

THE DIFFERENTIAL, DELAYED AND MODERATE EFFECTS OF COVER, COPY, COMPARE ON SPELLING SECOND GRADE CORE ON SPELLING SECOND GRADE CORE WORDS FOR TWO ELEMENTARY STUDENTS WITH SPECIFIC LEARNING DISABILITIES

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Abstract:

The purpose of the study is to test the effects of a Copy, Cover, and Compare (CCC) strategy in spelling for two students with a specific learning disability. The students demonstrated a lack of skill when working on spelling at grade level. The participants were two fourth grade boys, one age 9 and the other age 10. Each had been diagnosed with specific learning disabilities. The study was conducted in an elementary resource room in a large urban school district in the Pacific Northwest. A multiple baseline design was utilized to evaluate the effects of CCC. The results showed delayed improvement during CCC for one participant and modest improvement for the other participant. Reasons for the lack of robust outcomes were given.

Key Words: *learning disabilities, spelling, multiple baseline design, copy, cover, compare, CCC, weak replication, resource room*

Introduction

With the continued advancement of technology and use of instant messaging, spelling may well seem as a lost art fading into the realm of the almost obsolete (Varnhagen, McFall, Figueredo, Takach, Daniels, & Cuthbertson, 2009). Unfortunately, spelling still remains an indicator of literacy (McLaughlin, Weber, & Barretto, 2004, McLaughlin, Weber, & Derby, 2013). A recent set of study by Drouin, (2011), examined literacy skills and its possible association and the frequency of using such technology with college students. The more students used texting, instant messaging, or social networking sites, the greater the association with literacy. However, classroom research that taught students to use a spell check function found in word processing programs has produced mixed outcomes. Berninger, Abbott, Augsburger, and Garcia (2009) reported that one simply cannot improve spelling by teaching students to employ the spell check function found on most computer writing programs.

Spelling has been linked to literacy. Understanding of how the letters and sounds form words aids in the reading of longer words and development of ideas in writing. In a study, it was stated that “the correlation between spelling and reading comprehension is high because both depend on a common denominator: proficiency with language. The more deeply and thoroughly a student knows a word, the more likely he or she is to recognize it, spell it, define it, and use it

appropriately in speech and writing." (Joshi, 2008). The importance of spelling can be the key to a child's self esteem when it comes to their writing and other academic work in school.

Review of Literature

CCC is student self-managed drill and practice procedure (McLaughlin & Skinner, 1996; Skinner, McLaughlin, & Logan, 1997). CCC requires the student to copy the word to be spelled correctly, cover both the sample provided and the student copy, and then write the word from memory. Next, the student checks the word to determine if the word was spelled correctly or in error. If the word is spelled correctly, the student moves to the next word. If the student makes an error, he or she is required to write the word correctly three times before moving on to the next word (Skinner et al., 1997). CCC has been effective in improving student performance in a wide range of academic subject matter areas. These have included math (Cieslar, McLaughlin, & Derby, 2008; Ozaki, Williams & McLaughlin, 1996; Poff, McLaughlin, Derby, & King, 2013; Skinner, Bamberg, Smith, & Powell, 1993; Stading, Williams, & McLaughlin, 1996), science (Smith, Dittmer, & Skinner, 2002), reading (Kaufman, McLaughlin, Derby, & Waco, 2011) and spelling (Skarr, McLaughlin, Derby, Meade, & Williams, 2012). Spelling has been the most frequent academic skill that has been employed with CCC (Joseph, Konrad, Cates, Vajcner, Veleigh, & Fishley, 2012). Spelling has been improved with CCC across a wide range of age and grade levels. This has included high school students with behavior disorders (Carter, McLaughlin, Derby, Everman, & Schuler, 2011; Doll, McLaughlin, Neyman, & Schuler, 2013). CCC has even been employed and evaluated in a wide variety of environments ranging from general education classrooms (Merritt, McLaughlin, Weber, Derby, & Barretto, 2012), special education settings (Erbey et al., 2011; Darrow, McLaughlin, Derby, & Johnson, 2012; Ivicck-Cordes, McLaughlin, Derby, & Higgins, 2012; Poff et al., 2013), and even in the home (Stading, Williams, & McLaughlin, 1996; Stone, McLaughlin, & Weber, 2005). Finally, CCC has been shown to be effective to improve the spelling for students with learning disabilities (Erbey et al., 2011; Skarr et al., 2012; Stading et al., 1996), behavior disorders (Cater et al., 2011; Doll et al., 2013; Hollingsworth, McLaughlin, Derby, & Keith, 2012), multiple and severe disabilities (Membrey, McLaughlin, Derby, & Antcliff, 2011), and students with autism (Ivicck-Cortes, McLaughlin, Derby, & Higgins, 2012).

