C-CARD: A Strategy to Improve Revising Behaviors

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Students with emotional and behavioral disorders (EBD) often perform well below their peers across academic areas, with lower math and reading scores and higher school failure and grade retention rates (Reid, Gonzalez, Nordness, Trout, & Epstein, 2004). However, writing is the most significant academic deficit for these students (Austinner, Mattison, Nelson, & Ralston, 2009; Sreckovic, Common, Knowles & Lane, 2014), with revising of text being particularly problematic. Unfortunately there are few empirically based interventions to improve revising ability for students with EBD. To address these struggles, we created a mnemonic-based intervention (C-CARD) to help improve sentence level revising. We used the intervention to help a sixth grade student with EBD and writing difficulties perform basic revising acts such as combining, changing, adding, rearranging, and deleting words to improve the overall quality of his compositions. After instruction, the type and quantity of revisions the participant attempted changed. Furthermore, the revisions attempted improved the quality of revised compositions. Finally, the participant improved his ability to combine sentences. Implications of the intervention on the writing instruction of children with EBD and writing disabilities are discussed.

Keywords: writing, revising, writing disabilities, emotional disabilities, sentence construction, writing strategies, sentence combining

INTRODUCTION

Although the behavioral difficulties of children with emotional and behavioral disorders (EBD) have been well documented (e.g. Kauffman & Landrum, 2013), these students can also struggle with academic skills (Gage, Wilson, & MacSuga-Gage, 2014; Sreckovic, Common, Knowles, & Lane, 2014). Students with EBD often perform well below their peers across academic areas (Kauffman, 2001; Loe & Feldman, 2007) with lower math and reading scores and higher school failure and grade retention rates (Reid, Gonzalez, Nordness, Trout, & Epstein, 2004). Possibly contributing to these academics outcomes is the fact that they can experience difficulties self-regulating important social and/or behavioral skills (Myles & Simpson, 2002; Reid, Trout, & Schwartz,

2005) while also exhibiting externalizing or internalizing behavior patterns that can hinder academic progress (Lane, 2007). Although students with EBD are not immune to the effects of quality interventions, even after documented improvement with an academic skill, their pronounced difficulties with problem behaviors may result in poor performance of that skill (Mason & Shriner, 2008).

One academic area that may be particularly problematic for children with EBD is written expression. In fact, researchers have suggested that writing is the most significant academic deficit for these students (Austinner, Mattison, Nelson, & Ralston, 2009; Sreckovic, Common, Knowles & Lane, 2014). This is especially problematic because writing skills are critical for academic success. While in school, classroom teachers' principal method of documenting student knowledge and academic performance is writing (Graham, Harris, & Hebert, 2011; Graham & Hebert, 2010). Beyond the classroom, students' skill in writing must be sufficient to allow them to pass federal and state-mandated accountability testing. If students go on to attend college, they must pass entrance examinations that feature written statements in their application package. Finally, when a student eventually enters the work force, they will find that many jobs require effective written language ability (National Commission on Writing, 2006).

Yet many students, especially students with disabilities, find learning to write challenging due to the complexity of the composing process (Salahu-Din, Persky, & Miller, 2008). While composing, a writer must skillfully manage physical processes such as letter formation when handwriting, or key stroking when using a word processor, and mental processes such as planning what to say and revising their words to better match their ideas while also considering the requirements of the assignment, genre, and audience (Graham & Harris, 2009; Graham, Harris, & Hebert, 2011; Harris, Graham, & Mason, 2006). Students with EBD tend to struggle with all stages of the writing process including planning, content generation, and revising (Lane et al., 2010; Nelson, Austinner, Lane, & Smith, 2004). Hauth, Mastropieri, Scruggs, and Regan (2013) documented that students with EBD completed virtually no planning prior to writing essays, and many other researchers have documented that essays at pre-intervention lack overall organization, quality, and length (e.g., Mason, Kubina, & Hoover, 2011). Furthermore, some students with EBD struggle with attending and focusing, making writing, with its simultaneous load of mental and physical tasks, difficult (Mason, Kubina, Valasa, & Cramer, 2010).

