td>Other health impairments</td>
<td>NA¹</td>
<td>Given a 2.5 grade level passage, he will orally read 100 words with no errors per minute</td>
<td>SRI Lexile – 68 Star Reading Grade Equivalent – 1.3</td>
</tr>
</tbody>
</table>

Note. ¹IQ is not required for eligibility under the other health impairment disability category and would be within the typical range of 85–115.
cards and drawing cards until the daily (first reader, second reader, third reader) order was determined. This reading order was established at the beginning of each odd number session and held constant between both private and public readings. For example, if a student was selected to be the third reader for session one which is a public reading probe then the student also would be the third reader for session two, the private reading probe.

Design and Independent Variable

An alternating treatments design (Kazdin, 1982) replicated across students was used in this study. An alternating treatments design focuses on the fast alteration of at least two different interventions. In this study, two assessments (private versus public) were alternated to determine if one was more efficient than the other in improving student fluency rates. These assessments are described below and include private timed readings and public timed readings.

Private timed reading. At the end of each even reading session lesson students were called individually, based on random order assignment, to the work table located at the back of the classroom. At that time they were given a reading passage and prompted to orally read as much of the passage as possible within one minute. Content of the reading passages varied each day, but were consistent in length (100 words). The timer was set, audio tape recorder turned on, and the student began. Responses were recorded in the same manner as described in the dependent variable section. Other participants remained at the kidney shape table on the other side of the room and were prompted to sit quietly and to get ready for their turn. Once a student finished the reading probe, he was prompted to return to his desk, begin independent seat work, and the next student was prompted to come to the back table for their probe. The intent of the private assessment was to eliminate other students from hearing the passage read and the teacher corrective feedback prior to teach student’s turn.

Public timed readings. At the end of each odd reading lesson session, students were randomly assigned to orally read the passage while remaining at the kidney shaped table. As one student read the passage the other students listened and followed along on their copy of the same reading passage. Reading passages varied each day but were consistent in length (100 words). Students were instructed to orally read as much of the passage as they could in one minute. The timer was set, the audio tape recorder turned on, and the student began to read. Responses were recorded in the same manner as described in the dependent variable section. All participants remained at the kidney shaped table until each had an opportunity to orally read the passage and were privy to hearing one or more students read the passage (based on order assignment) and teacher corrective feedback prior to their own turn.

Social Validity

Social validity also was addressed at the conclusion of the study. The students were orally read survey items by an assistant and asked to respond to each question, which the assistant transcribed. Questions on the survey included: How the students used their time when they were waiting to be assessed?, Which method of reading assessment (private/public) they preferred?, Which position they preferred to read in, and did they prefer to receive their feedback in private or public?

Reliability

Dependent variable reliability was calculated for a minimum of 20% of the sessions per student using the point-by-point formula of number of agreements divided by number of agreements plus number of disagreements multiplied by 100. Overall mean interobserver agreement for number of words read correctly was 96% (range, 90% to 99%). Mean interobserver agreement for number of words read correctly for Frank was 94% (range, 90% to 97%), for Charles 97% (range, 95% to 99%), and for Steven 96% (range, 90% to 99%). Procedural reliability data on the independent variables also was calculated for a minimum of 20% of the sessions per student using the following formula: number of observed teacher behaviors divided by number of
planned teacher behaviors multiplied by 100. Mean procedural reliability was 100%.

Results

Figures 1, 2, and 3 illustrate the number of words read for private versus public assessment sessions for each participant. Table 2 illustrates participants words read per minute (both corrects and errors) based on order and assessment technique. Table 3 contains information from the student’s social validity survey.

Figure 1 illustrates the number of words read correctly (CWPM) for private versus public assessment sessions for Charles. Overall mean of CWPM was 96 (range, 74 to 110) for both private and public assessments (total of 27 sessions). His mean words read correctly for the initial condition was 95 (range, 82 to 105 CWPM) and his initial 10 sessions of public assessments CWPM mean was 94.6 (range, 74-110). In the final condition, public assessments, Charles had a mean of 103.4 (range, 98 to 109 CWPM). When Charles read in the last position during the public assessments, he read on average 2.8 more CWPM, and when he read in the first position during the private assessments he read on average 8.4 more CWPM than in other order positions. Charles read the fewest CWPM in the second position during public assessment and in the fourth position during private assessment. Charles had the most opportunities during public assessment to read third and the fewest in first and fourth positions. He had the most opportunities during private assessments to read fourth and the fewest as first. When Charles read publicly first, he read .7 less CWPM then when he read privately first. When Charles read publicly second, he read 1.9 less CWPM than when he read privately second. When Charles read publicly third, he read 5.5 more CWPM than when he read privately third. When Charles read publicly fourth, he read 12.4 more CWPM then when he read privately fourth. Based on Charles responses to the social validity survey, he indicated a preference for public assessment and reading last.