Recently, component analyses of CCC have started to occur. Erion, Davenport, Rodax, Scholl, and Hardy, (2009) compared the differences between one repetition vs. three repetitions of correcting the spelling of error words. They found that three repetitions were superior to a single repetition. Skarr et al., (2012) compared CCC to a Direct Instruction (DI) flashcard procedure. Using a counterbalanced multiple baseline design, they found that CCC and DI flashcards were equally effective for both a general education student and two students with intellectual disabilities in spelling.

The purpose of the study was to evaluate the effects of a CCC strategy with spelling for two students with a specific learning disability. Therefore, the present research would provide an additional replication (Kazdin, 2011) regarding the efficacy of CCC when employed in a resource room setting. A final purpose was to extend and replicate CCC with a different pair of elementary students using high use words to improve their spelling.

Methodology

Participants and Settings

The study was conducted on two participants. Participant 1 was a 10-year-old fourth grade boy who was diagnosed with a specific learning disability. Participant 2 was a 9-year old fourth grade boy also diagnosed with a specific learning disability. Both participants struggled in the area of spelling and writing. Both were at a second grade level in terms of spelling. Participant 2 was about a half grade level more proficient in spelling in comparison to Participant 1. The first author selected the two participants because the master teacher suggested their similar needs for assistance in spelling.

The resource room in which the study was took place consisted of two semi-circle tables, four regular tables, three desks, bookshelves, and two teacher desks. Most data were collected at either a semi-circle table or regular table. The study took place in a large urban school district in the Pacific Northwest. There were 30 students receiving instruction in the resource room. They arranged in age from 5 to 13 years. Two to four adults are present at the time the study took place. The study was conducted by the first author with the minor assistance of the classroom instructional staff. This classroom has been the setting for a number of research and evaluation projects to demonstrate the ability of our candidates to improve student academic or social behaviors (Casey, McLaughlin, Derby, & Everson, 2003; Everson & McLaughlin, 1996; Hyde, McLaughlin, & Everson, 2009; Lund, McLaughlin, Derby, & Everson, 2011).

Materials

The study utilized the CCC system for learning spelling words. The intervention program consisted of the participants rewriting words previously missed on a CCC sheet. The first author used three sets of predetermined spelling words with ten words per set. There were 30 words total as chosen from the *Rebecca Sitton list of 1200 most common words* (Sitton, 1995). The participants both had separate words. The words employed as well as the data collection sheet can be seen in Appendices A-C.

Dependent Variable

The major dependent variable was the accuracy of spelling second grade core words from the Rebecca Sitton spelling list. Each session, two sets of words were administered to the participants. At times, one list was in CCC while the other list was in baseline. The first author chose three sets of words, ten words per set. In order for a word to be counted as correct, the participants had to spell the word in the correct order and it had to match the spelling found on the *Sitton spelling list of 1200 high frequency writing words* (Sitton, 1995).