Several researchers have examined strategies to teach planning and content generation through paragraph writing, story writing, and persuasive writing to children with EBD with some success (See Sreckovic et al., 2014 for a review). Few studies, however, have focused on the revising behaviors of children with EBD. Because of this, little is known about the revising behavior of children

with EBD; it is suggested, however, that they may perform similarly to children with learning disabilities (LD; Trout, Nordness, Pierce, & Epstein, 2003).

Revising research for children with EBD specifically deserves greater attention because revising is one of the most important tasks any writer undertakes while composing. Revising is the point at which writers will attempt to improve, transform, and clarify the text they produced while planning and crafting an initial draft (National Writing Project, 2006). When writing, a writer's goal is to produce text that matches their intent and audience needs, and in many cases, revision is necessary to achieve this goal. Attempting revisions can be painfully slow and cognitively demanding, as literally hours are spent on a few words while a writer grinds closer and closer to their final product. Though difficult, revising is essential and so important that to some, writing *is* in fact revising (Murray, 1991).

While revising may be an essential task for a writer, we know that writers with disabilities tend to make fewer revisions of their classroom assignments then more skilled writers. The revisions they do attempt may be overly focused on superficial textual features such as neatness, punctuation, spelling, and word choice rather than the meaning or substance of the content (e.g., Graham & Harris, 2003; Saddler, 2003). Unfortunately such revisions often do not improve the meaning of their compositions (Graham & Harris, 2003).

There are several reasons writers with disabilities such as EBD may not revise or make only minor surface level revisions; first, they may assume that their classroom writing is clear to the reader and therefore see no reason to revise their work. Secondly, they may have problems determining what parts of their classroom writing they need to change (Fitzgerald, 1987). Thirdly, when they do recognize the need, they may lack the skill or genre knowledge to make the changes (De la Paz & Sherman, 2013). In addition, they may lack the motivation or persistence to work through the difficult task of revising (Bak & Asaro-Saddler, 2013). Finally, they may not set goals for themselves prior to writing, and therefore have no reason to evaluate their work to see if they have met those goals (Midgette, Haria, & MacArthur, 2008).

Austin

One young struggling writer with EBD was Austin (a pseudonym). Austin was an African-American sixth grade male who was receiving special education services and support in a 12:1:1 self-contained class for EBD within an inner city school in the Northeast United States. He was noted for occasionally displaying verbal and physical aggression, and was receiving psychological counseling services in individual and small group sessions. Austin, a native English speaker, was 11 years, 10 months old at the time of the study and was experiencing significant difficulties with written expression. He had writing goals on his individualized educational program (IEP) to increase the amount of text pro-

duced along with the quality and use of revisions to improve his compositions. Austin's teacher, Mrs. Kensington (a pseudonym), described him as a struggling writer who did not enjoy writing and needed significant teacher support to write anything more than simple sentences. He made few revisions in his writing and the revisions he did make did not improve his compositions. The teacher asked us to help Austin improve his revising ability.

When considering how to help Austin we began from the position that, in general, when struggling writers are explicitly taught how to revise via revising strategies, they are more likely to improve their revising ability (i.e. Graham, McKeown, Kiuhara, & Harris, 2012; Rogers & Graham, 2008). Strategy instruction in revising can help struggling writers improve revision efforts and judgments (Song & Ferretti, 2013), while also increasing time spent revising, overall quality, and number of substantive changes (Graham, 2006).

Strategies are often taught via explicit steps that guide students through some part of writing through modeling and coaching, while also providing a supportive scaffolded structure that helps students organize their writing (MacArthur, Graham, & Schwartz, 1991; Saddler, Moran, Graham, & Harris, 2004). Procedures that help develop self-regulation are also often included because the ability to monitor the composing process and one's own progress through self-regulation is a valuable asset for any writer (Harris, Graham, & Mason, 2006; Harris, Graham, Mason, & Friedlander, 2008; Hayes & Flower, 1986).

Unfortunately there are few empirically-validated revising interventions to help children with EBD and writing disabilities, and therefore we did not locate an intervention that we believed might help Austin with revising. Consequently, we designed a mnemonic-based strategy called C-CARD (see Table 1) to help him remember several basic options he might use to revise his compositions. Our strategy focused on the sentence level of composing for two reasons: first, a sentence is the most complex unit of composition considered to represent a miniature composition (Willis, 1967); and second, after conversations with the teacher, focusing on the sentence level seemed the best place to begin to teach revising to Austin.

