

IMPLEMENTING AND EVALUATING COVER, COPY, AND COMPARE SPELLING FOR A PRIMARY STUDENT WITH AUTISM: A CASE REPORT

Caroline Ivicsek Cordes(s)
Tigard-Tualatin School District
USA
ccordes@ttsd.k12.or.us

T. F. McLaughlin
Gonzaga University
USA
mclaughlin@gonzaga.edu

K Mark Derby
Gonzaga University
USA
derby@gonzaga.edu

Stacy Higgins
Spokane Public Schools
USA
StacyH@spokaneschools.org

ABSTRACT

The purpose of this study was to determine if a cover, copy and, compare (CCC) spelling program was appropriate to teach spelling to a young student with autism. The participant was a 9 year-old-female with autism. The research was carried out in a self-contained special education room in a public school. The dependent variables were the number of correct and error words on daily spelling tests. The results indicated that CCC was an effective program for teaching a young child with autism to spell. The participant's corrects increased and errors declined. These differences were statistically significant. The applicability of using cover, copy, and compare for young students with autism was discussed.

Keywords: autism, young child, public school classroom, self-contained program, spelling words, corrects and error words, ASD

INTRODUCTION

A student's ability to spell words correctly shows clear understanding of the letters, sounds, and syllable patterns that make up the English language; as well as other languages (Bear & Templeton, 1998). As a result spelling is a very complicated and tasking subject to teach students in an efficient manner (Wanzek, Vaughn, Wexler, Swanson, Edmonds, & Kim, 2006). Spelling has been defined as the formation of words through the sequential and meaningful arrangement of letters and requires the encoding spoken utterances into written symbols (Heron, Okyere, & Milldner, 1991).

With the importance of spelling to academic success, it is particularly important that educators utilize teaching tools and methodologies that have been proven empirically to assist children at school (Graham, Harris, Fink-Chorzempa, & Adkins, 2004). This is especially true when one is working with children with autism spectrum disorder (ASD).

Autism is a disability characterized by lack of communication and social functioning (Thompson, 2007, 2008, 2009; B. Williams & R. Williams, 2011). Research suggests that an intensive early behavioral intervention remains the best treatment currently available for autistic children (Fenske, Zalenski, Krantz, & McClannahan, 1985; Thompson, 2007, 2008, 2009). The prevalence of children diagnosed with autism in the last 10 years has increased at an unprecedented rate (Heward, 2010; Thompson, 2007). Many special education teachers are seeing the increased numbers of students in their classes, and in some schools special education programs have dedicated classrooms specifically for autism.

Students diagnosed with autism have specific characteristics associated with their level of functioning as well as their academic abilities. One goal for many special educators is to find empirically supported teaching procedures that are highly appropriate for students with autism (Landa, 2007; Thompson, 2008, B. Williams & R. Williams, 2011).

One intervention that reduces the necessity for one-on-one instruction, and has been shown to be effective in increasing spelling performance has been cover, copy, and compare or copy, cover, and compare (CCC) (Cates, Dunne, Erkfritz, Kivisto, Lee, & Wierzbicki, 2006). CCC is an inexpensive, evidenced-based self-managed and self-tutoring intervention that does not require extensive training to implement and employ in the classroom (McLaughlin & Skinner, 1996; Neis&Belfiore, 2006; Skinner, McLaughlin, & Logan, 1997). Cover, copy, and compare has been employed across a wide range of classroom settings ranging from resource rooms (McLaughlin, Mabee, Reiter, & Byram, 1991) to self-contained special education classrooms (Cieslar, McLaughlin, & Derby, 2008; Hubbert, Weber, & McLaughlin, 2000). With the increases in the number of students with ASD, teaching procedures need to be evaluated for use and implementation for such students.

The purpose of this study was to determine a cover, copy, and compare spelling program as an appropriate tool for the acquisition of correct spelling for students with autism. The participant was a 9 year-old female with autism. The research took place in a primary-grade Designed Instruction (DI) self-contained special education room in a public school. Hear-to-write spelling of words was measured.

METHOD

Participant and Setting

The participant was a 9-year-old female student. She was diagnosed with autism (ASD) as a preschooler and was enrolled in a self-contained Developmentally Impaired classroom. She had been diagnosed with ASD by a local pediatrician and the school psychologist.

The setting was a primary-grades designed instruction (DI) classroom. The classroom was in a modular classroom sat next the main building of a public elementary school in an urban school district in Eastern Washington. At the time of the data collection, the classroom served eight students with chronological ages ranging from six to nine students. The classroom was managed by two certified part-time special education teachers. Each taught one-half of each week, and two full-time instructional aides were also present. A full-time student teacher (the first author) from a local university was also present and was completing her practicum work toward certification in special education. These data were collected at a table in the classroom where the student was used to working.

