Constant Time Delay and Interspersal of Known Items to Teach Sight Words to Students with Mental Retardation and Learning Disabilities

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Abstract: This study compared efficacy and efficiency of constant time delay and interspersal of known items to teach sight words to students with mild mental retardation and learning disabilities. Procedures were counterbalanced across time of day and instructional groups in a parallel treatments design. For students with mild mental retardation, constant time delay was more effective and efficient based on words learned, percentage of errors, instructional time, and sessions through criterion. For students with learning disabilities, procedures were equally effective, but constant time delay was more efficient across most measures. Results support effectiveness of constant time delay and suggest that interspersal of known items may be more effective for students with learning disabilities than students with mild mental retardation.

Elementary-school students with mild mental retardation and learning disabilities frequently have reading difficulties that, without intervention, may contribute to persistent academic failure. Sight word instruction is a common intervention to train functional literacy (Browder & Minarovic, 2000), teach academic words (Belfiore, Grskovic, & Murphy, 1996), and provide early reading experiences (Uhry & Shepard, 1997) to students with reading delays. However, while effective sight word instructional methods have been repeatedly evaluated in research literature, comparison studies testing effects of specific procedures for students with differing disabilities are lacking (Browder & Xin, 1998).

Two methods that have been found to be effective are constant time delay and interspersal of known items (Browder & Shear, 1996; Browder & Xin, 1998; Cooke, Guzakas, Pressley, & Kerr, 1993). Even though constant time delay has been compared to many effective instructional tactics such as system of least prompts or community based instruction (Godby, Gast, & Wolery, 1987; Doyle, Wolery, Gast, Ault, & Wiley, 1990), no studies comparing it to the interspersal of known items to teach sight words have been reported.

Constant time delay is an instructional tactic in which pre-response prompts are systematically faded by inserting time between the presentation of a sight word card and a prompt for correct performance (a controlling prompt). Initially, a 0 s delay occurs by presenting the target stimulus and immediately following it with a controlling prompt. Subsequent presentations of target words are followed by fixed intervals of time (i.e., 4 s) before the controlling prompt. For students with learning disabilities, constant time delay has been used to successfully teach multiplication facts (Cybriwsky & Schuster, 1990; Kosciinski & Gast, 1993), health and science words (Keel, Slaton, & Blackhurst, 2001; Wolery, Cybriwsky, Gast, & Boyle-Gast, 1991), spelling words (Stevens & Schuster, 1987), and word definitions (Stevens, Schuster, & Doak, 1990). For students with mental retardation and moderate disabilities, constant time delay has been successfully used to teach job task sight words (Browder & Minarovic, 2000), product...
warning labels (Collins & Griffen, 1996), and grocery store items (Mosley, Flynt, & Morton, 1997). Browder and Xin (1998) suggested that constant time delay may be simpler to implement than other procedures because it does not require specific materials. However, one disadvantage to this procedure is that rate of instruction can be slower than that of other procedures because of the delay in time (Browder & Shear, 1996).

Interspersal of known items is a method of sequencing unknown words with known words. Using sight word flashcard drills, students are presented with a specific percentage of unknown words to known words (i.e., 30% unknown to 70% known) instead of a sequence containing a higher percentage of unknown words than known words (Cooke et al., 1993). While current research has not shown significant differences in sight word acquisition rate based on precise percentages of unknown words to known words (Cooke et al.; Cooke & Reichard, 1996), the use of a 30% unknown to 70% known words sequence has been successfully used to teach spelling and weather forecast words to students with behavior disorders (Browder & Shear, 1996; Cooke et al.), and multiplication and division facts to students with learning disabilities (Cooke & Reichard). Browder and Shear suggested that interspersal of known items may be an advantageous alternative to constant time delay for sight word instruction since praise is delayed until the completion of an instructional session and the student controls rate of flashcard presentation.

Comparisons of sight word instructional methods for students with learning disabilities and mental retardation can be helpful to teachers for at least two reasons (Browder & Xin, 1998). First, information about the use of specific sight word instructional tactics for students of differing disabilities and/or learning characteristics is lacking in the related research (Browder & Xin). Without such information, teachers may lose valuable instructional time implementing procedures that are inefficient (i.e., require more sessions to mastery criterion or more instructional time) and ineffective (i.e., do not result in mastery criterion or a high number of words learned) for particular students. Therefore, comparisons of sight word teaching tactics are important because they can, potentially, enhance use of reading instructional time for educators of students with varying disabilities.