Data were collected from the number of correct words spelled per set. After the test was completed, the first author graded the words and transferred the data per set on a data collection sheet. The sheet had the date, the session number, the amount correct and incorrect per set, and as to whether inter-observer agreement occurred. A conversion of percent score was then completed. This was calculated by dividing the number of words correct by the number of words possible and multiplying by 100.

Experimental Design and Conditions

A multiple baseline design (Kazdin, 2011; McLaughlin, 1983) was utilized to document the effects of a CCC procedure in learning spelling words. There were three sets of ten spelling words. Each set of spelling lists consisted of words chosen by the first author from the Rebecca Sitton list levels 1 and 2

from *Sitton Spelling List of 1200 High Frequency Writing Words*. Two lists were made. Participant 1 is farther behind on his spelling skills than Participant 2 so the first author accommodated with a more difficult list for Participant 2.

Baseline. The first author instructed the participants to get a blank piece of lined paper and prepare for a spelling test. The first author would take one participant and peers with one spelling test. Either the instructional aid or resource room teacher would take the other participant and peers and employ a different spelling test or word list. Two sets would be given for a total of twenty words. The words would be read off one at a time with a sentence in order to give context for the word. When participants would finish their tests, be given no verbal praise for working hard and then were allowed to continue with classroom work.

CCC. The same procedures used in baseline with the spelling tests while in baseline were continued throughout CCC. The participants and their peers were given their own CCC sheet. They were instructed to read the word, copy it in the next column, say each letter as they spelled it, and then cover up both words with their hand and try to do it from memory in the third column labeled 'compare'. They then were to check their spelling. If it was correct, they moved down their sheet until all were complete. If it was incorrect, they had another chance to write it correctly in the final column whilst looking at it the word. The first author took the percentage correct from both sets used and transferred these data to a data collection sheet (Appendix C).

Once the spelling tests were finished, the set being intervened on would be corrected. The words missed were written on the copy, cover, compare sheet in the blank column. The participants and their peers were given their own CCC sheet. They were instructed to read the word, copy it in the next column, say each letter as they spelled it, and then cover up both words with their hand and try to do it from memory in the third column labeled 'compare'. They then were to check their spelling. If it was correct, they moved down their sheet until all were complete. If it was incorrect, they had another chance to write it correctly in the final column whilst looking at it the word. The first author took the percentage correct from both sets given and transferred the data to a data collection sheet.

Reliability of Measurement

For Participant 1, inter-observer agreement was collected on 6 of 17 sessions for a total 35%. For Participant 2, inter-observer agreement was collected 12 out of 12 sessions. The certified classroom teacher, instructional aid, or fellow college student served as second observers for reliability of measurement. Interobserver agreement was calculated through a total session reliability formula by dividing the number of agreements by agreements + disagreements and multiplying by 100 (Alberto & Troutman, 2012). The agreement was 100% each time it was occurred. Comparisons between the totals for each set were then measured. Mean agreement was 100%.

Findings

Baseline

The results for Participant 1 are displayed in Figure 1. In baseline for Set 1 the percent of correct words spelled ranged from 60% to 70% ($M = 65\%$). In Set 2, Sessions 1 through 9, the percent of correct words spelled ranged from 10% to 40% ($M = 25.7\%$). In Set 3, Sessions 1 through 17, the percentage of correct words spelled ranged from 20% to 40% ($M = 32.9\%$). His overall mean for baseline was 33.75% with a range of 10% to 100% for Set 3.

The results for Participant 2 are displayed in Figure 2. In baseline for Set 1 the percent of words spelled correctly ranged from 20% to 50% ($M = 35\%$). In Set 2, sessions one through seven the percentage of correct words spelled ranged from 50% to 60% ($M = 54\%$). In Set 3, baseline performance ranged from 20% to 50% with an overall mean of 36%. His overall grand mean for all sets in baseline was 42.36% with a range of 20% to 60%.