Table 1. *C-CARD mnemonic elements*

Combine	Combine sentences together in any way that sounds good.
Change	Change words or parts of sentences.
Add	Add words or parts to the sentences.
Rearrange	Rearrange words or parts of sentences.
Delete	Delete words or parts of sentences.

Each letter of the C-CARD mnemonic stands for a particular type of revision a writer might utilize. We believed the mnemonic would help make visible the thinking processes of detecting where a revision might be needed, an important outcome because detecting even obvious errors within a text may not be as easy as many teachers believe (c.f. Fitzgerald, 1987). Furthermore we believed that having a mnemonic device to help recall basic methods of revising might reduce some of the excessive demands that writing and revising place on the cognitive abilities of writers such as Austin, as well as help them set goals for revising. In effect, the mnemonic serves as a menu of options or possibilities for the writer that could help them find a different and better way of representing their ideas. To teach this mnemonic we included the theoretically sound practice of describing and modeling the basic thinking processes that underlies revision itself, while showing students explicitly how to manage specific elements of the revising process (Hayes & Flower, 1986).

Before we began to teach Austin our strategy, we wanted to know more about his writing abilities. To do this we gave Austin pictures of activities of general interest to young writers used in prior research (e.g. Asaro-Saddler, Saddler & Ellis-Robinson, 2014) and asked him to write a story about each picture. Austin wrote three separate stories for us, each within a twenty minute time limit, on three separate days. After each story was finished, Austin was given a red pen and instructed to make his story better by revising whatever he wanted. He was given 10 minutes to make any changes he felt necessary. Austin wrote three additional stories after the intervention to help us learn how C-CARD helped him.

We also administered three subtests of a standardized writing measure (Test of Written Language 4th edition; TOWL-4) to help us better understand Austin's pre-instruction writing abilities: contextual conventions, story composition, and sentence combining. The contextual conventions subtest measured the ability to spell and punctuate accurately, and to write complex sentences with accurate grammatical forms such as subject-verb agreements. The story composition subtest measured the ability to write in a logical, organized fashion while creating a specified theme or plot and to develop a character's personality through interesting and engaging prose containing mature and appropriate vocabulary. The sentence-combining subtest measured the ability to incorporate meanings of several sentences into a comprehensive single sentence through rearranging syntactical elements. We gave Austin this subtest again after the intervention to document any improvements since we believed the strategy had the potential to improve sentence-combining ability, as revising often entails changes in sentence construction.

Austin scored in the 47th percentile on the contextual conventions subtest, which is in the average range for his age. However, his story composition score was in the 16th percentile, which is far below average. In addition, his

ability to manipulate sentences was in the 16th percentile, or the poor range, according to the sentence combining subtest. These results supported the teacher's belief about Austin's writing struggles.

The Intervention

We created nine, thirty minute lessons to teach Austin the C-CARD mnemonic. Lessons one through four focused on Austin revising sentences and eventually larger segments of text using the C-CARD mnemonic, while lessons five through nine required Austin to write and then revise his own stories. Embedded within each lesson were direct efforts to increase the amount and quality of revisions Austin attempted through practice determining where revisions may be needed, discussions about how to make effective changes, and goal setting to prompt evaluation, aid motivation and bolster persistence. A trained doctoral student and certified special education teacher served as the instructor. He taught the scripted lessons to Austin in a one-to-one instructional arrangement, three times per week, within a conference room at the school in order to reduce distractions for Austin and the other students in Mrs. Kensington's classroom.

Lesson 1. During the first session the instructor spent time building rapport with Austin while learning about his background and interests. Austin enjoyed basketball, so the sentences for the writing exercises in the remainder of the lessons were tailored to match his interests. The instructor then presented the C-CARD mnemonic as a tool to facilitate revision. A think-aloud strategy was used to model the use of C-CARD with two sentences. (*Joey tumbled on the mat. Austin swung on the bars.*) The instructor explained that C-CARD is a trick that writers can use to make sentences better. The instructor then combined the sentences, taking the time to discuss and show the revisions he made to Austin. He asked Austin where the revisions were made and if the new sentence sounded better. He told Austin that it might help him to create pictures in his head about what the sentences were saying. Additional pairs of sentences were then practiced until revisions for each component of C-CARD were attempted. The instructor then summarized each element of C-CARD again and suggested that any or all of these operations could be used when revising sentences.