Second, direct comparisons of constant time delay to other sight word instructional tactics can yield significant information about efficacy and efficiency of this procedure, which is often presumed to be more effective than other procedures for students with disabilities. For example, Mosley et al. (1997) compared 5 s constant time delay to a paired picture/word procedure to teach vocabulary words to students with mental retardation. They found no statistically significant differences in average number of correctly identified words when constant time delay was compared to the paired picture/word procedure. Schuster, Griffen, and Wolery (1992) found that simultaneous prompting and noninstructional probes were equally efficient and effective as time delay for sight word instruction. Doyle et al. (1990) found that while constant time delay was a more efficient strategy than the system of least prompts to teach sight words to preschoolers with developmental delays, both strategies were equally effective in achieving mastery criteria, maintenance of responses during follow-up probes, and generalization to different instructors and stimuli.

Based on the effectiveness of interspersal of known items and constant time delay with students with mental retardation and learning disabilities, the purpose of the present study was to compare the effectiveness of the two procedures with both populations. Using a modification of a parallel treatments design described in comparison studies of constant time delay and system of least prompts (Godby et al., 1987; Doyle et al., 1990), interspersal of known items and constant time delay were counterbalanced across time of day and instructional groups. The specific objectives of this study were to identify for each group of students the most effective procedure based on number of words learned and criteria achieved (Godby et al.) and the most efficient procedure based on percentage of errors, minutes of instructional time, and number of sessions through mastery criterion (Doyle et al.).
Method

Participants

Two 8 year-old students with mild mental retardation and two 8 year old students with learning disabilities were the participants in this study. Jennifer and Sarah were third-grade students with diagnosed mild mental retardation (MMR). Brion and Yolanda were third-grade students with diagnosed specific learning disabilities (SLD). Based on Florida eligibility criteria, a learning disability included the documentation of a processing deficit as well as a discrepancy of one or more standard deviations between the student’s ability and achievement. A diagnosis of mild mental retardation required an IQ of two to three standard deviations below the mean on a standardized test of intelligence and deficits in adaptive behavior. These students were selected for the study because of their diagnoses as determined by their local school system and because they had limited sight word vocabularies. Student assent and written parental permission were obtained prior to initiating the study. Specific information about each participant is located in Table 1.

Setting

The public school in which this study took place was located in an urban setting in Florida. It was a large general education school with a special education classroom that served students with varying exceptionalities. The study occurred in a small, isolated room within the self-contained special education classroom. The room contained a table, chairs, and a video camera. During all instructional sessions, the student and teacher sat across from each other on chairs at a small table and a video camera was located directly behind the teacher.

Response Definitions and Data Collection

Response definitions for both procedures included: 1) unprompted correct responses, 2) prompted correct responses, 3) unprompted errors, 4) prompted errors, and 5) no response. Unprompted correct responses occurred when a student correctly read a target word before the teacher who presented a controlling prompt in constant time delay (CTD) or an error correction procedure in interspersal of known items (IKI). Prompted correct responses occurred when a student correctly read a target word within 4 s of a controlling prompt in CTD or an error correction procedure in IKI. Unprompted errors occurred when a student incorrectly read a target word before the teacher presented a controlling prompt in CTD or an error correction procedure in IKI. Prompted errors occurred when a student incorrectly read a word within 4 s after a model in CTD or an error correction in IKI. If a student did not emit a response within 4 s after a model or error correction procedure, it was recorded as no response. Using paper and pencil method, unprompted correct responses were recorded as U+, prompted correct responses were recorded as P+, unprompted errors were recorded as U-, prompted errors were recorded as P-, and “no responses” were recorded as 0.

Additional measures included number of criteria achieved, percentage of errors, number of sessions through criterion, and number of sessions.

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Participant Information</th>
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<tbody>
<tr>
<td>Student</td>
<td>Disability</td>
</tr>
<tr>
<td>Brion</td>
<td>SLD</td>
</tr>
<tr>
<td>Yolanda</td>
<td>SLD</td>
</tr>
<tr>
<td>Jennifer</td>
<td>MMR</td>
</tr>
<tr>
<td>Sarah</td>
<td>MMR</td>
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of instructional minutes. Number of criteria achieved was defined as the number of word triads (sets of three words presented during a single instructional session) that the student mastered per procedure. Percentage of errors during all instructional trials was calculated by dividing the number of incorrectly read words by the number of opportunities to respond within an instructional session and multiplying by 100. Number of sessions through criterion was calculated by adding the number of sessions in which a word triad was presented before the student correctly read all three words within a triad. Number of instructional minutes was calculated by recording the time between the teacher’s presentation of the first sightword flashcard and a student’s completion of the final response.

