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Effectiveness of an Essay Writing Strategy for Post-Secondary Students with Developmental Disabilities

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Abstract: This study examined the effectiveness of the ANSWER Strategy (Hughes, Schumaker, & Deshler, 2005) in improving the essay composition skills of post-secondary students with developmental disabilities. The six-step strategy incorporated analyzing essay prompts, creating an outline, generating an essay response, and reviewing the answer. The students (N = 16) were assigned via a stratified random sample method to treatment or control groups. A pre- and post-test design was employed and the results were evaluated using a strategy scoring rubric. Statistically significant differences were found between the post-tests in favor of the treatment group related to their knowledge of the ANSWER strategy and the use of the strategy steps. Overall, the results indicated that the ANSWER strategy holds promise as an effective writing intervention for individuals with developmental disabilities in post-secondary settings.

Mercer, Mercer, and Pullen (2011) described written expression as the “highest forms of communication” that emulates one’s ability to comprehend, develop concepts, and abstraction (p. 359). Polloway (2009) noted the principal goal of writing instruction is to cultivate individuals who can communicate effectively. The process of constructing a coherent and effective written passage is multi-faceted and requires one to identify, synthesize, and sequence ideas (Englert et al., 2009). One of the most complicated skills for individuals with and without disabilities to acquire is the art of written expression. The 2007 National Assessment of Educational Progress (NAEP) writing assessment revealed that only 33 percent of eighth- and twelfth-grade students assessed

were considered proficient writers (Salahu-Din, Persky, & Miller, 2008).

For individuals with disabilities, difficulties with written expression that emerge during their elementary school years continue to persist throughout their lifetimes unless effective interventions are employed. As the Individuals with Disabilities Education Improvement Act (IDEA; 2004) has evolved so too has the implementation of special education services across K-12 public schools and post-secondary settings (Stodden & Whelley, 2004; Zaft, Hart, & Zimbrich, 2004). Traditionally, individuals with developmental disabilities received special education services in public school settings until the age of 21 or 22 (Grigal, Neubert, & Moon, 2001; Zaft, et al.). New opportunities are now burgeoning for individuals with developmental disabilities and their families as inclusive post-secondary college programs are being established (Grigal, Neubert, Moon, 2002; Hall, Kleinert, & Kearns, 2000; Weir, 2004). A comparison between the National Longitudinal Transition Study (NLTS) and the (NLTS-2) revealed that in 2005, 28 percent of youths with intellectual disabilities attended post-secondary programs compared to 8 percent in 1990 (Newman et al., 2010). As post-secondary programs

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emerge for individuals with developmental disabilities, so does the opportunity to address difficulties in written expression with strategic academic instruction.

One type of writing that is particularly difficult for individuals with and without disabilities is expository writing. An individual's personal knowledge of a topic is the basis from which writing begins and as such, it is incumbent upon the writer to develop strategies for acquiring and organizing content knowledge. Englert et al. (2009) noted that if students cannot identify, synthesize, and organize expository ideas they will experience problems understanding and constructing expository text. Englert and colleagues examined the ability of seventh grade students with and without disabilities to read science and social studies content and highlight main ideas, take notes, and construct expository reports. Overall neither group (students with disabilities or those without disabilities) was deemed to be "highly proficient" in the employment of learning strategies (Englert et al., p. 147). The students with disabilities lacked knowledge of how to effectively organize, classify, and label expository ideas. In addition, the students also experienced trouble selecting main ideas within connected text.

Skills critical for expository writing include goal setting, planning, sentence development, and editing. Hayes and Flower (1987) asserted that writing is goal directed. The authors deconstructed the writing process to reveal that writing goals are hierarchical in nature and are generated through the employment of planning, sentence creation, and revision. In the planning stage one must not only have content knowledge of the subject at hand, but also construct a composition that fits the "situation and the audience" (Hayes & Flower, p. 21).

Graham and Harris (2009) reiterated the importance of planning and revising and noted that skilled writers commonly employ these strategic behaviors while students with disabilities and less proficient writers do not routinely use these strategies when writing. Students with disabilities frequently exhibit problems within the area of written expression (De La Paz, 1999; Graham & Harris; Guzel-Ozmen, 2006; Lane et al., 2009; Schumaker & Deshler, 2009). These difficulties manifest themselves in a myriad of ways that

include problems with acquiring and accessing content knowledge, planning, sentence construction, and revising (Englert et al., 2009; Deshler & Schumaker, 1986; Graham & Harris, 2003; Hallenbeck, 2002; Harris, Graham, & Mason, 2003; Schumaker & Deshler, 2009).

In an attempt to identify components in written expression instruction that have been effective, Gersten and Baker (2001) conducted a meta-analysis of 13 studies that examined writing instruction for students with learning disabilities. The authors purported that effective comprehensive writing instruction should incorporate the following: (a) explicit teaching of each step of the writing process, (b) the components of different writing genres, and (c) the delivery of explicit feedback from teachers or peers to students (Gersten & Baker). In addition, Schumaker and Deshler (2009) cautioned that efficient writing instruction for individuals with disabilities should include explicit instruction, numerous opportunities for learners to acquire mastery on each skill, and immediate feedback. Deshler and Schumaker (1986) designed a series of learning strategies that incorporated aspects of the following: (a) a pre-test of students' skill knowledge, (b) a description of the strategy, (c) modeling and practice, (d) students self-prompting to use the strategy, (e) a post-test, and (f) instruction for the generalization of skills.

