A Comparison of Error Correction Procedures on Word Reading

Andrea L. Syrek
Montcalm Area Intermediate School District

Michael D. Hixson, Susan Jacob, and Sandra Morgan
Central Michigan University

The effectiveness and efficiency of two error correction procedures on word reading were compared. Three students with below average reading skills and one student with average reading skills were provided with weekly instruction on sets of 20 unknown words. Students' errors during instruction were followed by either word supply error correction (the researcher said the word and the student was asked to repeat it) or a multilearning channel error correction procedure, which included four components: (a) hear word-say word, (b) see word-say letters (step repeated once), (c) think-say letters (spell without seeing word; step repeated once), and (d) think-write letters (write letters without seeing word). Both conditions generally improved reading performance, although one procedure was not clearly superior to the other in increasing the frequency of words read correctly. The word supply procedure was approximately twice as time efficient.

DESCRIPTORS: Error correction, reading, learning channels

Accurate and fluent oral reading is an essential skill for students to master in the elementary grades (National Reading Panel, 2000). According to the National Research Council Committee on the Prevention of Reading Difficulties in Young Children, the first through third grade curricula should include explicit instruction in letter-sound correspondences and common sight words, as well many opportunities for independent reading, including reading aloud (Snow, Burns, & Griffin, 1998, p. 7). Oral reading is important because it provides practice for students who might not read otherwise and is a means for teachers to evaluate the effects of their instruction on children's reading performance (Carnine, Silbert, & Kameenui, 2004; Jenkins, Larson, & Fleisher, 1983). Furthermore, by requiring students to read aloud frequently, those with difficulties can be identified early and provided individualized help before their problems become severe.

Teachers can use numerous strategies to help students achieve at an accelerated pace. Teaching phonics, preteaching words, and using immediate error correction have been identified as helpful (Jenkins, 1979; Parker, Hasbrouck, & Denton, 2002). Researchers have reported a positive relationship between the correcting of student errors and improved student performance (Carnine, 1980; Good & Beckerman, 1978).

Error Correction

Error correction has been defined as "instruction following an error that the learner fails to self-correct" (Rose et al., 1982, p. 100). Hansen and Eaton (1978) and Jenkins (1979) identified the following error correction procedures:

1. word supply—the teacher supplies the correct word and the learner repeats it,
2. review—word supply procedures are followed by the student reading the sentence or paragraph in which the error occurred,
3. word meaning—word supply procedures are followed by a brief discussion of the meaning of the incorrectly read word,
4. phonic analysis—the learner is encouraged to "sound out" varying portions of the incorrectly read word, and
5. drill—error words are compiled for review and drill at a later time (Jenkins, 1979).

There is a greater need to use error correction procedures with students who have reading disabilities

AUTHOR NOTE: Andrea L. Syrek conducted this research in fulfillment of the master's thesis requirement at Central Michigan University. A big thanks to Stuart Harder for his multicycle SCC Excel© template that we adapted to make the charts. Address correspondence to: Michael Hixson, Psychology Department, Central Michigan University, Mt. Pleasant, MI 48859. E-mail: Hixso1md@cmich.edu.

because their reading errors make comprehension difficult (O'Shea, Munson, & O'Shea, 1984). Also, these students are less likely to reread passages and self-correct errors (Isakson & Miller, 1976).

Error correction methods that require active student responding have been shown to be more effective than those that require only inactive attendance to each word (e.g., Barbetta, Heron, & Heward, 1993; Singh, 1990). Immediate error correction is more effective than delayed correction (Barbetta, Heward, Bradley, & Miller, 1994). Corrections after every error are more effective than intermittent corrections (Iwata, Dozier, Johnson, Neidert, & Thomason, 2005). Drill procedures, which involve multiple practice trials in reading the words, are more effective than single-step procedures (Iwata, Dozier, Johnson, Neidert, & Thomason, 2005; Jenkins et al., 1983; O'Shea et al., 1984; Rosenberg, 1986). Additionally, research on learning channels indicates that including a writing output may produce better retention than those that involve only a say output (e.g., Spence et al., 2000; Uhry & Shepherd, 1993; Zanatta, 2000). Finally, teaching the spelling (hear-write) of words leads to better word reading than reading the words alone (Uhri & Shepherd, 1993). It is therefore proposed that an error correction procedure that includes multiple components and learning channels (what some educators call "multisensory" procedures, e.g., Combley, 2001; Gillingham & Stillman, 1997) may be more effective than one that involves only one learning channel (i.e., word supply).