The instructor reminded Austin that good writers spend time revising their work to make it better. He then stated that the point of this practice is to get better at changing sentences and that learning C-CARD will help with everything Austin writes. Austin was encouraged to memorize the mnemonic, and was given several opportunities to practice recalling the steps of C-CARD from memory. The session ended (as did all remaining sessions) by brainstorming instances where Austin could use C-CARD to assist his writing, (e.g. book reports, letters to friends, reports on special topics) and encouragement to use the strategy at school or at home at least once prior to the next teaching session.

Lesson 2. This lesson (and all remaining lessons) began with Austin recalling the C-CARD mnemonic from memory and writing it down. The instructor inquired if Austin had used the strategy on his own, and recorded responses. Austin then practiced improving the quality of several clusters of sentences (e.g. *Austin led the team in scoring. He was only a rookie. He was very tall. He was very strong.*) using C-CARD, while the instructor offered support as needed. The instructor set a goal with Austin by suggesting that he wanted Austin to use each of the C-CARD revision suggestions while revising the practice sentences. Austin wrote the letters of the mnemonic (C, C, A, R, D) down the page, and then checked them off as he used them while revising the sentences. The instructor provided verbal prompting while Austin was working so that he revised the sentences using each of the C-CARD options at least once while revising.

Lessons 3 and 4. Lesson 3 included the revision of a short story. (*The guard tried to put the ball in the basket. The center tried to block the ball. The ball went in the basket. The fans cheered.*) The instructor explained to Austin that there were several places in this story where the sentences sounded all right, but could be made better. The instructor then read the story out loud, and Austin made revisions with verbal scaffolding and support from the instructor. The instructor again prompted Austin to set a goal to use all of the C-CARD options and Austin again self-regulated his learning by checking off each C-CARD option as it was used. Austin enjoyed playing with the sentences, and even made changes such as "The fans went wild!" instead of "The fans cheered." His revised story read:

> *The guard tried to score a basket while the center jumped to block the shot, but the shot went in the basket and the fans went wild!*

During Lesson 4, Austin practiced revising another short story on his own, with less help than was provided in the prior lesson. (There once was a kid that liked dogs. One day he found a dog. He found the dog while he was walking in the park. The dog was little. The dog was black. The dog didn't have a collar. He looked scared. The kid decided to help the dog. He took the dog home with him. He taught the dog to knit. The dog liked knitting. The boy and dog were happy.)

His revised story read:

> *There once was a kid that liked dogs. One day he found a little, black dog while he was walking in the park. The dog looked scared and didn't have a collar, so the kid decided to help the dog. He took the dog home with him and taught him how to knit. The dog and the boy were very happy!*

Lessons 5 through 8. These lessons differed from the previous ones in that Austin used C-CARD to revise stories he wrote, with the instructor systematically fading his support across the four lessons. In Lessons 5 and 7 Austin was given 20 minutes to write a story independently based on a picture prompt. The instructor encouraged Austin to plan prior to writing. After planning, Austin was reminded to expand upon his ideas to make a story. Once he finished writing, Austin read the story to the instructor.

Lessons 6 and 8 were then dedicated to revising the stories he wrote in Lessons 5 and 7, respectively, using C-CARD. They practiced the mnemonic aloud, and Austin explained each component from memory. Austin was then reminded to try to make at least one change for each of the steps of the mnemonic, but that they did not have to be in the same order as they appeared in the mnemonic. Austin was then asked to revise his story with minimal support from the instructor.

Lesson 9. In this lesson Austin wrote and revised a story in a single session with no support from the instructor. While writing, Austin was observed to be fully capable of making revisions for each element of the C-CARD mnemonic in his writings without prompting.

RESULTS

When the lessons were completed, we compared Austin's writing before and after the intervention in the following areas: the quality of his stories after revisions; the types and numbers of revisions he attempted, and if these revisions improved the quality and changed the length of his stories from initial to revised drafts; and finally, his ability to combine sentences.