CCC

In intervention for Participant 1 for Set1 began on Session 3. The results showed a slight decrease from baseline. However, after Session 5 in improvement as time and the intervention went on. Intervention for Set 1 began in the third session and the percentage of correct answers ranged from 50% to 100% ($M = 76\%$). In Set 2, intervention began on the tenth session. The percentage of correct answers ranged from 10% to 60% ($M = 35\%$). Due to the participant's performance CCC was never implemented for Set 3.

CCC for Participant 2 for Set 1 began on Session 3. The results showed a steady increase until mastery was reached. Intervention for Set 1 began in the third session and the percentage of correct answers ranged from 60% to 100% ($M = 75.6\%$). In Set 2, intervention began on the eighth session and the percentage of correct answers ranged from 60% to 80% ($M = 70\%$). Intervention never began for Set 3.

Maintenance

Participant 1 was the only participant to reach maintenance. This was achieved with words from Set 1. His performance for maintenance ranged from 50 to 80% with an overall mean of 65%.

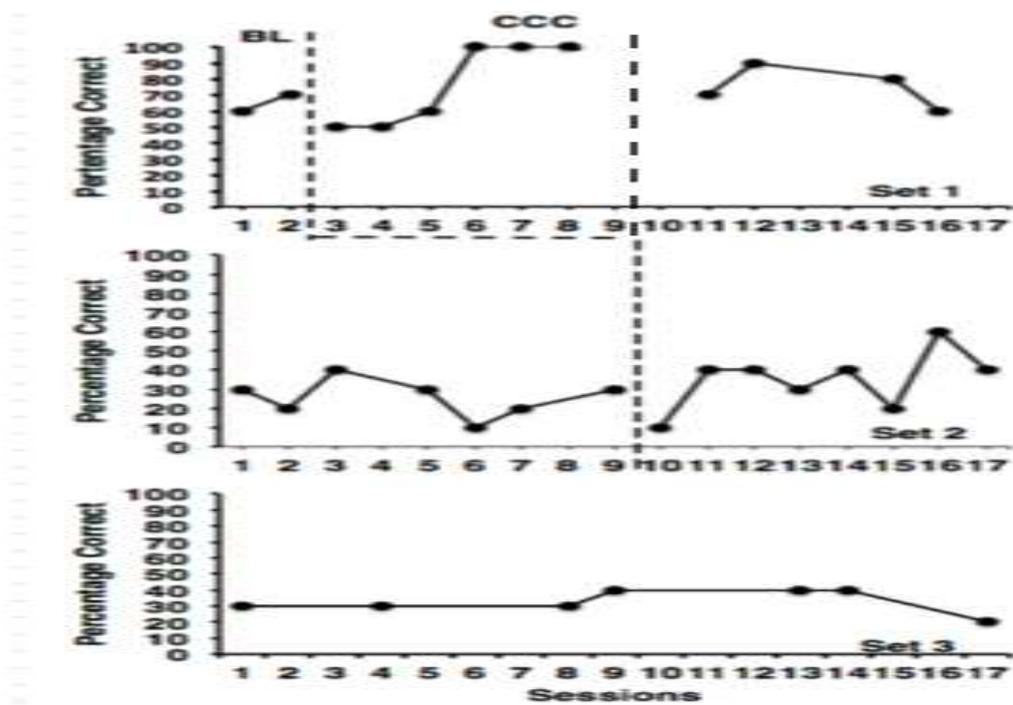
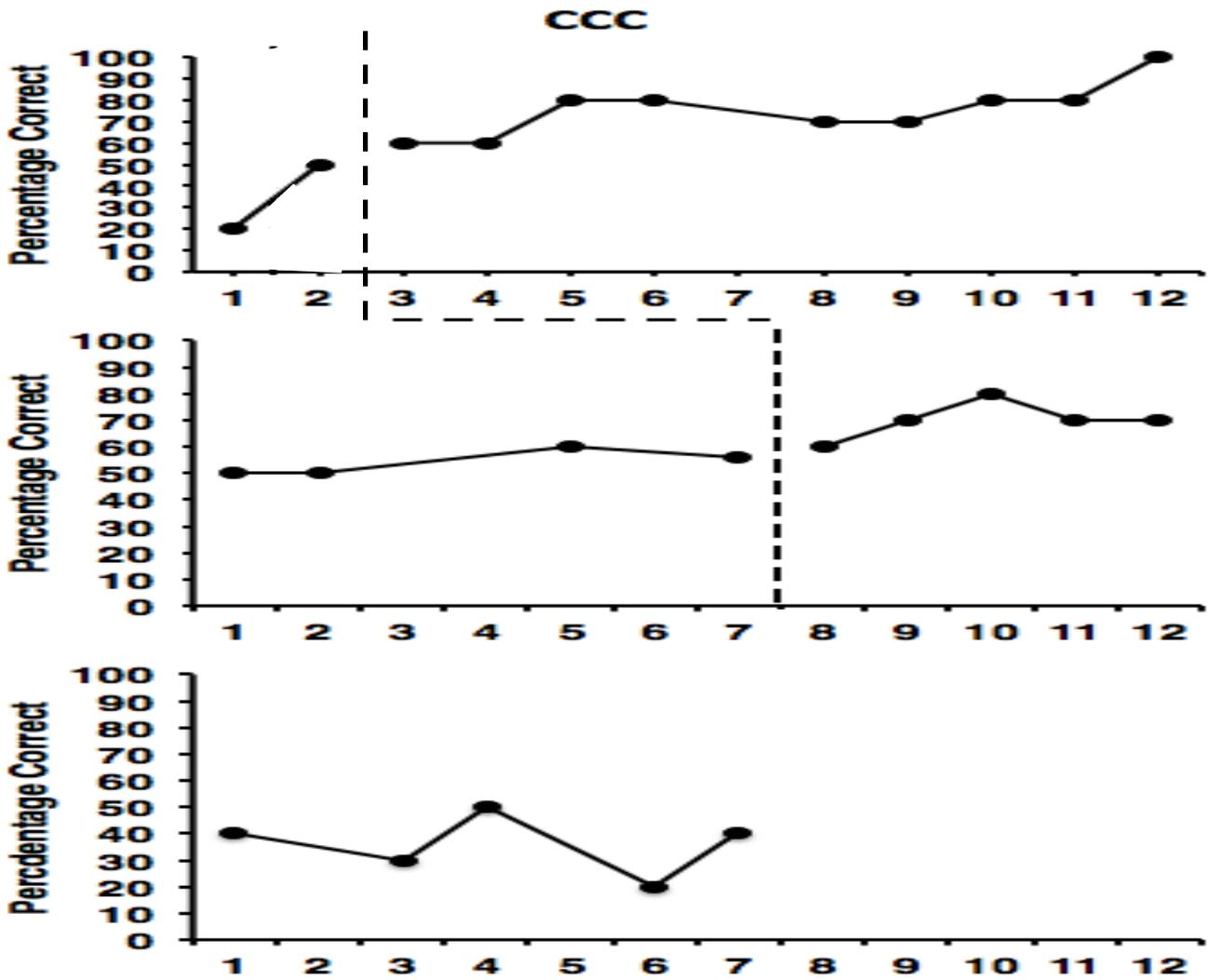


Figure 1. The percent correct during baseline for Sets 1-3 and during CCC for Sets 1 and 2.



Conclusion

Using CCC in spelling had a delayed effect with Participant 1, and a small effect with Participant 2. For Participant 2, only 1 overlapping data point (Kazdin, 2011) between baseline and CCC was found. Unfortunately, the present outcomes fail to provide a rigorous replication for CCC, which has been established in our prior research (Carter et al., 2011; Doll et al., 2013; Erbey et al., 2011; Ivicsek-Cordes et al., 2012; Membrey et al., 2011; Merritt et al., 2012; Skarr et al., 2012; Stading et al., 1996; Stone et al., 2002; Zielinski, McLaughlin, & Derby, 2012). It also failed to replicate the work of Chris Skinner and colleagues (Erion et al., 2002; Skinner, Bamberg, Smith, & Powell, 1993; Skinner & Belfiore, 1992; Smith et al., 2002). It also failed to confirm the efficacy of CCC that was reported in recent meta-analysis (Joseph et al., 2012).