The present study investigated the use of a procedure similar to Ian Spence's 7-step error correction procedure (see www. learningincentive. com) because of its effectiveness with students at the Ben Bronz Academy (Spence et al., 2000). Ben Bronz Academy is a school for students in grades 2 through 12 with identified learning disabilities. Students enter Ben Bronz Academy with a median deficit of 3 years in reading. The academy utilizes daily fluencies, classroom exercises, the Lindamood Method, and a 7-step correction procedure. As a result, phonemic awareness skills and reading fluency are improved. Nine out of 10 students who attend Ben Bronz Academy return to or exceed normal reading growth during their first year of enrollment (see www.learningincentive.com). The present study seeks to utilize a multilearning channel procedure using 6 of the 7 steps. The shorter procedure used in the current study differed only in that each student was required to look at the word and spell it aloud once rather than twice (Table 1). The relative effectiveness of the procedure with 6 steps was compared to a more common word supply error correction method (Carnine, Silbert, & Kameenui, 2004).

METHOD

Participants and Setting

The participants were three third-grade boys and one second-grade girl who attended a summer program to improve academic skills and provide enrichment opportunities. The research took place in the computer lab at an elementary school in Michigan. At the request of the experimenter, the principal selected participants who were below average readers. Selected students were administered three oral reading fluency (ORF) passages from the Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Good & Kaminski, 2002) at their grade level. The median words read correctly per minute and percentile rank (PR) scores were: Student

Table 1

Seven-step Procedure vs. Multilearning Channel Procedure

Seven-step Procedure	Mulitlearning Channel Procedure
1. Look at word, say word	1. Look at word, say word
2. Look at word, spell it aloud	2. Look at word, spell it aloud
3. Look at word, spell it aloud	3. Cover word, spell it aloud, uncover, check
4. Cover word, spell it aloud, uncover, check	4. Cover word, spell it aloud, uncover, check
5. Cover word, spell it aloud, uncover, check	5. Cover word, write word
6. Cover word, write word	6. Look at word, check spelling
7. Look at word, check spelling	

1: ORF = 115, PR = 45; Student 2: ORF = 47, PR = 5; Student 3: ORF = 0, PR = <1; and Student 4: ORF = 57, PR = 7. Students 2 and 3 were eligible for special education services as cognitively impaired.

Procedure

The main portion of the study occurred over a 3-week period. The first day of each week, the students were presented with words on flashcards until 20 words were misread two times. Words used with students 2 and 3 were generated from the Fry (1980) and Dolch (1936) word lists, which are frequently used in schools. Students 1 and 4 were presented with additional words found in a reading improvement textbook (Shanker & Ekwall, 1998). Incorrect words were defined as any mismatch between the word on the card and an oral response to that word, including substitutions, omissions, and mispronunciations. Furthermore, the word was counted as incorrect if it was not read within 3 seconds. The following two or three days of the week, the students were taught to read the words. The 20 words were randomly assigned to either a word supply or a multi-learning channel error correction procedure.

Word supply error correction condition.

When a student made an error in this condition, the researcher said the word and asked the student to repeat it. Specifically, the teacher said, "This word is [teacher says correct word]. What word?" The student then repeated the word or the error correction procedure was repeated. This is a common correction format used in direct instruction programs (Carnine, Silbert, & Kameenui, 2004).

Multilearning channel correction condition.

Errors in this condition were followed by a multilearning channel error correction procedure very similar to the one used at Ben Bronz Academy. The correction procedure consisted of the following:

1. The researcher told the student the word and the student repeated the word. This step was identical to the word supply error correction procedure.
2. The student was asked to spell the word out loud, while looking at the word. The researcher said, "Spell _____."
3. The student covered the word, spelled it aloud, and uncovered the word to check the spelling. The researcher said, "Cover _____ and spell it out loud." If the word was spelled incorrectly, this step was repeated.
4. Step #3 was repeated.
5. The student covered the word and wrote the word on a sheet of paper. The researcher said, "Cover _____ and write it."
6. The student checked the spelling. If the spelling was incorrect, this step was repeated.

An alternating-treatments design was used to compare the effectiveness of the two error correction procedures on the sight-word reading of flashcards. The presentation of the words in each condition was alternated daily to control for order effects. At the beginning of each teaching session, the researcher showed each of the 10 unknown words on flashcards to the participant and read them aloud one at a time. Next, the researcher said, "I am going to show you some cards with words on them. When I ask, 'What word?' please say the word aloud." The researcher shuffled the cards and re-presented each card to the student. Correct responses were followed by verbal praise, such as "good!" or "right!" Incorrect responses were followed by either the word supply procedure or the multi-learning channel error correction procedure. The researcher continued through the stack of cards two times. After the researcher had gone through each set of words two times using the appropriate error correction, the flashcards were shuffled and re-presented to the student. At this time, no consequences were provided (i.e., no praise or error correction). The number of words out of 10 read correctly was recorded. Next, the researcher showed the student a sheet that contained each of the 10 words randomized and repeated to form 100 words in five columns. The examiner said, "Try to read each word. Read the words down [the researcher demonstrated by pointing down the first column]. If you come to a word you don't know, I will tell it to you." If students were stuck on a word for 3 seconds, they were told the word. The students were given one minute to read the words. The number of words read correctly and incorrectly per minute was recorded.

