



Using Cover, Copy, Compare to Teach Math Skills

What is the evidence base?

- This is a promising practice for students with disabilities based on three single-subject studies demonstrating positive effects using methodologically weak designs across six participants with disabilities.

Where is the best place to find out how to do this practice?

The best place to find out how to implement Copy, Compare (CCC) to teach math skills is through the following research to practice lesson plan starters:

- [Using Cover, Copy, Compare to Teach Multiplication Facts \(Ozaki, Williams, & McLaughlin, 1996\)](#)

With who was it implemented?

- Students with:
 - Emotional/Behavioral Disorders (2 studies; n=5)
 - Learning Disabilities (1 study; n=1)
- Ages ranged from 9-12
- Males (n=6), females (n=0)
- Ethnicity
 - None reported (n=6)

What is the practice?

The Cover, Copy, Compare strategy includes four basic steps. The steps are:

- Look at the first problem and answer.
- Cover the problem with an index card (or something similar).
- Write the problem and the answer.
- Uncover the problem and compare your answer to the correct answer.

If the student answers correctly, they are to move to the next problem. If the student answers incorrectly, the student is to repeat steps one through four until the problem is answered correctly.

The training of Cover, Copy, Compare may include modeling, immediate corrective feedback, and verbal instructions (Skinner, Ford, & Yunker, 1991). The practice is often used in the memorization of rote math facts (Skinner, Bamberg, Smith, & Powell, 1993; Skinner et al., 1991), but can be translated to other skills requiring memorization. The studies used to establish the evidence base for using Cover, Copy, Compare to teach math included:

- Students were able to meet mastery criteria using the CCC strategy and maintain the ability to utilize the strategy eight months later (Skinner et al., 1993)
- Researchers used CCC to teach memorization of addition problems in comparison to verbalcognitive cover and compare (V-CCC), where students completed all steps of CCC, however instead of the third step students verbally answered sub-vocally in lieu of writing responses. Students performed better on V-CCC when compared to W-CCC (Skinner et al., 1991).
- Researchers used the CCC strategy to examine the impact on the multiplication facts mastery of a sixth grade student with a learning disability. Using an AB study implementing the CCC strategy, results indicated the student increased the percent correct of target multiplication facts when compared to baseline (Ozaki, Williams, & McLaughlin, 1996).

Where has it been implemented?

- Middle grades, Resource Class (1 study)

How does this practice relate to Common Core Standards?

Grade 6, The Number System Compute fluently with multi-digit numbers and find common factors and multiples.

Fluently divide multi-digit numbers using the standard algorithm. [CCSS.Math.Content.6.NS.B.2](#)

Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. [CCSS.Math.Content.6.NS.B.3](#)

How does this practice relate to the Common Career Technical Core?

Apply appropriate academic and technical skills.

- Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
https://careertech.org/sites/default/files/CCTC_Standards_Formatted_2014.pdf

References used to establish this evidence base:

Ozaki, C., Williams, R. L., McLaughlin, T. F. (1996). Effects of a copy/cover/compare drill and practice procedure for multiplication facts mastery with a sixth grade student with learning disabilities, *B.C. Journal of Special Education*, 20, 65-74.

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., Ford, J. M., & Yunker, B. D. (1991). A comparison of instructional response requirements on the multiplication performance of behaviorally disordered students. *Behavior Disorders*, 17, 56-65.

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