Suggestions and Recommendations

Several possible explanations for our present outcomes need to be discussed. First, there days when the procedures could not be employed for various reasons ranging from high stakes testing to absences on the part of both the participants and the first author. It was hard to maintain consistency tracking which words were in CCC vs. those in baseline. Time to work with both participants also proved to be an issue. Since the resource room serviced many students, instructional time becomes valuable. At times it gets difficult to justify spending an exuberant amount to time on spelling. The general education teacher often would keep the students in the classroom for additional instruction. This led to days where spelling instruction was brief or did not take place in the resource classroom. The manner in which the Sitton words were selected may have introduced some possible confounding variables. May be choosing words at random or words that the participants were having difficulty with some form of a pretest. Also, each spring many classrooms are mandated to complete statewide testing. Completing both the MAP and MSP testing consumed large amounts of classroom instructional time. We have commented on the effects of high stakes testing the amount of time lost for instruction in spelling (McLaughlin et al., 2013) as have others (Ravitch, 2010).

Some possible recommendations for additional research appear needed. Increasing instructional for spelling and opportunities to practice would be warranted (Graham, 1999; McLaughlin et al., 2013) needed. Also, one could have the students take the CCC materials back to their general education classroom for independent work. or take them home for additional practice (Stading et al., 1996; Stone et al., 2002). Working in a resource room provides for a unique fast paced change in learners who need extra help in certain academic subjects. Unfortunately it does not offer a lot of time an extended study of CCC. Another possible suggestion would be to add some sort of verbal component. The participants would verbally spell the missed words from memory a certain number of times after the CCC sheet had been completed. Finally, developing a CCC software program that could be placed on a laptop or classroom computer could do much to provide some additional time and instruction. It appears that these suggestions should provide some guidance for future research.

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References

- Alberto, P. A., & Troutman, A. (2012). *Applied behavior analysis for teachers* (9th ed.). Upper Saddle River, NJ: Pearson Education.
- Apel, K., & Lawrence, J. (2011). Contributions of morphological awareness skills to word-level reading and spelling in first-grade children with and without speech sound disorder. *Journal of Speech, Language, and Hearing Research, 54*, 1312-1327
- Berninger, V., Abbott, R., Augsburger, A., & Garcia, N. (2009). Comparison of pen and keyboard transcription modes in children with and without learning disabilities affecting transcription. *Learning Disability Quarterly, 32*, 123-141.
- Brice, R. G. (2004). Connecting oral and written language through applied writing strategies. *Intervention in School and Clinic, 40*, 38-47.
- Casey, J., McLaughlin, T. F., Weber, K. P., & Everson, M. (2003). The effects of five minute practice, unlimited practice, with SAFMED cards on correct and error rate for two elementary school children with learning disabilities. *International Journal of Special Education, 18*(1), 66-72. Retrieved from: <http://www.internationaljournalofspecialeducation.com/>
- 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/>
- Drouin, M. A. (2011). College students' text messaging, use of social networks, and literacy skills. *Journal of Computer Assisted Learning, 27*(1), 67-75.
- Erbey, R., McLaughlin, T. F., Derby, K. M., & Everson, M. (2011). The effects of using flashcards with reading racetrack to teach letter sounds, sight words, and math facts to elementary students with learning disabilities. *International Electronic Journal of Elementary Education, 3*(3), 213-226. Retrieved from: <http://www.iejee.com/index.html>
- 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.
- Everson, M., & McLaughlin, T. F. (1996). Effects of self-monitoring for students with learning disabilities. *International Journal of Special Education, 12*(1), 85-97.
- Graham, S. (1999). Handwriting and spelling instruction for students with learning disabilities: A review. *Learning Disability Quarterly, 22*, 78-98.
- Graham, S., Harris, K. R., & Fink-Chorzempa, B. (2002). Contributions of spelling instruction to the spelling, writing, and reading of poor spellers. *Journal of Educational Psychology, 94*, 669-686.
- Heward, W. L., (2013). *Teaching exceptional children: An introduction to special education* (10th ed.). Upper Saddle River, NJ: Pearson Education.
- Hyde, C. A., McLaughlin, T. F., & Everson, M. (2009). The effects of reading racetracks on the sight word fluency and acquisition for two elementary students with disabilities: A further replication and analysis. *The Open Social Science Journal, 2*, 1-4. <http://www.benthamsience.com/open/tosscij/>
- Ivick-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.
- Joshi, R., Treiman, R., Carreker, S., & Moats, L. (2008-2009, Winter). The real magic of spelling: Improving reading and writing. *American Educator, 9*, 6-16, 42-43.