Maintenance

Four to 5 weeks after the final instruction, three of the students were retested on all of the

words from each condition. One of the students was not available for the maintenance test. The researcher randomly determined whether the word supply or the multilearning channel words would be presented first. All of the words from the condition were printed in columns on a page. The student was asked to read each word. The researcher had an identical sheet and marked those words that were misread. The percentage of correctly read words was recorded. Next, the examiner presented a sheet with the same words as those just tested, but the words were randomized and repeated to fill the entire page. The student read the words for one minute, and the number of words read correctly and incorrectly per minute was recorded.

Interobserver Agreement

A second trained independent observer recorded each student's performance on all dependent measures, that is, percent of word cards read correctly and number of words read correctly on random word sheets for 54% of the sessions. This observer sat near the student and in full view of the presented word cards and random word sheets. Percentage of agreements was calculated by using a word-by-word method, dividing the total number of agreements by the total number of agreements plus disagreements and multiplying by 100%. The overall agreement for the word cards was 99.8%. The overall agreement for the random word sheets was 99.4%.

Treatment Integrity

A trained observer recorded the occurrence or nonoccurrence of critical instructional procedures on 14 trials (4 trials for three students and 2 trials for one student). The observer recorded whether or not the researcher (a) waited 3 seconds before correcting a student error, (b) provided verbal praise following all correct responses, and (c) properly implemented the error correction procedure for each word. When students did not initially respond correctly to a sight-word card, the researcher waited for 3 seconds before providing error correction on 100% of all observed trials under both error correction conditions. The researcher praised 100% of all correct responses in both the word supply and the multi-learning channel error correction conditions. The researcher correctly provided error correction on 98.2% of the total student errors in both conditions.

RESULTS

The number of words learned over the course of the study based on the word card assessments in the word supply procedure versus the multilearning channel procedure was 18 vs. 20 (Student 1), 29 vs. 29 (Student 2), 12 vs. 14 (Student 3), and 30 vs. 29 (Student 4). One procedure was not clearly superior to the other in the number of words learned.

Figures 1-4 show each student's performance on frequency of words read correctly and errors on the fluency sheets. Within a week's set of words, the number of words read correctly increased and errors decreased for all students except Student 3. Student 3 had a much greater number of errors than the other students and performed at a much slower frequency. A "jaws" pattern of increasing correct responses and decreasing errors is evident for students 1, 2, and 4, indicating that they were learning the sets of words with daily practice. As with the word cards, the students' performances on the fluency sheets were not significantly better using either procedure. The performances often overlapped or one procedure was more effective one week but not the next. For Students 1, 2, and 4, the acceleration of corrects was high across students and weeks. Decelerations usually divided at a similar rate, except that errors accelerated for Student 2 in Week 1 of the multilearning channel condition. Given the variability within and across students, neither procedure appears more effective than the other.

Students 1, 2, and 3 were available for the maintenance test. Each student was tested on the word cards and fluency sheets. Considering the results across all three students, one procedure was not superior to the other in terms of either percentage of words read correctly (Table 2) or the frequency of words read correctly or incorrectly per minute (Figures 1-4).

The average amount of time per session teaching the words in the word supply and multilearning channel procedures was recorded for each student. For all four students, the multilearning channel procedure was more time consuming than the word supply procedure (average across all students equaled 11 minutes vs. 5 minutes).

JOURNAL OF PRECISON TEACHING AND CELERATION, VOLUME 23, 2007, PAGES 2-13

DAILY per minute CHART ™

Dpmin-12EC

Word Supply Error Condition

Multilearning Channel Error Condition

Corrects

Maintenance

Maintenance

Learning Opportunities

COUNT PER MINUTE

1000 500 100 50 10 5 1 .5 .1 .05 .01 .005 .001 0

COUNTING TIMES

10" sec 15" 20" 30" 1' min 2' 5' 10' 20' 50' 100' 200' 500' 1000'

