

THE USE OF COVER, COPY, COMPARE PROCEDURE TO TEACH SPELLING WORDS WITH A HIGH SCHOOL STUDENT ENROLLED IN A BEHAVIOR INTERVENTION SPECIAL EDUCATION CLASSROOM: A BRIEF REPORT AND PARTIAL REPLICATION

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ABSTRACT

The purpose of this brief report was to determine if a high school student diagnosed with a learning disability and behavior disorders could benefit from using a copy, cover, and compare (CCC) procedure in spelling. The dependent variable was the number words spelled correctly. A reversal design was employed to evaluate the effectiveness of CCC. The outcomes demonstrated a positive relationship between the CCC procedures and increased spelling accuracy. Employing the CCC procedure in a high school special education was cost effective and required only average preparation.

Keywords: Cover, Copy, Compare, Behavior Disorders, Spelling, Learning Disabilities, Replication, Case Report

INTRODUCTION

Cover, copy, and compare (CCC) has been demonstrated to be effective in improving spelling skills across a wide range of student populations and classroom environment (Hochstetler, McLaughlin, Derby, & Kinney, in press; Ivceck-Cordes, McLaughlin, Derby, & Higgins, 2012; Joseph, Konrad, Cates, Vajcner, Eveleigh, & Fisheye, 2012; McLaughlin & Skinner, 1996; Neis & Belfiore, 2006; Skinner, McLaughlin, & Logan, 1997; Smith & Dittmer, 2002). CCC has also been described as an efficient, self-managed intervention (McLaughlin & Skinner, 1996; Skinner et al., 1997). CCC has been employed with such specific academic areas as reading (Kaufman, McLaughlin, Derby, & Waco, 2011; Miller, Giovenco, & Rentier, 1987) math (Cieslar, McLaughlin, & Derby, 2008; Poff, McLaughlin, Neyman, & King, 2012 Skinner, Bamberg, Smith, & Powell, 1993), spelling (Carter, McLaughlin, Derby, Everman, & Schuler, 2011; Erion, Davenport, Rodax, Scholl, & Hardy, 2009; McLaughlin, Mabee, Reiter, & Byram, 1991; Skarr, McLaughlin, Derby, Meade, & Williams, 2012), or learning specific discipline related vocabulary (Skinner, Belfiore, & Pierce, 1992; Zielinski, McLaughlin, & Derby, 2012) Also, CCC can be implemented with various education settings, classroom configurations (Joseph et al., 2012; Merritt, McLaughlin, Weber, Derby, & Barretto, 2012) and disability designations (Ivceck-Cordes, McLaughlin, & Derby, 2012). In summary, CCC has been implemented the most often to improve spelling (Cates et al., 2007; Joseph et al., 2012).

When employing CCC in spelling, the student looks at the correct version of the word, covers the correct word and copies down the word from memory. Next, the student uncovers the word, and compares the two in order to verify whether a correct or incorrect response was made (Erion et al., 2009). Having the student compare his response to the correct response allows for the student to self-check his work. If the student is correct, he moves on to the next word. If the student misspells the word, he is required to copy the word correctly three

times before moving to the next work in the list (McLaughlin & Skinner, 1996). The self-management aspect of these procedures where the student self-corrects his work before moving on to the next word, has proven effective in developing discrete skills (Miller et al., 1987). CCC also gives the student the ability to independently provide accurate feedback to him or herself, and implement the CCC intervention's correction procedure. CCC is not only one of those academic interventions which provides the student immediate error-correction, but also "encourages high rates of accurate academic responding" (Skinner et al., 1997). This type of feedback prevents a student from practicing incorrect answers; which in turn promotes quick learning acquisition of skills or terms (Skinner & Smith, 1992).

The purpose of this study was to evaluate the effects of the CCC procedure to improve spelling skills by a high school student in a self-contained behavior-intervention classroom. An additional purpose was to provide an additional replication of CCC in the same classroom employed by Carter et al. (2011). A final purpose was to provide a replication of our previous work (Cieslar et al., 2011; Hollingsworth, McLaughlin, Derby, & Keith, 2012; Membrey, McLaughlin, Derby, & Antcliff, 2009) carried out in middle and high school classroom settings

METHOD

Participant and Setting

The participant was a 14-year-old adolescent at the time the study began. The student was qualified for special education with a specific learning disability with academic as well as social/behavioral goals within his IEP. There were no physical limitations that required assistance or modification. The child was at a 2.2 grade level for spelling and similarly low levels in broad reading and math as determined by a recent *Woodcock-Johnson III test* (ref) administration by the researcher. The student was mostly cooperative and happy to leave his normal class to work with the researcher. This subject was recommended by the special education teacher to undergo an intervention due to his stable attendance, mild behavior, and spelling goals contained within his IEP.