For both procedures, all sessions lasted no more than 15 min and occurred five days a week. For CTD, each session included 30 trials (10 for each word within a triad). For IKI, the student had 22 opportunities to read unknown words and 36 opportunities to read known words (58 total) for each instructional session (Browder & Shear, 1996).

Materials

Materials for this study included targeted Dolch words (Palmer, 1986) and a stopwatch. The Dolch words were hand-printed in black ink on 3 × 5 inch index cards. All words were printed with 1.5 inch lowercase lettering. A basic stopwatch was used to time instructional sessions.

Interobserver Agreement and Procedural Reliability

A teacher’s assistant used a prepared checklist of teacher’s behaviors for procedural reliability and recorded students’ responses on a data collection sheet for interobserver agreement during both the CTD and IKI procedures. Point-by-point interobserver agreement data were calculated for 41% of instructional sessions by dividing the number of agreements plus the number of disagreements and multiplying by 100. Procedural reliability data were calculated for approximately 63% of sessions by dividing the number of correctly implemented researcher behaviors by the number of planned researcher behaviors and multiplying by 100.

Mean percentage of agreement on student responding for all participants was 99.1% (range, 97% to 100%). Mean percentage of agreement on experimenter implementation of CTD procedures was 95.8% (range, 80% to 100%). Mean percentage of agreement on experimenter implementation of IKI procedures was 99.4% (range, 95% to 100%).

Design and Procedure

A modification of a parallel treatments design (Godby et al., 1987; Gast & Wolery, 1988) described by Doyle et al. (1990) was used. This design combines two concurrently implemented multiple probe designs and counterbalances instructional tactics to control for extraneous variables (Doyle et al.). For this study, the parallel treatments design was implemented as described below.

First, a screening of known and unknown Dolch words for each participant occurred. Following the screening, unknown words were randomly assigned to either CTD or the IKI tactic. Students were then randomly paired into two groups such that one student with mental retardation and one student with learning disabilities formed a single group.

All instructional sessions began with a probe of the 27 unknown words selected from the screening. After the probe, the teacher randomly selected three words to teach during CTD and three words to teach during IKI. For Group 1 (Brion and Jennifer), the teacher implemented CTD in the morning and IKI in the afternoon. For Group 2 (Yolanda and Sarah), the teacher implemented IKI in the morning and CTD in the afternoon. Following eight days of instructional sessions, the order of implementation was reversed for each group during the remaining eight days (i.e., Group 1 now received IKI in the morning and CTD in the afternoon). A final probe of all targeted words was used to assess the students’ learning.

For each training session, criterion for each word-triad was 100% correct responding to the sight word and the teacher’s direction alone (i.e., no prompts) for three consecutive sessions. Only correct unprompted responses were calculated in trials through criterion. If a
word-triad for one procedure reached criterion before the word-triad for the other procedure, another word-triad was randomly selected from the students’ bank of known words. For example, if a student mastered word-triad 1A (CTD) but not 1B (IKI), the instructional sessions for 1B would continue and three new words would be selected from the target word bank to be used for word-triad 2A (CTD).

**Sight Word Probes**

Initially, a sight word screening procedure was used to identify a bank of known and unknown words for each participant. Three identical trials of 133 Dolch sight words were individually presented. First, students were told, “I am going to show you some words and I want you to read them.” The teacher placed the word card directly in front of the student, said “What word?” and waited 4 s. The first response emitted was recorded as correct or incorrect. The procedure was repeated for three sessions. Unknown target words were selected from those words read incorrectly for three consecutive trials across three sessions. Targeted words were then randomly assigned to either CTD or IKI. Known words (read correctly for three consecutive trials across three sessions) were also identified for use in the IKI procedure. Target known and unknown words are displayed in Table 2.

Probe sessions also occurred before and after each instructional session. Students were given opportunities to read 27 unknown target words and 6 known words. The teacher said, “Read the words you see,” presented a card, and waited 4 s. The first response emitted was recorded as correct, incorrect, or no response.