hrs 1° 2° 4° 8° 16° 24°

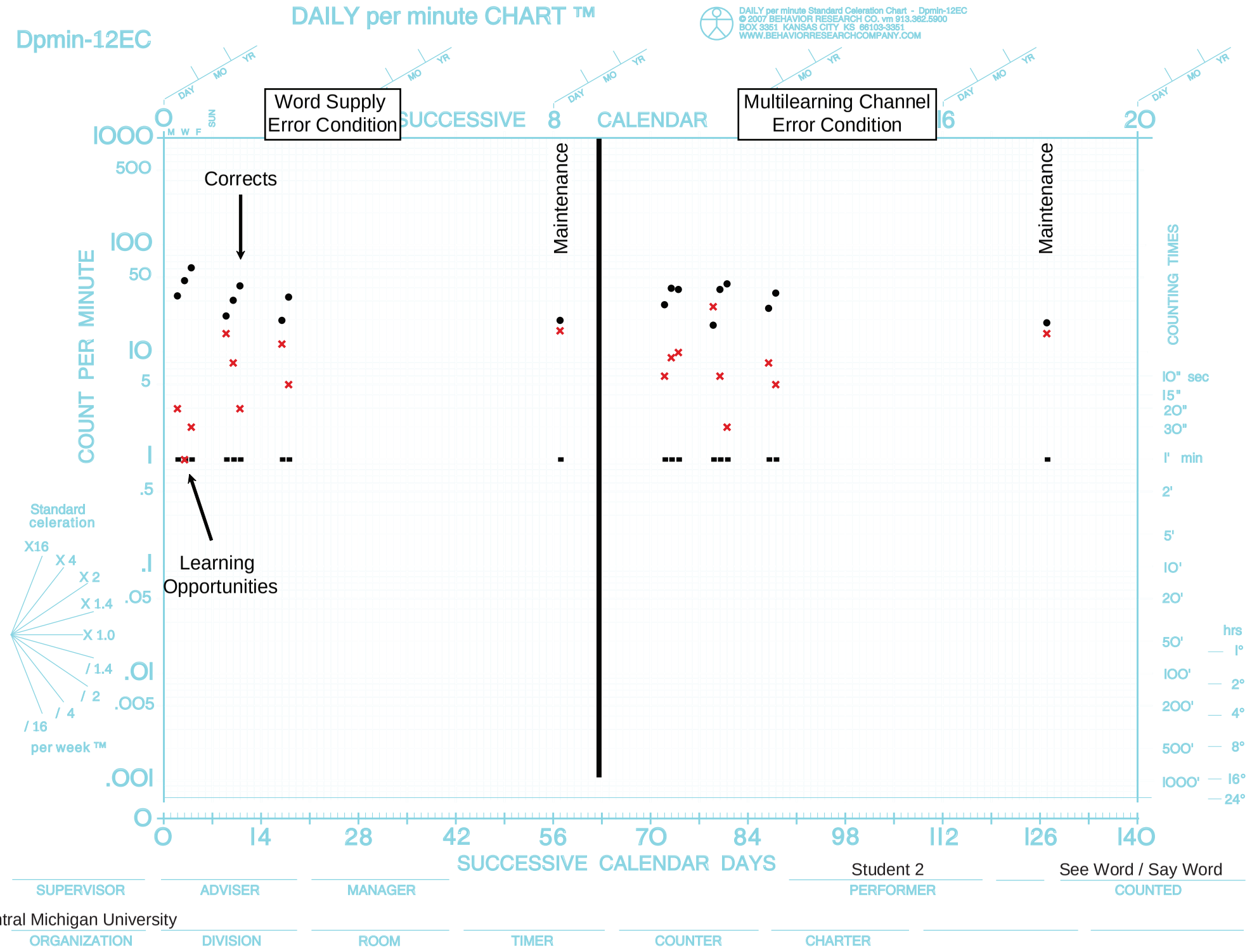
Standard celeration

X16 X 4 X 2 X 1.4 X 1.0 / 1.4 / 2 / 4 / 16 per week ™

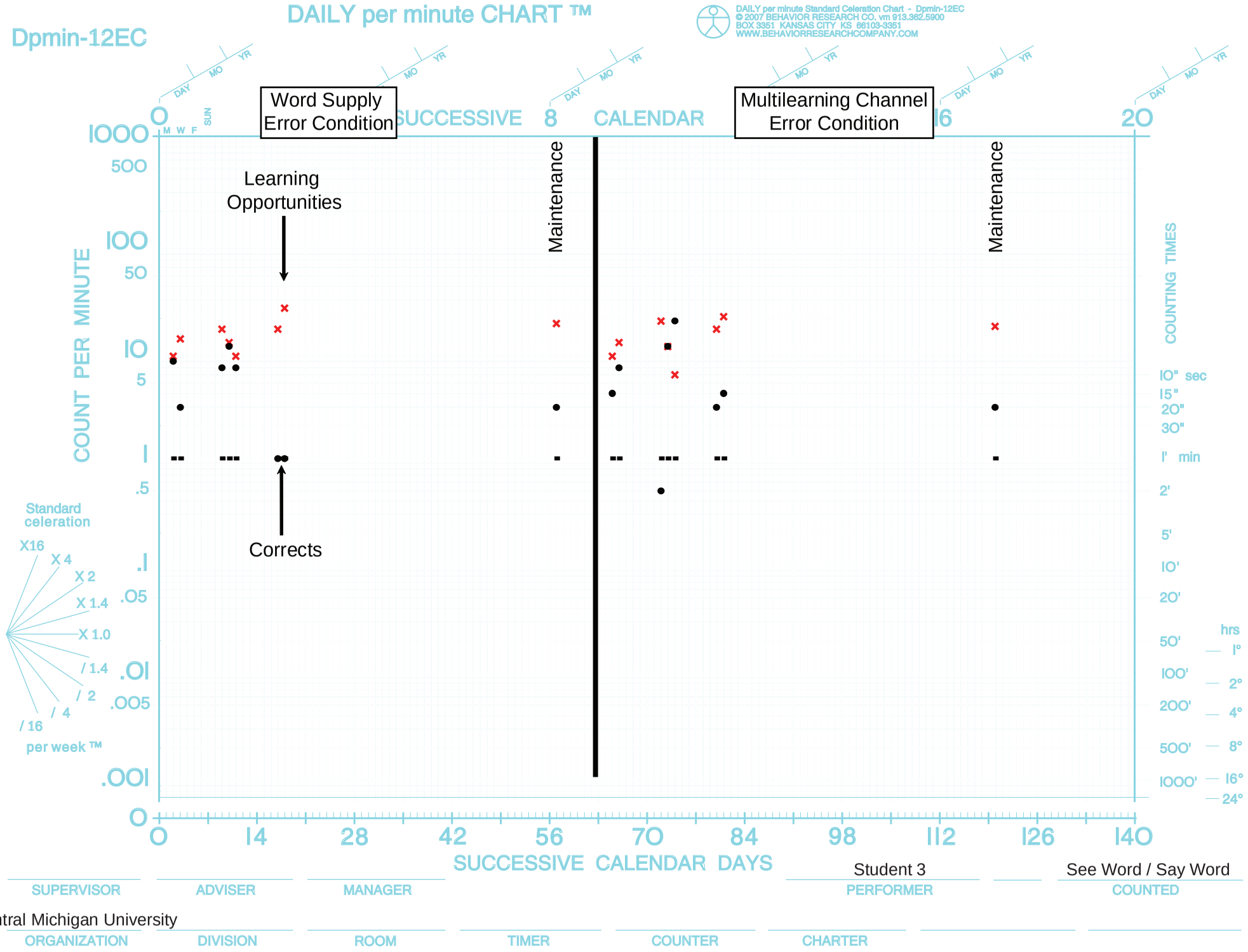
0 14 28 42 56 70 84 98 112 126 140

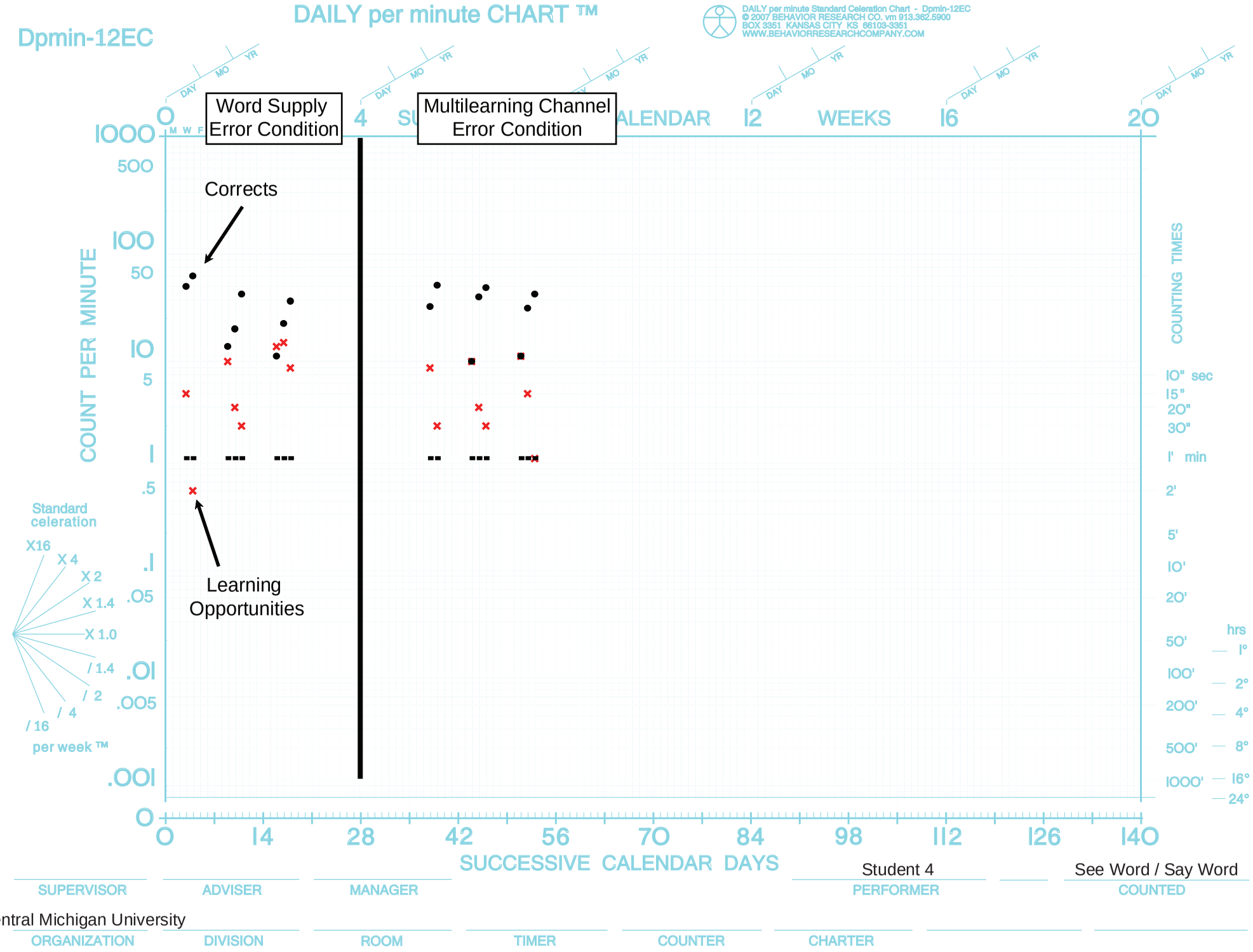
SUCCESSIVE CALENDAR DAYS

SUPERVISOR	ADVISER	MANAGER			Student 1 PERFORMER		See Word / Say Word COUNTED
Central Michigan University ORGANIZATION	DIVISION	ROOM	TIMER	COUNTER	CHARTER		



Central Michigan University


DAILY per minute CHART ™
Dpmin-12EC
DAILY per minute Standard Celeration Chart - Dpmin-12EC
© 2007 BEHAVIOR RESEARCH CO. vm 913.362.5900
BOX 3351 KANSAS CITY KS 66103-3351
WWW.BEHAVIORRESEARCHCOMPANY.COM
Word Supply Error Condition
Multilearning Channel Error Condition
Learning Opportunities
Corrects
Maintenance
Maintenance
SUCCESSIVE CALENDAR
COUNT PER MINUTE
1000
500
100
50
10
5
1
.5
.1
.05
.01
.005
.001
0
COUNTING TIMES
10" sec
15"
20"
30"
1' min
2'
5'
10'
20'