The study took place in a self-contained multi-age and multi-academic level behavioral-intervention classroom focusing on behavioral-intervention programs for each student. This classroom has been employed in other investigations (Carter et al., 2011). The location of the study was at a local high school and was in the 9-12 grade self-contained behavior intervention (BI) classroom. Typically, 4-5 students were present each day, and they were aided on individual assignments by one special education student teacher, one special education teacher and one to two paraprofessionals. The study took place during the mornings several days each week. The study was conducted by the first author as part of the requirements for an Endorsement Program in Special Education from a local private university (McLaughlin, Williams, Williams, Peck, Derby, Bjordahl, & Weber, 1999).

Response Definition and Observation Procedures

The target behavior was spelling accurately as determined by results on a 10-word spelling test. The spelling words were based on the "100 most common words of the English Language" list received from the classroom teacher. The 10 words were chosen at random from the list and were given to the student orally. The student was told the word at least two times, with words that sound the same as other words mentioned within a sentence using its proper meaning (ex. there and there would be presented in a sentence using the appropriate meaning). The student was given 2-3 seconds to write the word on paper, and the researcher would then orally present the next word. This would continue until all 10 words were

presented to the student. The first author recorded the number of spelling words correctly spelled and the date on a data sheet.

EXPERIMENTAL DESIGN AND CONDITIONS

An ABABA single case research design (Kazdin, 2011; McLaughlin, 1983) was used to evaluate the effects of our CCC procedure on the spelling ability of a 14-year-old boy.

Baseline

Before baseline, no specific spelling program was in effect. However, general writing skills had been developed through worksheets and question prompts-practice where the child would be asked a question or given a written demand to write an idea or thought. During this time, there was no explicit spelling instruction. Errors in spelling were corrected as they were observed and the student was given verbal prompts to redo the writing if the teacher determined it as appropriate.

When baseline data were collected, the researcher asked the student to spell a list of 10 words on a paper titled, "Spelling Test." The student was given 2-3 seconds for each word and the words were repeated at least two times for the student to clearly understanding the spelling task. When the sessions were over the researcher praised the student for participation. No correction was given to the child for incorrect answers during intervention. There were three sessions in the first baseline condition followed by two other baseline probes on session 8 and 12.

CCC

During CCC, the first author researcher provided our participant with a CCC practice worksheet. He was given 10 words to spell during each session. He was taught to look at the spelling word and memorize the correct spelling of the word. Next, he was directed to cover the correct version of the word with a sheet of paper. After covering this word, he was to write the correct version of the word in the space provided. When finished spelling the word, our participant uncovered the original word and compared it to his spelling of this word. If his spelling matched that of the sample provided, it was scored as correct. He was then permitted to move down the list to the next word. However, if he spelled a word incorrectly, he was required to rewrite the correct spelling of the word underneath his error word three times. After the participant completed going through all 10 words, he was administered an oral test over these words. Our participant was given 2 to 3 seconds to produce the word in writing.

Pre and Post-testing

A pretest and posttest that consisted of 60 of the words that would be used throughout the research was given at the beginning and at the end of data collection. The child was given unlimited time to carry out the task. These two tests were given as a measure of general spelling skills as well as a way to evaluate improvements from baseline to post-CCC.

Reliability of Measurement

Inter-grader agreement was conducted for each session. The spelling tests were written in pen and were copied immediately after each session. Then, all tests were graded by a primary and a secondary-scorer for reliability. The percent of inter-grader agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. The mean inter-grader reliability was 96.67% in baseline. During CCC, the mean percent of inter-observer reliability was 98.89% (range: 90-100%).

RESULTS

The number of words spelled correctly for each session in baseline and CCC can be seen in Figure 1. His overall mean for words correct in the first baseline was 8.67 (range: 8-9 words).

CCC was first employed, the participant's increased to a mean of 9.4 (range: 8-10 words). The first return to baseline resulted in a small decrease in performance with 9 words spelled correctly in this phase. A return to CCC generated an increase in performance ($M = 9.3$; range 8 to 10 words). A return to baseline produced a decrease to 7.0 words spelled correctly.