Figure 2 illustrates the number of words read correctly (CWPM) for private versus public assessment for Frank. Overall mean of CWPM was 75 (range, 54 to 90) for both private and public assessments. Frank was absent during session 11. His mean words read correctly for the initial condition of 12 private assessments was 78 (range, 54 to 90 CWPM), and his initial 11 sessions of public assessment CWPM mean was 74.5 (range, 54 to 87 CWPM). In the final condition, public assessment, Frank read a mean of 82.5 (range, 75 to 97 CWPM). When Frank read in third position during public assessment he read on av-

### Table 2

Summary of Words Read per Minute Based on Order and Assessment Technique

<table>
<thead>
<tr>
<th>Student</th>
<th>Assessment</th>
<th>First Mean (range)</th>
<th>Second Mean (range)</th>
<th>Third Mean (range)</th>
<th>Fourth Mean (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles</td>
<td>Public</td>
<td>3:100.3 (91–105)</td>
<td>3:95.6 (74–109)</td>
<td>3:97.5 (85–110)</td>
<td>3:100.6 (93–109)</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>2.3 (2–3)</td>
<td>3 (2–4)</td>
<td>3.8 (2–5)</td>
<td>2.6 (1–5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1:101 (101)</td>
<td>2.97.5 (95–100)</td>
<td>3.92 (82–105)</td>
<td>4.88.2 (82–96)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (3)</td>
<td>3.5 (2–5)</td>
<td>3.3 (2–5)</td>
<td>2.5 (2–5)</td>
</tr>
<tr>
<td>Frank</td>
<td>Public</td>
<td>4.75 (67–87)</td>
<td>7:77.1 (54–90)</td>
<td>2.80 (79–81)</td>
<td>2.78 (75–81)</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>3.5 (2–5)</td>
<td>3.1 (2–4)</td>
<td>5 (5)</td>
<td>4.9 (4–5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.72 (60–84)</td>
<td>4.65.7 (55–76)</td>
<td>4.73 (64–73)</td>
<td>2.83.5 (78–89)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.5 (5–6)</td>
<td>3.7 (3–5)</td>
<td>3.7 (2–5)</td>
<td>3 (3)</td>
</tr>
<tr>
<td>Steven</td>
<td>Public</td>
<td>5.91.6 (64–105)</td>
<td>4.97.2 (89–102)</td>
<td>5:106 (101–120)</td>
<td>3:108.6 (96–118)</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>4.8 (3–7)</td>
<td>2.5 (1–7)</td>
<td>3 (1–5)</td>
<td>4 (3–5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2:89.5 (83–96)</td>
<td>4:83.5 (65–96)</td>
<td>2:87 (85–89)</td>
<td>2:99 (90–108)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.5 (5–6)</td>
<td>2.7 (2–4)</td>
<td>3.5 (3–4)</td>
<td>4 (4)</td>
</tr>
</tbody>
</table>
average 3.3 more CWPM, and when he read in the last position during private assessments he read on average 13.2 more CWPM. Frank read the fewest CWPM in first position during public assessments and in second during private assessments. Frank had the most opportunities during public assessment to read second and the fewest in third and fourth positions. He had the most opportunities during private assessments to read second and third and the fewest as first and fourth. When Frank read publicly first, he read 3 more CWPM than when he read privately. When Frank read publicly second, he read 11.4 more CWPM than when he read privately second. When Frank read publicly third, he read 7 more CWPM than when he read privately third. When Frank read publicly fourth, he read 5.5 less CWPM than when he read privately fourth. Based on Frank’s responses to the social validity survey, he did not have a preference for either public or private assessment but did prefer to read last.