50'
100'
200'
500'
1000'
hrs
1°
2°
4°
8°
16°
24°
Standard celeration
X16
X 4
X 2
X 1.4
X 1.0
/ 1.4
/ 2
/ 4
/ 16
per week ™
0
14
28
42
56
70
84
98
112
126
140
SUCCESSIVE CALENDAR DAYS
SUPERVISOR
ADVISER
MANAGER
Student 3
PERFORMER
See Word / Say Word
COUNTED
ORGANIZATION
DIVISION
ROOM
TIMER
COUNTER
CHARTER


DAILY per minute CHART ™
Dpmin-12EC
DAILY per minute Standard Celeration Chart - Dpmin-12EC
© 2007 BEHAVIOR RESEARCH CO. vm 913.362.5900
BOX 3351 KANSAS CITY KS 66103-3351
WWW.BEHAVIORRESEARCHCOMPANY.COM
Word Supply Error Condition
Multilearning Channel Error Condition
Corrects
Learning Opportunities
COUNT PER MINUTE
1000
500
100
50
10
5
1
.5
.1
.05
.01
.005
.001
0
Standard celeration
X16
X 4
X 2
X 1.4
X 1.0
/ 1.4
/ 2
/ 4
/ 16
per week ™
COUNTING TIMES
10" sec
15"
20"
30"
1' min
2'
5'
10'
20'
50'
100'
200'
500'
1000'
hrs
1°
2°
4°
8°
16°
24°
0
14
28
42
56
70
84
98
112
126
140
SUCCESSIVE CALENDAR DAYS
0
4
12
16
20
WEEKS
DAY
MO
YR
M W F
SUPERVISOR
ADVISER
MANAGER
Student 4
PERFORMER
See Word / Say Word
COUNTED
Central Michigan University
ORGANIZATION
DIVISION
ROOM
TIMER
COUNTER
CHARTER

The average time spent within the multi-learning channel versus the word supply procedure was 8 vs. 4 minutes (Student 1), 8 vs. 5 minutes (Student 2), 18 vs. 6 minutes (Student 3), and 10 vs. 5 minutes (Student 4).

DISCUSSION

The results show that both the word supply and the multilearning channel error correction procedures helped to increase the percentage and frequency of words read correctly by each student. However, the multi-learning channel correction condition, which included the hear word-say word, see word-say letters (step repeated once), think-say letters (spell without seeing word; step repeated once), and think-write letters (write letters without seeing word) learning channels, was no more effective than the single learning channel, hear word-say word.