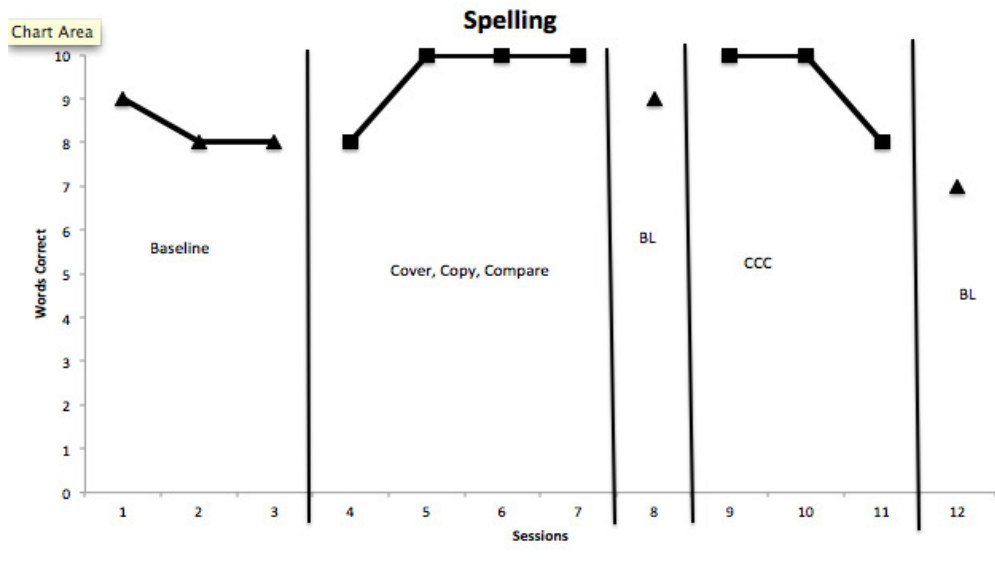


Figure 1. The number of words spelled correctly during three baselines (BL) and two phases of CCC.

Pre and post test data for all 60 words were the following. At the beginning of the data collection, the participant spelled 45 out of 60 words correct or 75%. On the posttest this increased to 51 out of 60 words which was an increase to 85%.

DISCUSSION

The CCC procedure proved to be somewhat effective for our participant. However, his skills in spelling were quite high in all three-baseline conditions. Although the intervention did not have as large of an impact, the classroom teacher was pleased with the findings. The student was able to respond at a faster pace when asked to spell certain words. The student was also able to improve spelling on several of the words. Notably, he previously would spell "people" without the "o"; however, after the implementation of CCC, the student remedied this error and maintained knowledge of the correct spelling several weeks later. The error correction procedure is a vital component of CCC, and that itself may have produced increased levels of accurate responding, and increased spelling skills in later sessions. We have also found that model, lead, and test error correction to be highly effective across a range of social and academic skills (Munizi & McLaughlin, in press; Peterson, McLaughlin, Weber, & Anderson, 2009; Shouse, Weber, & McLaughlin, 2012).

When our participant was asked if he enjoyed the spelling and CCC sessions and whether or not it was useful. He said, "Yes, kind of". When asked whether the intervention, CCC, was

the cause for the spelling improvement, the participant was not totally sure. He also felt that maybe daily practice could be contributing to his improved spelling, but he was not totally sure. We also felt that the daily practice could be a contributing factor. The first author also asked the student if his spelling skills were getting better or worse. The student answered, "Better." This could be viewed as a possible measure of social validity (Wolf, 1978) for the intervention.

Finally, the present outcomes could be viewed as a partial replication of our previous work (Carter et al., 2011; Zielinski et al., 2012) with CCC in a high school classroom setting. The lack of a large improvement in performance may well have been a function of high performance in the beginning. Even though the words changed over time, his performance remained high. The failure of the second baseline to reduce his academic performance brings the present outcomes into some question.