**Constant Time Delay**

For CTD, the teacher selected three words from a student’s bank of unknown words and labeled them as word triad 1A. Continuing in the same manner, the researcher chose three more words and labeled them as word triad 2A. Subsequently, each new word triad was labeled as 3A or 4A (5A through 12A were labeled but not used). During the initial instructional trial of a word triad, the teacher presented one word to a student by holding up the card, saying, “Read the words you see,” and immediately modeling the word by saying it (0 s time delay). During all subsequent instructional sessions, the teacher showed the word to the student, said, “Read the words you see,” and waited 4 s before modeling the word by saying it.

If the student gave a correct response, the teacher praised the student and then recorded the response on the data collection sheet. If the student read the word incorrectly before the teacher modeled the correct response, the teacher said, “Wait, if you don’t know,” immediately removed the card, and then presented the next word. If the student read the word incorrectly after the teacher gave the prompt or if the student gave no response, the teacher removed the card and presented the next trial. No praise was given for incorrect responses. Each card was pre-

![Table 2](image)

**Table 2**

<table>
<thead>
<tr>
<th>Participant Sight Words</th>
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<tr>
<td></td>
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<tr>
<td><strong>Word-Triad</strong></td>
</tr>
<tr>
<td>Brion</td>
</tr>
<tr>
<td>1A jump, one, sad</td>
</tr>
<tr>
<td>1B where, ate, came</td>
</tr>
<tr>
<td>2A eat, get, have</td>
</tr>
<tr>
<td>2B on, will, ran</td>
</tr>
<tr>
<td>Known Words like, no, red, look, little, you</td>
</tr>
<tr>
<td>Yolanda</td>
</tr>
<tr>
<td>1A blue, can, come</td>
</tr>
<tr>
<td>1B funny, it, jump</td>
</tr>
<tr>
<td>2A find, help, said</td>
</tr>
<tr>
<td>2B for, here, look</td>
</tr>
<tr>
<td>Known Words new, no, little, you, the, play</td>
</tr>
<tr>
<td>Jennifer</td>
</tr>
<tr>
<td>1A said, all, am</td>
</tr>
<tr>
<td>1B where, not, make</td>
</tr>
<tr>
<td>2A get, came, must</td>
</tr>
<tr>
<td>Known Words and, away, big, blue, funny, you</td>
</tr>
<tr>
<td>Sarah</td>
</tr>
<tr>
<td>1A away, blue, came</td>
</tr>
<tr>
<td>1B find, where, are</td>
</tr>
<tr>
<td>2A here, what, said</td>
</tr>
<tr>
<td>Known Words big, down, for, funny, go, jump</td>
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</table>
sented 10 times. Instructional sessions ended when the student had 30 opportunities-to-respond.

**Interspersal of Known Items**

For interspersal of known items, the teacher selected three cards from the students’ bank of unknown words and labeled them as word triad 1B. Continuing in the same manner, the researcher chose three more words and labeled them as word triad 2B. Subsequently, each new word triad was labeled as 3B and 4B (5B through 12B were labeled but not used). The teacher then told the students that they would be shown some words and that they should read each word they saw. The teacher presented a card and waited 4 s for the student to respond. If the student responded correctly, the teacher immediately proceeded to the next word. No praise was given for a response. If a student responded incorrectly to an unknown word, the teacher immediately presented a 5-step error correction procedure as described below (Browder & Shear, 1996).

First, the teacher said the word correctly. Second, the teacher asked the student to repeat the word while looking at it and praised the student’s correct imitation. Third, the teacher asked the student to trace the word with his/her finger while spelling it orally. The teacher prompted any unknown letters and praised correct spelling. Fourth, the teacher used the word in a sentence and stated the word. Fifth, the teacher asked the student, “What word?” If the student gave an incorrect response to a known word, the teacher pronounced the word and continued the rapid presentation of the flashcards.

During IKI, known words were interspersed among unknown words using the following sequence based on Browder and Shear (1996): 1) the first new word/one known word, 2) the first new word/two known words, 3) the first new word/three known words, 4) the first new word/four known words, 5) the second new word/first new word/one known word, 6) the second new word/first new word/two known words and, 7) the first new word/second new word/third new word/five known words. When the student had 29 opportunities-to-respond, the teacher began the sequence again. When the student had completed the sequence two times (58 opportunities-to-respond), the instructional session ended.