Measurement and Data Collection

This research employed to measure the spelling of Dolch level three reading words. She was orally given a level three Dolch words and expected to write each word correctly (correct letters in correct order) immediately following that oral prompt. Ten Dolch words were placed into a list. For a word to be defined as correct it had to match the word order found on the level three Dolch list. Accuracy at 90% was set as standard to move to a new word list. Data were gathered as she wrote the words in a spiral notebook used solely for this spelling program.

Experimental Conditions

The researcher employed an AB₁B₂ single-case design (Kazdin, 2010).

Baseline (A)

During baseline, Alice was verbally prompted to spell the 55 Dolch level three reading words. The prompt was, "Spell the word _____." The word was repeated orally if needed. Baseline was in effect for one session. From the pretest, 10 words (1 correct and 9 error words) were chosen.

Copy, cover, and compare (CCC)

During the copy, cover, compare phase of the research, a list of ten Dolch words was presented to Alice on a sheet of paper. The paper had several columns. One column had the printed words, the second column for Alice to copy the word, and the third column for Alice to write the word on her own (See Carter, McLaughlin, Derby, Schuler, & Everman, 2011 for an example). Several sheets of heavy paper were used to cover up the portions of this list that were not being employed (both the

rows of words other than the word Alice was currently working on and the first two columns when Alice was to write the word on her own). One word at a time was shown to Alice. The first author would state, "This word is _____. What word?" Alice would repeat the word. The researcher would prompt, "Copy the word _____." Alice would then copy the word in the second column. The researcher would then cover the first two columns with heavy paper and state, "Now write the word _____." The participant would write the word on her own. The first two columns were then revealed and the researcher and Alice would compare them with the word written in the third column. If the third column was spelled correctly, the same process would be carried out for the remaining words on the list. If the word was not spelled correctly, the child was required to write the word correctly five times in a spiral notebook. Once this process was completed for each of the ten words on the list, Alice would complete a posttest in a spiral notebook. For the posttest, the researcher would number the child's paper 1-10, then prompt Alice for each word, saying, "For number 1, write the word _____." The participant's performance for each session was assessed based on this post-test. For a word to be counted correct, each letter in the word was required to be present in the appropriate order. This entire process was completed for List 1 until three consecutive data days provided an at-standard performance of 90% or higher. The same was then completed for List 2.

Reliability of Measurement and Fidelity of Implementation of TheIndependent Variables

Reliability was taken after each session. Another adult in the classroom regarded the participant's work. If both scored the word in the same manner an agreement was scored. Any discrepancy in grading was scored as a disagreement. The number of agreements were divided by the number of agreements plus disagreements and multiplied by 100. For each session 100% reliability was found. Reliability as to the implementation of various experimental manipulations was also gathered each session. The observer had to observe and determine which procedure was being employed (baseline, CCC list 1 or CCC List 2). There was 100% agreement as to the implementation of the various conditions.

RESULTS AND DISCUSSION

The effects of the various experimental conditions, baseline, cover, copy, and compare with Alice can be seen in Figure 1. In baseline, she spelled 1 correct and 9 errors, or for the words employed in both List 1 and 2 there were only one correct word.

During CCC for List 1, her accuracy increased to 8.17 words (range of 6 to 10 correct words). Errors for List 1 averaged just 1.83 (range of 0 to 4 errors). During cover, copy, compare with List 2, her correct rate was 6.4 words with a range of 4 to 8 words correct). Alice's errors increased and averaged 3.6 words (range 2 to 5 errors).

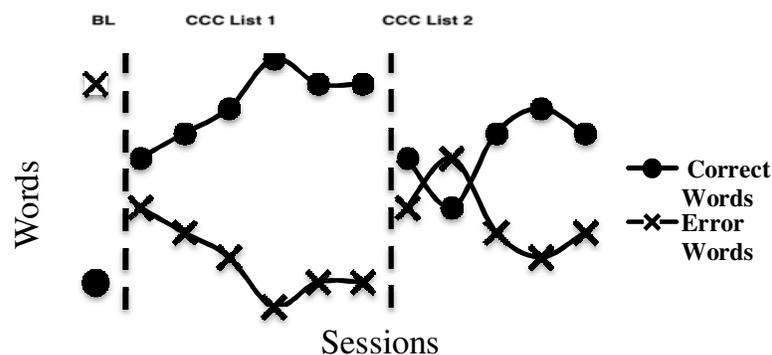


Figure 1. The number of corrects (closed circles) and errors (x's) for Alice in baseline, CCC List 1 and CCC List 2

Using a Friedman nonparametric analysis-of-variance (Siegel, 1956), the differences between conditions were statistically significant between conditions ($\chi^2 = 15.4; p = .004$). Follow tests using a Wilcoxon Matched Pairs Signed Ranks Test found significant differences between baseline and CCC for List 1 and List 2 for corrects ($Z = -2.671; p = .018$) and between CCC List 1 and 2 CCC for

corrects ($Z = 2.823$; $p = .032$). Follow-up tests were significant between each condition for errors ($Z = 2.032$; $p = .0422$).