The quality of Austin's stories was evaluated using an 8-point holistic scale based on work by Graham and Harris (1989) (See Figure 1). Using this scoring scheme, the three stories Austin wrote and revised before the intervention scored 3, 4, and 3 respectively. After learning C-CARD the three stories Austin wrote were of slightly higher quality scoring 4, 5, and 4 respectively. Interestingly, though not directly taught, Austin was observed to plan prior to writing in his post-tests, a behavior which was not observed in his pretest stories. This planning consisted of bulleted statements describing the picture (e.g. A robot and a boy. The boy is ridding a bike. The robot has a package. Tells him to follow me.). Interestingly these are the similar to the practice sentences he worked with during Lessons 3 and 4.

Figure 1. **Holistic Story Quality Scale**

High Story (7 - 8)

- A story in the typical sense that has all the parts (who, what, when, where, why, and emotions)
- Contains extra detail and action
- Many ideas and imagination
- Well-organized
- Many have some errors (i.e. capitalization, punctuation, verb tense)
- Flows well, but may still be choppy in a few places

Medium Story (4 – 6)

- A story in the typical sense, but in part incomplete (missing important parts, for example, the goal is not resolved)
- Has some organization
- Needs more detail and elaboration
- One idea flows to the next, but not well-organized

Low Story (0 – 3)

- Not a story in the typical sense, no ending, no real beginning, no time described, no action related
- Merely a description of the picture
- No consistent thought flow
- Choppy sentences
- Poor sentence structure
- Lacks imagination

Adapted from:

Saddler, B., Moran, S., Graham, S., & Harris, K. R. (2004). Preventing writing difficulties: The effects of planning strategy instruction on the writing performance of struggling writers. Exceptionality, 12, 3 – 17.

We also wanted to know if the revised versions Austin wrote were better than the original stories. We used quality change between drafts as an indicator of the effectiveness of the revisions made by Austin. We calculated the changes in quality between initial and revised drafts following procedures from MacArthur and Graham (1987) in which Austin's first draft was used as the standard, and the second draft was rated in comparison to it. Before the intervention, none of the revised versions were any better than the originals. After the intervention, however, two of the three stories were better after being revised. Specifically, the two improved stories had sentences that flowed and fit together better, made more sense, and were easier to read.

The number of revisions Austin made was also assessed. These included any change he made to his story, irrespective of the type of change (i.e. spelling, punctuation, capitalization, addition, deletion, rearrangement, substitution). Before the intervention Austin made 28, 23, and 19 revisions to the three stories for a total of 70 overall and an average of 23. After the intervention the number of revisions improved considerably, with 81, 39, and 47 revisions attempted for a total of 167 overall or 56 on average per story.

In addition to the number of revisions, we wanted to know if the type of revisions Austin attempted changed after the intervention. Before the intervention Austin primarily made simple word changes (e.g. *thing* to *time*), punctuation, spelling, or phrase addition (e.g. *next time*). After the intervention, there was more evidence of restructuring on the sentence level. In each of the post-tests, Austin engaged in the combination of simple sentences and the reduction of sentences to phrases followed by the embedding of the phrase within another sentence. For example, in the first draft of the initial posttest, Austin wrote: *A dog named Speedy had a dog friend named Scooby. Speedy and Scooby planned to go parachuting.* Austin then revised this text segment to read: *A dog named Speedy and another named Scooby had plans for parachuting.* In the third post-test after learning C-CARD, Austin wrote: *There is a boy who tells a robot to follow him. The boy name is Drew. Drew was ridding a bike down the sidewalk.* Austin then revised this to read: *There is a boy named Drew who tells a robot to follow him on his bike down the sidewalk.*

We also wanted to know what impact the intervention had on the length of Austin's stories. Before the intervention, Austin's first drafts averaged 178 words long. After the intervention the number of words decreased to an average of 104 in his first drafts. There were also changes noted in Austin's revised versions. Before the intervention Austin's revised stories averaged 178 words while after the intervention the stories averaged 86 words in length. Likely this finding was due to his improved ability to combine his sentences, as Austin increased his score from the 16th percentile of writers his age in the Sentence Combining subtest of TOWL-4 to the 84th percentile for his age after the intervention, which

is an above average performance. Combining his sentences helped him reduce the overall number of words by eliminating redundancy or unnecessary words.