**Results**

Figure 1 displays percentage of words read correctly during sight word probes for each student in the pre-intervention sight word screening/probe, daily probes before and after sight word training, and the post-intervention sight word screening/probe. During the screening procedure, number of words read correctly was 56 for Brion, 32 for Yolanda, 92 for Jennifer, and 42 for Sarah. During the first probe session, no student read any of the unknown target words correctly. With CTD, Brion learned 11 words, Yolanda learned 11 words, Jennifer learned nine words, and Sarah learned eight words. With IKI, Brion learned 11 words, Yolanda learned 11 words, Jennifer learned five words, and Sarah learned three words.

Figure 2 displays number of instructional minutes through criterion for each participant during CTD and IKI. During CTD, Brion mastered four word triads in 30.56 minutes (mean, 7.64 min), Yolanda mastered three word triads in 32.45 minutes (mean, 10.82), Jennifer mastered three word triads in 46.14 (mean, 15.38), and Sarah mastered two word triads in 17.84 minutes (mean, 8.92). During IKI, Brion mastered four word triads in 64.16 minutes (mean 16.04), Yolanda mastered three word triads in 46.49 minutes (mean, 15.49), Jennifer mastered one word triad in 37.57 minutes, and Sarah mastered no word triads after 47.06 minutes of instruction.

Figure 3 displays percentage of errors through criterion during each procedure. Mean percentage of errors through criterion for mastered word triads during CTD was 3% for Brion, 0 for Yolanda, 3% for Jennifer, and 2% for Sarah. Mean percentage of errors through criterion for mastered word triads during IKI was 0 for Brion, .1% for Yolanda, and .2% for Jennifer. Sarah’s errors through criterion are not reported for IKI because no criteria were mastered using this procedure.

Figure 4 displays number of sessions to criterion during sight word training for each student. Mean number of sessions to criterion during CTD was 3.75 for Brion, 5.33 for Yolanda, and 4.67 for Jennifer. Sarah mas-
tered one word triad after three sessions and a second word triad after five instructional sessions. Mean number of sessions to criterion during IKI was 4.0 for Brion and 5.33 for Yolanda. Jennifer mastered one word triad after 13 sessions. Sarah did not master any word triads using IKI.

Discussion

This study compared constant time delay with interspersal of known items to teach Dolch sight words to two students with mild mental retardation and two students with learning disabilities. Students were assigned to pairs...
consisting of one student with mild mental retardation and one student with learning disabilities. Unknown Dolch sight words were randomly assigned to either constant time delay or interspersal of known items. Two daily instructional sessions using constant time delay and interspersal of known items were counterbalanced across time of day and pairs of students for 16 days. Based on number of sight words learned, criterion achieved, per-
centage of errors, minutes of instructional time, and sessions through criterion, constant time delay was more effective and efficient than interspersal of known items for students with mild mental retardation. For students with learning disabilities, constant time delay was equally as effective as interspersal of known items and more efficient across all measures except mean percentage of errors.

One explanation for the effectiveness of constant time delay when compared to interspersal of known items for students with...
mild mental retardation may be that the sequence of known and unknown sight words during interspersal of known items did not present enough opportunities to read new words. Words were interspersed in a 30% unknown to 70% known words sequence (Browder & Shear, 1996). In this sequence, a student had seven opportunities to read the first unknown word, three opportunities to read the second unknown word, and only one opportunity to read the third unknown word. This possibility is supported by Cooke et al. (1993) who found that students with disabilities learned more words per session when 100% unknown words were presented instead of during interspersal of known and unknown words. To test this possibility in a future study, a reversal or alternating treatments design using 100% unknown words during one condition.
and an interspersal sequence during another condition could be employed (Cooke et al.).

For both populations, another explanation for the high efficacy and efficiency of constant time delay may be that it incorporated pre-response prompting. It has been widely assumed that pre-response prompting is more effective than post-response prompting for sight word instruction, but some research suggests that post-response prompting actually produces better outcomes (Browder & Xin, 1998). Results of the present study, while not designed to test the effectiveness of pre-response versus post-response prompting, suggest that the use of pre-response prompts was more efficient than post-response prompts. To test effectiveness of the prompt procedure, a reversal design in which a pre-response prompt and post-response prompt are implemented in separate conditions with could be used to teach sight words.