The results revealed that the cover, copy, compare procedure was an effective in the acquisition of spelling with a primary child with autism. Our outcomes also provide some evidence that evidence-based procedures for students with mild disabilities (Skarr, McLaughlin, Derby, Meade, & Williams, in press; Travis, McLaughlin, Derby, & Carosella, 2012; may well be effective and worth pursuing in future research for children with autism. Since we only were able to assess one pupil, further research is needed across additional participants and classroom settings.

The results of the program were more pronounced with List 1 than List 2. Several explanations for this finding are possible. First, there were several days between sessions for List 2. For some sessions there was as much as a five-day delay due to absences and spring break. Second, our participant was absent a great due to illness. There were more days missed during List 2 than for List 1.

There were limitations in the present case report. First we only employed one participant. Second, did not carry out a return to baseline for ethical and practical reasons. Finally, data collection was difficult due to student absences and spring break.

The present case report provided some additional evidence that young students with autism can be taught such basic skills. In the present case report provides a partial replication of our prior work with cover, copy, and compare (Becker, McLaughlin, Weber, & Gower, 2009; Carter et al., 2011; Cieslar et al., 2008; Hubbert et al., 2000; Kaufman, McLaughlin, Derby, & Waco, 2011; McLaughlin et al., 1991; Poff, McLaughlin, Derby, & King, in press; Skarr et al., in press) and Skinner and colleagues (Poncy & Skinner, in press), and the research of others (Cates et al., 2007). In addition, provides additional evidence regarding the use of single case designs in classroom settings (Barlow, Nock, & Hersen, 2008; Kazdin, 2010) and as well as its methodology for young students with autism (Carlson, McLaughlin, Derby, & Blecher, 2009; Cosby, McLaughlin, Derby, & Huewe, 2009; Jordon, McLaughlin, Weber, et al., 2003; Membrey, McLaughlin, Derby, & Antcliff, 2011; Solis, McLaughlin, & Derby, 2003; Williams & Williams, 2011).

REFERENCES

Barlow, D. H., Nock, M., & Hersen, M. (2008). *Single case research designs: Strategies for studying behavior change* (3rd ed.). New York: Allyn and Bacon.

Becker, A., McLaughlin, T. F., Weber, K. P., & Gower, J. (2009). The effects of copy, cover, and compare with and without error drill on multiplication fact fluency and accuracy. *Electronic Journal of Research in Educational Psychology, 18*, 747-760. Retrieved from <http://www.investigacion-psicopedagogica.org/revista/new/english/anteriores.php>

Carlson, B., McLaughlin, T., Derby, K., & Blecher, J. (2009). Teaching preschool children with autism and developmental delays to write. *Electronic Journal of Research in Educational Psychology, 7*(1), 225-238.

Retrieved from <http://www.investigacion-psicopedagogica.org/revista/new/english/anteriores.php>

Carter, M., McLaughlin, T. F., Derby, K. M., Schuler, H., & Everman, J. (2011). Differential effects of cover, copy, and compare in spelling with four high school students with severe behavior disorders. *Academic Research International, 1*, 43-52, Retrieved from: <http://174.36.46.112/~savaporg/journals/issue.html>

Cates, G. L., Dunne, M., Erkfritz, K. N., Kivisto, A., Lee, N., & Wierzbicki, J. (2007).

Differential effects of two spelling procedures on acquisition, maintenance, and adaptation to reading. *Journal of Behavioral Education, 16*, 70-81.

Cieslar, W., McLaughlin, T. F., & Derby, K. M. (2008). Effects of the copy, cover, and compare procedure on the math and spelling performance of a high school student with behavioral disorder: A case study. *Preventing School Failure, 52*(4), 45-51.