Figure 3 illustrates the number of words read correctly (CWPM) for private versus public assessment sessions for Steven. Overall mean of CWPM was 96 (range, 64 to 120) for both private and public assessments. Steven was suspended during one session. His mean words read correctly for the initial condition for 10 sessions of private assessments was 89 (range, 65 to 108 CWPM) and his initial 11 sessions of public assessments CWPM mean was 100.1 (range, 64 to 120 CWPM). In the final condition, public assessment, Steven read a mean of 99.6 CWPM (range, 94 to 105 CWPM). When Steven read in the last position during public assessments he read on average 10.3 more CWPM, and when he read in the last position during private assessments he read on average 12.3 more CWPM. Steven read the fewest CWPM in the first position for public assessments and in second position during private assessments. Steven had the most opportunities during public assessment to read second and equal opportunities in all other positions. When Steven read publicly first, he read 2.1 more CWPM than when he read privately first. When Steven read publicly second, he read 13.7 more CWPM than when he read privately second. When Steven read publicly third, he read 19 more CWPM than when he read privately third. When Steven read publicly fourth, he

<table>
<thead>
<tr>
<th>Question</th>
<th>Charles</th>
<th>Frank</th>
<th>Steven</th>
</tr>
</thead>
<tbody>
<tr>
<td>How did you spend your time while waiting your turn to read?</td>
<td>During private sessions I tried to practice words that I thought were hard so I could get them right. During public sessions I followed along with others.</td>
<td>I looked the story over during the private sessions. I listened during the public and practiced saying words that are hard.</td>
<td>During the private sessions I read to myself. During the public sessions I followed along while others read.</td>
</tr>
<tr>
<td>Which method of assessment did you prefer?</td>
<td>I like to see how I did, who did best, and who got the farthest so I like the public sessions.</td>
<td>I like them both.</td>
<td>I liked the public sessions.</td>
</tr>
<tr>
<td>Which reading position did you prefer?</td>
<td>I like to read last.</td>
<td>I liked to read last.</td>
<td>I don’t like to go first, other than that I don’t care.</td>
</tr>
<tr>
<td>Did you prefer to receive feedback in private or in public?</td>
<td>I like the public feedback, then I can see how everyone else did.</td>
<td>It doesn’t matter.</td>
<td>I like to know how I did in private. I don’t want my friends to know if I messed up.</td>
</tr>
</tbody>
</table>
read 9.6 more CWPM than when he read privately fourth. Based on Steven’s responses to the social validity survey, he indicated a preference for the public assessments and reading in any order except first because he did not want his peers to know if he made mistakes.

**Discussion**

Results of this study extend previous investigations on timed readings, fluency, and use of the Corrective Reading program. Using the Corrective Reading program with either private or public assessments was effective in improving reading fluency skills of all participants. However, no functional differences between student performances for either private or public assessments were evidenced. In addition, students appeared to prefer the public assessment because it allowed them to compare their performance with the performance of their peers and possibly increased their motivation.

Students overall reading fluency performance during both public and private reading assessments varied. Several factors may have led to such variability. The first factor may have been the role peers played on how each student performed. For example, Charles appeared to perform at a higher rate during the private assessments, while later in the study he performed better during the public assessments. This may have been in part due to the influence of his peers. Anecdotal data collected during each session indicated that the students wanted to hear the progress of each other, students stated that they wanted to outperform each other, and the students asked for specific assessment techniques (i.e., private or public). For Charles in particular, when he became interested in this competition, he showed an increased interest in the

![Figure 1. Number of words read correctly per minute for both public and private assessment for Charles.](image-url)
public assessment sessions as well as the progress of his peers. A related factor may have been the developmental age of the students. Middle school students are often competitive and this competitiveness may have been a factor in the results. Future research may wish to look at this competitive phenomenon. For example, students may self graph and publicly display their results compared to self graphs that are not publicly displayed.

A second possible contributing factor may be the order in which the students read and their perspective on reading in that position. Since student reading order was randomly assigned, some students may have read in more non-preferred reading orders than did others. For example, during his initial sessions and after reading first, and not doing as well as he would have liked Steven stated, “I don’t like reading first, I could have dogged everyone if I read last.” When asked why he felt he could have performed better if he had read in another position he stated, “I could have listened to everyone read.” It also was determined through the social validity tool that the other two students preferred to read last. Future research may want to control for the number of opportunities each student read in either the first, second, or third order to account for the variable order opportunities in the present study. In addition, future research may want to conduct a preference assessment related to reading order prior to an intervention. In both cases, researchers could compare controlled order and high and low preferred order to student fluency.