In general, Students 1, 2, and 4 learned the words better on both the word cards and the random word sheets than Student 3. The fluency sheet data show an open "jaws" pattern for Students 1, 2, and 4, in which correct responses increase and incorrect responses decrease over the course of the week. It is hypothesized that Student 3 was less proficient because she lacked necessary prerequisite reading skills. She had an oral reading fluency score of 0, so it was difficult to judge whether she was able to demonstrate mastery of letter names and sounds and whether she had any prior sight word knowledge. It would make sense that with deficiencies in these skills, Student 3 would struggle with the multi-learning channel error correction procedure. Additionally, Student 3 was frequently off-task and inattentive. For all four students, the time required to implement the multilearning channel procedure was considerably more than the word supply procedure. The current findings indicate that word supply is a more time-efficient teaching procedure than the multi-learning channel procedure. It may also be more useful and motivating for students who tend to be distractible.

With respect to motivation, it would have been interesting to explore each student's acceptance of each of the error correction procedures. In addition, the role of metacognition could be investigated. For example, when a student is asked to learn a new word, is the student able to identify a strategy for learning? What steps does the student take, and do these steps include multi-learning channel methods such as spelling the word aloud or writing the letters?

The inclusion of more learning channels (or more "senses") in the error correction did not improve performance over a single learning channel error correction. Past research has focused on the importance of a drill component, which was not directly included in the present study. It is suspected that the multi-learning channel procedure would be enhanced by the requirement that the word be repeated aloud following Steps 2 through 6.

Past research has examined the importance of interspersing known words and unknown words when teaching vocabulary or spelling (Burns, Tucker, Frame, Foley, & Hauser, 2000; Cooke, Guzaukas, Pressley, & Kerr, 1993; Gickling & Havertape, 1981; Neef, Iwata, & Page, 1980; Roberts & Shapiro, 1996; Roberts, Turco, & Shapiro, 1991). Gickling and Havertape (1981) suggested a 70% known to 30% unknown ratio for improving performance. Roberts and Shapiro (1996) and Roberts et al. (1991) found the 70:30 ratio to improve retention, although a more frustrating ratio of 50% known to 50% unknown and 10% known to 90% unknown, respectively, improved acquisition. In 2000, Burns et al. were also able to provide studies that supported

Table 2

Percentage of Word Supply and Multi-learning Channel Words Read Correctly in the Maintenance Test

Student	Word Supply	Multilearning Channel
1	90%	70%
2	50%	57%
3	13%	10%

the reliability of Gickling and Havertape's (1981) 70:30 ratio. The current study used all unknown words. Thus, interspersal methods, or "incremental rehearsal" (Burns et al., 2000), may have improved the reading performance and retention of words for students in the current study.

Implications from the present study suggest the need for future research involving error correction. The effects of a multistep procedure could be evaluated in terms of its impact on the reading improvement of multisyllable words versus short, single-syllable words. There may have been benefits of using the multilearning channel procedure that were not evaluated in this study. For example, the multi-learning channel procedure may have helped students spell the words better than the word supply procedure.

The present results may be relevant to multisensory teaching methods that are often recommended in the teaching of reading (Uhri & Shepherd, 1993). These methods should be evaluated against methods that use fewer learning channels to systematically determine whether they produce more rapid or better learning.

REFERENCES

Barbetta, P.M., Heron, T.E., & Heward, W.L. (1993). Effects of active student response during error correction on the acquisition, maintenance, and generalization of sight words by students with developmental disabilities. *Journal of Applied Behavior Analysis, 26*, 111-119.

Barbetta, P.M., Heward, W.L., & Bradley, D.M.C. (1993). Relative effects of whole-word and phonetic-prompt error correction on the acquisition and maintenance of sight words by students with developmental disabilities. *Journal of Applied Behavior Analysis, 26*, 99-110.

Barbetta, P.M., Herward, W.L., Bradley, D.M., & Miller, A.D. (1994). Effects of immediate and delayed error correction on the acquisition and maintenance of sight words by students with developmental disabilities. *Journal of Applied Behavior Analysis, 27,* 177-178.

Beck, R., Conrad, D., & Anderson, P. (1995). *Basic skill builder's handbook*. Longmont, CO: Sopris West.

Burns, M.K., Tucker, J.A., Frame, J., Foley, S., & Hauser, A. (2000). Interscorer, alternate-form, internal consistency, and test-retest reliability of Gickling's model of curriculum-based assessment for reading. *Journal of Psychoeducational Assessment, 18,* 353-360.

Carnine, D. (1980). Relationship between teaching method and correction procedure for initial word recognition skills. *Education and Treatment of Children, 3,* 93-98.

Carnine, D., Silbert, J., & Kameenui, D. (2004). *Direct instruction reading* (4th ed.). Upper Saddle River, NJ: Prentice Hall.

Combley, M. (Ed.). (2001). *The Hickey multisensory language course.* London: Whurr.

Cooke, N.L., Guzaukas, R., Pressley, J.S., & Kerr, K. (1993). Effects of using a ratio of spell programs with low-achieving students. *Journal of Educational Research, 85*, 362-369.

Dolch, E.W. (1936). A basic sight vocabulary. *The Elementary School Journal, 36,* 456-460.