- Cosby, E., McLaughlin, T. F., Derby, K. M., & Huewe, P. (2009). Using tracing and modeling with Handwriting without Tears® worksheet to increase handwriting legibility for a preschool student with autism. *Open Social Science Journal*, 2, 67-69. Retrieved from: <http://www.benthamscience.com/open/tosscij/>
- Graham, S., Harris, K. R., Fink-Chorzempa, B., & Adkins, M. (2004). Extra spelling instruction promotes better spelling, writing, and reading performance right from the start. In A. Pincus (Ed.), *Tips from the experts: A compendium of advice on literacy instruction from educators and researchers*. Long Valley, NJ: NJIDA.
- Heron, T. E., Okyere, B. A., & Millder, A. D. (1991). A taxonomy of approaches to teach spelling. *Journal of Behavioral Education*, 1, 117-130.
- Heward, W. E. (2010). *Exceptional children: An introduction to special education* (9thed.). Upper Saddle River, NJ: Pearson Education.
- Hubbert, E. R., Weber, K. P., & McLaughlin, T. F. (2000). A comparison of copy, cover, and compare, and a traditional spelling intervention for an adolescent with a conduct disorder. *Child & Family Behavior Therapy*, 22(3), 55-68.
- Jordan, S., McLaughlin, T. F., Weber, K. P., Derby, K. M., Barretto, A., Williams, R. L., & Luiten, L. (2003). The effects of work then play in combination with a token economy on the frequency of inappropriate behaviours for an elementary school child with autism. *International Journal of Special Education*, 18(2), 31-36. Retrieved from: <http://www.internationaljournalofspecialeducation.com/>
- Kaufman, L., McLaughlin, T. F., Derby, K. M., & Waco, T. (2011). Employing reading racetracks and DI flashcards with and without cover, copy, and compare and rewards to teach of sight words to three students with learning disabilities in reading. *Educational Research Quarterly*, 34, 24-44.
- Kazdin, A. E. (2010). *Single case designs: Methods for clinical and applied settings* (2nded.). New York: Oxford University Press.
- Landa, R. (2007). Early communication development and intervention for children with autism. *Mental Retardation and Developmental Disabilities Research Reviews*, 13, 16-25.
- McLaughlin, T. F., & Skinner, C. H. (1996). Improving academic performance through self-management: Cover, copy, and compare. *Intervention in School and Clinic*, 32, 113-119.
- Membrey, A., McLaughlin, T. F., Derby, K. M., & Antcliff, C. (2011). A modification of cover, copy, and compare in spelling for three middle school students with multiple disabilities. *International Journal of Social Science and Education*, 1(4), 491-505. Retrieved from: <http://advasol.net/?q=node/19>
- Nies, K. A., & Belfiore, P. J. (2006). Enhancing spelling performance in students with learning disabilities. *Journal of Behavioral Education*, 15, 162-170.
- Poff, B., McLaughlin, T. F., Derby, K. M., King, K. J. (in press). The effects of cover, copy, and compare with free time in math for elementary students with severe behavior disorders. *Academic Research International*, 2(2), Retrieved from: <http://174.36.46.112/~savaporg/journals/issue.html>
- Poncy, B. C., & Skinner, C. H. (in press). Combining class-wide cover, copy, and compare with an interdependent group contingency to enhance addition-fact fluency in a first-grade classroom. *Journal of Applied School Psychology*.
- Siegel, S. (1956). *Nonparametric statistics for the behavioral sciences*. New York: McGraw-Hill.
- Skarr, A., McLaughlin, T. F., Derby, K. M., Meade, K., & Williams, R. L. (in press). A comparison of direct instruction flashcards and cover, copy, compare to teach spelling to elementary school students. *Academic Research International*, 2(2). Retrieved from: <http://174.36.46.112/~savaporg/journals/issue.html>

Skinner, C. H., McLaughlin, T. F., & Logan, P. (1997). Cover, copy, and compare: A self-managed academic intervention effective across skills, students, and settings. *Journal of Behavioral Education*, 7, 295-306.

Solis, T., Derby, K. M., & McLaughlin, T. F. (2003). The effects of precision teaching techniques and functional communication training on problem behavior of a 12-year-old male with autism. *International Journal of Special Education*, 18(1), 49-54. Retrieved from: <http://www.internationaljournalofspecialeducation.com/>

Thompson, T. (2007). *Making sense of autism*. Baltimore: Paul H. Brookes Cole.

Thompson, T. (2008). *Dr. Thompson's straight talk on autism: The expert guide parents can trust*. Baltimore: Paul H. Brookes Cole.

Thompson, T. (2009). *Freedom from meltdowns: Dr. Thompson's solutions for children autism*. Baltimore: Paul H. Brookes Cole.

Wanzek, J., Vaughn, S., Wexler, J., Swanson, E. A., Edmonds, M., & Kim, A. (2006). A synthesis of spelling and reading interventions and their effects on the spelling outcomes of students with LD. *Journal of Learning Disabilities*, 39, 528-543.

Williams, B. F., & Williams, R. L. (2011). *Effective programs for treating autism spectrum disorder: Applied behavior analysis models*. New York: Routledge.