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REFERENCES

- 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). The effects of the copy, cover, and compare procedure on the math and spelling performance of a high school student with behavior disorder: A case report. *Preventing School Failure*, 52(4), 45-51.
- Darrow, D., McLaughlin, T. F., Derby, K. M. & Johnson, K. (2012). The effects of a cover, compare, and compare procedure with and without timing on the spelling of core list words with elementary students with severe behavior disorders. *International Electronic Journal of Elementary Education*, 4(2), 417-426. Retrieved from: <http://www.iejee.com/>
- Erion, J., Davenport, C., Rodax, N., Scholl, B., & Hardy, J. (2009). Cover-copy-compare and spelling: One versus three repetitions. *Journal of Behavioral Education*, 18, 319-330.
- Hochstetler, E., McLaughlin, T. F., Derby, K. M. & Kinney, M. (2013). The effects of cover, copy, and compare to teach spelling to middle school students with learning disabilities. *Educational Research Quarterly*, 36.
- Ivicek-Cordes, C., McLaughlin, T. F., Derby, K. M. & Higgins, S. (2012). Implementing and evaluating cover, copy, and compare spelling for a primary student with autism: A case report. *Academic Research International*, 2(3), 271-276. Retrieved from: <http://174.36.46.112/~savaporg/journals/issue.html>
- Joseph, L. M., Konrad, M., Cates, G., Vajcner, T., Eveligh, & Fishley, K. M. (2012). A meta-analytic review of the cover-copy-compare and variations of this self-management procedure. *Psychology in the Schools*, 49, 122-136.
- Kazdin, A. E. (2011). *Single case experimental designs: Methods for clinical and applied settings* (2nd. ed.). New York: Oxford University Press.
- McLaughlin, T. F. (1983). An examination and evaluation of single subject designs used in behavior analysis research in school settings. *Educational Research Quarterly*, 7, 35-42.
- McLaughlin, T. F., Mabee, W. S., Reiter, S. & Byram, B. (1991). An analysis and replication of the add-a-word spelling program with mildly handicapped middle school students. *Journal of Behavioral Education*, 1, 413-426.
- McLaughlin, T. F. & Skinner, C. H. (1996). Improving academic performance through self-management: Cover, copy, and compare. *Intervention in School and Clinic*, 32, 113-118.
- McLaughlin, T. F., Weber, K. P. & Derby, K. M. (2013). Classroom spelling interventions for students with learning disabilities. In H. L. Swanson, K. R. Harris, & S. Graham (Eds.). *Handbook of learning disabilities* (2nd ed.) (pp. 439-457). New York Guilford Press.
- McLaughlin, T. F., Williams, B. F., Williams, R. L., Peck, S. M., Derby, K. M., Bjordahl, J. M. & Weber, K. M. (1999). Behavioral training for teachers in special education: The Gonzaga University program. *Behavioral Interventions*, 14, 83-134.
- 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>
- Merritt, J., McLaughlin, T. F., Weber, K. M., Derby, K. M. & Barretto, A. (2012). The effects of a

- copy, cover, compare practice procedure in spelling with four second-grade students: generalization to weekly in classroom tests. *International Journal of Advances in Psychology*, 1(1), 1-5. Retrieved from: <http://www.ij-psychol.org>.
- Miller, G. E., Giovenco, A. & Rentier, K. A. (1987). Fostering comprehension performance through self-management: Cover, copy, and compare. *Journal of Reading Behavior*, 19, 379-393.
- Munizi, A. & McLaughlin, T. F. (in press). The effects of an error drill procedure on the sight-word reading skills of an elementary student with severe behavior disorders. *International Journal of English and Education*, 2(2). Retrieved from: <http://www.ijee.org/>.
- Peterson, L., McLaughlin, T. F., Weber, K. P. & Anderson, H. (2008). The effects of a model, lead, and test technique paired with visual prompts with a fading procedure to teach "where" to a 13-year-old echolalic boy with autism. *Journal of Developmental and Physical Disabilities*, 20, 31-39.
- Poff, B., McLaughlin, T. F., Derby, K. M. & King, K. (2012). The effects of cover, copy, and compare with free time in math for elementary students with severe behavior disorders. *Academic Research International*, 2(2), 247-263. Retrieved from: <http://174.36.46.112/~savaporg/journals/issue.htm/>
- Skarr, A., McLaughlin, T. F., Derby, K. M., Meade, K. & Williams, R. L. (2012). A comparison of direct instruction flashcards and cover, copy, compare to teach spelling to elementary school students. *Academic Research International*, 2(2), 247-263. Retrieved from: <http://174.36.46.112/~savaporg/journals/issue.html>
- Skinner, C. H., Bamberg, H. W., Smith, E. S. & Powell, S. S. (1993). Cognitive, cover, copy, and compare: Subvocal responding to increase rates of accuracy division responding. *Remedial & Special education*, 14(1), 49-56,
- Skinner, C. H., Beatty, K. L., Turco, T. L. & Rasavage, C. (1989). Cover, copy and compare: A method for increasing multiplication performance. *School Psychology Review*, 18, 412-420.
- Skinner, C. H., Belfiore, P. J. & Pierce, N. L. (1992). Cover, copy, and compare: Increasing geography accuracy in students with behavior disorders. *School Psychology Review*, 21, 73-81.
- 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*, 17, 295-306.
- Skinner, C. H. & Smith, E. S. (1992). Issues surrounding the use of self-management interventions for increasing academic performance. *School Psychology Review*, 32, 202-210.
- Smith, T. J. & Dittmer, K. I. (2002). Enhancing science performance in students with learning disabilities using cover, copy, compare: A student shows the way. *Psychology in the Schools*, 39, 417-426.
- Zielinski, K., McLaughlin, T. F. & Derby, K. M. (2012). Employing and evaluating cover, copy, and compare on spelling accuracy with high school students with learning disabilities. *American Secondary Education*, 40(4), 78-95.