A possible third factor may have been how the students used the time while waiting to be assessed. For example, all students reported using this time as a way to scan the reading passage for and to practice the difficult (i.e., “hard”) words prior to their own assessment. These behaviors occurred during private and public assessments. However, during public

![Figure 2. Number of words read correctly per minute for both public and private assessment for Frank.](image-url)
assessments the students also behaved in a manner to suggest that they not only scanned and listened for difficult words but also listened for corrective feedback from the teacher while another student was being assessed in order to improve their own performance. In particular, during public assessments when Steven read second or in a later order, he was heard to say, “Ha, I got that word right because I heard her tell you it.” However, during private assessment the students all reported looking over and actually orally practicing the reading passages prior to their own assessment. It is possible that observational learning accrued during the public sessions when the students had not only access to their peers reading but to teacher feedback. According to anecdotal records, this observational learning also may have accrued during private sessions. Future research may wish to address observational learning influences. For instance, researchers could manipulate when corrective teacher feedback was provided; either individually after each student read or as a group after all students had read.

A fourth possible factor may be student behavior. All three students had histories of inappropriate behaviors during academic instruction such as noncompliance, disruptive, and off-task behaviors which interfere with their learning process. For example, on sessions 19 and 20 Frank displayed verbally defiant and noncompliant behaviors prior and during the reading assessments due to earlier behavioral incidents and consequences. Subsequently, Frank’s performances for both public and private assessments were low due to competing behavior problems. Future research may want to directly assess student social behavior during academic instruction to better understand the relationship between academic performance and social behavior when students have histories of inappropriate behavior.

![Figure 3. Number of words read correctly per minute for both public and private assessment for Steven.](image-url)
A final factor may have been the already existing role of the implementer (i.e., classroom teacher) and reading routine. For example, one change in the reading routine occurred. This change was how the assessment for reading fluency performance was conducted. The students were accustomed to timed readings being conducted in a public assessment format only. The change and addition of a private assessment format may have been a contributing factor to the increase in private assessment performance at the beginning of the study for Charles and midway through for Frank due to its novelty.

Limitations

Although results of this study suggest that public assessment after a direct instruction lesson is more effective in improving fluency, these data need to be interpreted with caution. First, generalizations are limited since no generalization measures were used and several limitations exist. For example, only three students participated in the comparison of private versus public assessment and assessments were only implemented in one special education classroom by a single teacher. Thus, effects may have been due to teacher and/or classroom characteristics. Future research may want to investigate multiple teachers conducting both private and public assessments or one teacher conducting one type of assessment and a second teacher conducting the other type. Replications of such studies could then be conducted across teachers, with a larger number of students and students with a variety of disabilities to address possible teacher and/or classroom variables.

Second, the influence of the location of the private and public assessments on reading performance is unclear. One limitation may have been due to the location of the private assessment sessions that were within the classroom and within visibility and possible hearing range of the participating students seated at the kidney shaped table. This may have caused an increase in the distractions occurring during the sessions and thus possibly altering the performance results. For example, since the participating students had the reading passage in front of them and were listening, it is possible that they may have heard others during the private assessment sessions. Anecdotal data (e.g., student verbalizations) suggest this is true; thus, even during the private assessment sessions, students may have been inadvertently provided with a repeated reading model (e.g., their peers reading of the passage). Another example includes the overall classroom environment. Specifically, during one session a student who was not involved in the study was escorted from the room for inappropriate behavior that may have been disruptive as the students read the probe passage. Future research may focus on separating private and public assessment locations (i.e., private sessions conducted in a separate room) as well as minimizing overall possible classroom distractions.

A third possible influence was scheduling difficulties. Various disruptions occurred during regular school routines that may have influenced data collection in this study. The present study provided every other day reading instruction, which meant that there was a minimum of three days between private and private assessments, or public and public assessments. It is unclear if or how this affected student performance. Future research may want to assess whether public versus private assessment is more efficient when reading instruction is provided on a daily basis.

Reading fluency is a vital skill for students with mild disabilities. This skill will allow students to live more independently and access better post school outcomes. Overall, from this study it can be concluded that both private and public assessment of reading fluency are effective. No functional differences between students performance for either private or public assessment were found in this study. Students involved in this study preferred the public assessments and did not like to read in the first position. All three students made gains in IEP reading goals during the course of this study.

References


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