Ehri, L.C. (1997). Learning to read and spell are one and the same, almost. In C.A. Perfetti, L. Rieben, & M. Fayol (Eds.), *Learning to spell: Research, theory, and practice across languages*

(pp. 237-269). Pittsburgh, PA: Mahwah, NJ.

Fry, E. (1980). The new instant word list. *Reading Teacher, 34,* 284-289.

Gickling, E., & Havertape, J. (1981). *Curriculum-based assessment*. Minneapolis, MN: National School Psychology Inservice Training Network.

Gillingham, A., & Stillman, B.W. (1997). *The Gillingham manual: Remedial training for students with specific disability in reading, spelling and penmanship.* Cambridge, MA: Educators Publishing Service.

Good, T.L., & Beckerman, T.M. (1978). Time on-task: A naturalistic study in sixth grade classrooms. *Elementary School Journal, 78,* 192-201.

Good, R.H., & Kaminski, R.A. (2002). *DIBELS oral reading fluency passages for first through third grades* (technical report #10). Eugene, OR: University of Oregon.

Hansen, C.L., & Eaton, M.D. (1978). Reading. In N.G. Haring, T.C. Lovitt, M.D. Eaton, & C.L. Hansen (Eds.), *The fourth R: Research in the classroom* (pp. 23-40). Columbus, OH: Merrill.

Isakson, R. L., & Miller, J.W. (1976). Sensitivity to syntactic and semantic cues in good and poor comprehenders. *Journal of Educational Psychology, 68,* 787-792.

Iwata, B.A., Dozier, C.L., Johnson, A.D., Neidert, P.L., & Thomason, J.L. (2005). Analysis of response repetition as an error-correction strategy during sight-word reading. *Journal of Applied Behavior Analysis, 38,* 511-527.

Jenkins, J.R. (1979). Oral reading: Considerations for special and remedial education teachers. In J.E. Button, T.C. Lovitt, & T.D. Rowland (Eds.), *Communications research in learning disabilities and mental retardation* (pp. 67-91 Baltimore: University Park Press.

Jenkins, J.R., Larson, K., & Fleisher, L.S. (1983). Effects of error correction on word recognition and reading comprehension. *Learning Disability Quarterly, 6,* 139-145.

National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction.* Washington, DC: National Institute of Child Health and Human Development.

Neef, N.A., Iwata, B.A., & Page, T.J. (1980). The effects of interspersal training versus high density reinforcement on spelling acquisition and retention. *Journal of Applied Behavior Analysis, 13,* 153-158.

O'Shea, L.J., Munson, S.M., & O'Shea, D.J. (1984). Error correction in oral reading: Evaluating the effectiveness of three procedures. *Education and Treatment of Children, 7,* 203-214.

Parker, R., Hasbrouck, J.E., & Denton, C. (2002). How to tutor students with reading problems. *Preventing School Failure, 47,* 42-44.

Roberts, M.L., & Shapiro, E.S. (1996). The effects of instructional ratios on students' reading performance in regular education program. *Journal of School Psychology, 34,* 73-92.

Roberts, M.L., Turco, T., & Shapiro, E.S. (1991). Differential effects of fixed instructional ratios on student's progress in reading. *Journal of Psychoeducational Assessment, 9,* 308-318.

Rose, T.L., McEntire, E., & Dowdy, C. (1982). Effects of two error correction procedures on oral reading. *Learning Disability Quarterly, 5,* 100-105.

Rosenberg, M.S. (1986). Error correction during oral reading: A comparison of three techniques. *Learning Disability Quarterly, 9,* 182-192.

Shanker, J.L., & Ekwall, E.E. (1998). *Locating and correcting reading difficulties* (7th ed.). Upper Saddle River, NJ: Prentice-Hall, Inc.

Shapiro, E. (2004). *Academic skills problems: Direct assessment and intervention* (3rd ed.). New York: Guilford Press.

Singh, N.N. (1990). Effects of two error correction procedures on oral reading errors: Word supply versus sentence repeat. *Behavior Modification, 14,* 188-199.

Singh, N.N., & Singh, J. (1986). A behavioural remediation program for oral reading: Effects on errors and comprehension. *Educational Psychology, 6,* 105-114.

Snow, C.E., Burns, M.S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children.* Washington, DC: National Academy Press.

Spence, I., Sharp, S., Stan-Spence, A., Friedman, S., & Hively, W. (2000). *The relationship between repeated readings and standard reading measures*. Retrieved May 9, 2002, from www.tli.com.

Uhri, J., & Shepherd, J. (1993). Segmentation/spelling instruction as part of a first-grade reading program: Effects on several measures of reading. *Reading Research Quarterly, 28,* 218-233.

Zanatta, L.T. (2000). *The effects of hearsee/say and hearsee/write training on acquisition, generalization, and retention.* Unpublished master's thesis, University of North Texas, Denton, TX.