- 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.
- Lund, K., McLaughlin, T. F., Neyman, J., & Everson, M. (2012). The effects of DI flashcards and math racetrack on multiplication facts for two elementary students with learning disabilities. *Journal of Special Education Apprenticeship*, 1(1). Retrieved from: <http://josea.info/index.php?page=archives>.
- McLaughlin, T. F., & Skinner, C. H. (1996). Improving academic performance through self-management: Cover, copy, and compare. *Intervention in School & Clinic*, 32, 113-.
- McLaughlin, T. F., Weber, K. P., & Barretto, A. (2004). Spelling: Academic interventions. In T. S. Watson & C. H. Skinner (Eds.), *Encyclopedia of school psychology* (pp. 317-320). New York, NY: Kluwer Academic/Plenum Publishers.
- 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. 439-447). New York, NY: Guilford Press.
- 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>
- Mercer, C. D., Mercer, A. R., & Pullen, P. C. (2010). *Teaching students with learning problems* (8th Ed.). Upper Saddle River, NJ: Pearson Education.
- 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>.
- Ozaki, C., Williams, R. L., & McLaughlin, T. F. (1996). Effects of copy/cover/compare drill and practice procedures for multiplication facts mastery with a sixth grade student with learning disabilities. *B. C. Journal of Special Education*, 20(2), 67-76.
- 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/>
- Ravitch, D. (2010). *The death and life of the great American school system: How testing and choice are undermining education*. New York, NY: Basic Books.
- Sitton, R. (1995). *Improve student spelling achievement*. Spokane, WA: Egger Publishing.
- 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 accurate division responding. *Remedial and Special Education*, 14, 49-56.
- Skinner, C. H., & Belfiore, P. J. (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*, 7, 295-306.
- Smith, T. J., Dittmer, K. K., & Skinner, C. H. (2002). Enhancing science performance in students with learning disabilities using cover, copy, and compare: A student shows the way. *Psychology in the Schools*, 39, 417-426.

- Stading, M., Williams, R. L., & McLaughlin, T. F. (1996). Effects of a copy, cover, and compare procedure on multiplication facts mastery with a third grade girl with learning disabilities in a home setting. *Education and Treatment of Children, 19*, 425-434.
- Stone, S., McLaughlin, T. F., & Weber, K. P. (2002). The use and evaluation of copy, cover, and compare with rewards and a flash cards procedure with rewards on division math facts mastery with a fourth grade girl in a home setting. *International Journal of Special Education, 17*(2), 82-91. . Retrieved from: <http://www.internationaljournalofspecialeducation.com/issues.cfm>
- Varnhagen, C. K., McFall, G., Figueredo, L., Takach, B., Daniels, J., & Cuthbertson, H. (2009). Spelling and the web. *Journal of Applied Developmental Psychology, 30*, 454-462.
- 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, 41*(1), 78-95.