Another explanation for efficiency of constant time delay when compared to interspersal of known items may be that the error correction procedure in interspersal of known items provided fewer three-term contingencies than the constant time delay procedure. Belfiore, Skinner, and Ferkis (1995) found that students with learning disabilities learned more words when presented with three-term contingencies than when they were given five opportunities to repeat correct responses. In the present study, the error correction procedure implemented during interspersal of known items also gave five opportunities to repeat correct responses (i.e., tracing the word, saying the word, and so on). However, according to Belfiore et al., repetition of correct responses can be less effective than the three-term contingencies incorporated in constant time delay.

Constant time delay may also have been more effective than interspersal of known items for students with mild mental retardation because of their history of instruction. Specifically, Browder and Xin (1998) found that constant time delay was used more often than other instructional tactics to teach sight words. Browder and Shear (1996) noted that students with mental retardation who learned and generalized new words using interspersal of known items may have done so because the tactic presented a novel alternative to frequently used constant time delay procedures. Similarly, results of the present study may suggest that students with mild mental retardation may not have responded well to interspersal of known items because they had lengthy instructional histories with constant time delay.

Finally, it is possible that interstudent differences related to interstudent characteristics and differences may have contributed to results of this study. Specifically, results of the present study show that during the interspersal of known items procedure, students with mild mental retardation did not learn as much as students with learning disabilities even after several minutes and trials of instructional time. These results are similar to those of Cooke et al. (1993) who found that students with behavior disorders learned more new responses with interspersal of known items than did students with mild mental retardation. They suggested that interstudent differences might have required different amounts of trials to learn new responses.

One obvious limitation to conclusions related to interstudent differences in this study is that the teacher presenting the treatment procedure was not blind to the students’ disability classifications and, thus, may have administered treatment procedures somewhat differently for each participant. Obtaining frequent procedural reliability data and counterbalancing the treatments across instructional pairs and time of day reduced the limitation. However, in a future study, a teacher who is unfamiliar with the participants’ disability classifications might administer the treatment in order to find differences between students with mental retardation and learning disabilities.

A second limitation to conclusions related to students’ disabilities was the small sample size and lack of participant matching. Since only four students participated in this study, findings were limited to this population. In addition, students in each pair were not matched with students in the other pair. Thus, differences may have existed between groups. As Table 1 shows, there were only minimal differences between IQ and reading levels for the participants. However, matching partici-
pants within each disability across relevant variables may have made results more reliable. Another variable that might have confounded the results of this study was the random selection of sight words. According to Browder and Xin (1998), one challenge for students receiving sight word instruction is discrimination between letters and words. This challenge may be even greater when words are very similar (i.e., always and away; Cooke et al., 1993). In the present study, it is possible that similar words were randomly selected to be taught in an instructional session and, thus, discrimination became even more difficult for the participants. To reduce this variable in future studies; similar words could be separated and then randomly assigned to each condition.

An additional finding of this study was the rate of correctly read words. Keel et al. (2001) suggested that obtaining a rate measure for constant time delay sight word instruction is valuable because the measure can be reported across behaviors. In the present study, sessions were timed and sight word cards were presented rapidly, but cards were not presented at specific intervals. In spite of this limitation, rate per minute for each instructional session was calculated by dividing the elapsed minutes of instructional time by the number of correct responses. Results showed that all of the students read more words per minute with interspersal of known items than during constant time delay. However, Browder and Shear (1996) noted that the high number of opportunities to respond in interspersal of known items (only a small percentage of which are actually opportunities to read new words) falsely increases measures of efficacy (i.e., percentage of errors) when the procedure is compared to constant time delay. Therefore, while this measure is difficult to evaluate for the two procedures in this study, presenting cards at timed intervals (i.e., every 7 s) and setting a target reading rate (Keel et al.) could measure fluency in future studies.

In summary, this study compared efficacy and efficiency of constant time delay with interspersal of known items to teach sight words to students with mild mental retardation and students with learning disabilities. Findings are limited to the four participants and may not be generalizeable to all students with mild mental retardation or learning disabilities. However, for students with mild mental retardation, results suggest that constant time delay was more efficient and effective than interspersal of known items to teach sight words. For students with learning disabilities, the two procedures were equally effective for teaching sight words, and constant time delay was slightly more efficient across all measures except percentage of errors through criterion. Future studies should be conducted to identify the relative contributions of variables within both constant time delay and interspersal of known items.

References


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