Discussion

After learning the C-CARD strategy, Austin's writing and revising ability improved in several meaningful ways; first, the intervention helped Austin improve his ability to combine sentences as measured by the TOWL-4. Additionally, the stories that Austin wrote after learning the intervention were slightly higher quality, and Austin was able to improve two of the three stories through the revisions he attempted by making the sentences in the revised versions flow and fit better and the stories more comprehensible and easier to read. The intervention also helped Austin more than double the number of revisions he attempted from pretest to post-test. There were changes in the type of revisions he attempted as well, from simple changes before the intervention to sentence level restructuring, combining, and reduction afterwards. Furthermore, the intervention led Austin to substantially shorten his revised versions after learning C-CARD through a reformulation of his language, where sentences were shifted and reduced into clauses and phrases, with a corresponding reduction in the number of words utilized.

Taken as a whole, these changes indicate that learning C-CARD helped Austin become a writer who revised his work to a greater degree and made revisions that enhanced the quality of his writings, both hallmarks of an effective writer. Additionally, these results suggest that Austin began to view revision with more of a skilled writer mindset, meaning that his revising efforts included restructuring of his language in addition to the surface level changes he attempted before learning the intervention (Hayes & Flower, 1986). Austin's efforts at restructuring his language through sentence level changes ran counter to what we know many children tend to do when revising: avoid tampering with their basic sentence plans (Bereiter & Scardamalia, 1987).

Interestingly, although Austin was receiving special education services for EBD, he did not manifest any serious behavioral concerns during the intervention. He was attentive, and seemed to enjoy the personal one-to-one attention. In this instructional setting, Austin was highly motivated to improve his writing abilities, perhaps partially due to the incorporation of his interests into the sentence exercises and partially because of the bond that developed between him and the instructor.

Mrs. Kensington noted that Austin did indeed continue to use the mnemonic in the classroom after our study ended, as he would write the C-CARD mnemonic on his drafts while also checking off when an operation was used in his composition. She also believed that the intervention led to differences in the quality of his writing and his motivation to write.

Implications for Practice

Our results indicate that, for this student, direct instruction and practice with revising using a mnemonic device combined with goal setting and self-monitoring of performance can improve the quality and quantity of revisions, along with the quality of compositions, for a struggling writer with EBD. In addition, our results provide further support for the assertion that when children are explicitly taught how to revise via strategies, they are more likely to write effectively (c.f. Graham et al., 2012; Rogers & Graham, 2008; MacArthur, Graham, & Schwartz, 1991). However, although these results are encouraging, they must be viewed cautiously since we only worked with one child for a limited amount of time.

With the limitations of the study in mind, we believe that teachers working with children with EBD who struggle with revising may benefit from this intervention, as our curriculum is easy to implement and can be taught in a short period of time utilizing minimal materials. To help support the implementation of our curriculum we would offer several recommendations for teachers to improve outcomes for their students. First, in our project we prompted a very linear view of revising as Austin planned, then wrote, then revised, for the convenience of our research design. Naturally, when a teacher applies this strategy within a classroom setting, this process would include several potential cycles of planning, writing, and revision, thus allowing revisions to be made while writing initial thoughts instead of after a draft is completed. In addition, this was a very brief intervention and we know that learning to write well requires a great deal of time (National Commission on Writing, 2003). Therefore learning through modeling and guided practice over an extended period of time would likely increase the effectiveness of the intervention. Moreover, since Austin responded so well to the sentences we created, teachers may want to consider individualizing their exercises to reflect the interests of their students, with the goal of increasing motivation to write. Finally, in this project we only worked with a single genre of writing. In the classroom working with multiple genres would be more realistic and would likely increase the potential for the strategy to be generalized to other writing tasks.

Conclusion

Although critical for writers to develop, revising is a difficult skill to teach. This study provides some insights into the potential of the C-CARD strategy to improve revising behaviors, and has the potential to add to the limited research base on writing interventions for children with EBD. Teachers and researchers should consider C-CARD as a potential option for teaching revising skills to struggling writers with EBD.

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