Writing strategies that embody combinations of the aforementioned elements of instruction have yielded favorable results when employed with students with writing problems, learning disabilities, behavior disorders, intellectual disabilities, Asperger's Disorder, and attention deficit hyperactivity disorder (De La Paz, 1999; Delano, 2007; Englert, Raphael, & Anderson, 1992; Graham & Harris, 2003, 2009; Guzel-Ozmen, 2006; Hallenbeck, 2002; Harris, Graham, & Mason, 2003; Lane et al., 2009; Schumaker & Deshler, 2009). One area that has not been extensively explored is the use of strategic instruction within the area of written expression for individuals with developmental disabilities in post-secondary settings. Students in post-secondary settings are often required to express information through classroom discussions, writing, and taking tests (Schumaker & Deshler); however,

there is a dearth of documented strategies for promoting written expression with this age group.

The Essay Test-Taking Strategy (Hughes et al., 2005) was designed to facilitate the essay composition skills of students' responses to essay-type questions on content area tests. The strategy consists of a series of sequenced cognitive and behavioral steps within which the learner advances through using self-instruction (Schumaker & Deshler, 2009). Specifically, the strategy employs the use of the acronym ANSWER and consists of the following six steps: (a) Analyze the action words in an essay question, (b) Notice the requirements of the question, (c) Set up an outline, (d) Work in the details of the outline, (e) Engineer an answer, and (f) Review the answer (Hughes et al.).

Therrien, Hughes, Kapelski, and Mokhtari (2009) investigated the effectiveness of the ANSWER strategy with seventh- and eighth-graders with learning disabilities and students without disabilities. The results revealed a significant difference in the post-test scores in the areas of strategy use, content, and organization for students in the experimental group in comparison to the control group. Students' post-test strategy rubric scores in the experimental group yielded an effect size of $d = 1.69$. Cohen (1988) classified effect sizes of $< .2$ as small, $< .5$ as medium, and $> .8$ as large. Subsequently, an effect size of $d = 1.69$ would be considered large.

The purpose of our study was to investigate the effectiveness of the Essay Test-Taking Strategy on essay responses written by post-secondary students with developmental disabilities.

The following questions were investigated:

1. Can post-secondary students with developmental disabilities acquire and apply a six-step writing strategy designed to improve the quality of their expository essays?
2. Will there be a difference in the ability of the students to acquire and apply the strategy specific components of the essay strategy and the components of the strategy that pertain to generalization?

Method

Participants

The sample was comprised of 16 students; including five (31%) females and 11 (69%) males who attended a two-year post-secondary certificate program designed for individuals with developmental disabilities at a university in the Midwest. The participants ranged in age from 19 to 23 years with a mean of 21 years, 7 months, ($SD = 1.23$). With regard to ethnicity, 15 (94%) were White, while one (6%) was Latino. Four (25%) individuals were from rural areas; 11 (69%) were from urban areas; and one (6%) was from a suburban area. With regard to diagnostic categories, five (31%) were diagnosed with autism, one (6%) with a non-verbal learning disorder, six (38%) with a mild intellectual disability, one (6%) with a traumatic brain injury, two (13%) with a severe learning disability, and one (6%) with Asperger's Disorder. For 14 of the participants IQ levels ($M = 100$, $SD = 15$) standard scores ranged from 61 to 98, ($Mdn = 70$); IQ scores were not reported for two participants.

The students were administered a pre-test. A series of ANOVAs indicated no significant difference on pre-test scores between control and treatment group students. See Table 1 for scores on pre-tests, effect size differences between treatment and control (Cohen's d), and ANOVA comparisons.

Materials

The directions and materials supplied in the Essay Test-Taking Strategy (Hughes et al., 2005) manual were used to implement the intervention. Several supplemental materials were provided to the students. Graphic organizers were created in order to supplement daily lessons. Students were also given highlighters and were instructed to highlight important elements in the materials provided throughout the daily lessons. In addition, each student had a folder that included his or her progress graph, completed practice exercises, and materials for the lesson for the day. A copy of the ANSWER strategy mnemonic was attached to the front of each of the students' folders. See Figure 1 for an example of a graphic organizer used in the study.

TABLE 1
Strategy Scoring Rubric Overall and Components Pre-test Scores

	Overall Strategy Scoring Rubric	Rubric Components Rubric	
		Rubric sections aligned with strategy specific components (1-4)	Rubric sections aligned with essay general components (5-6)
Treatment group	1.275* (.29)	.0000*	1.275* (.29)
Control group	1.244* (.21)	.0000*	1.244* (.21)
Effect size difference (Cohen's <i>d</i>)	0.12		0.12
ANOVA Comparison	$F(1,15) = 0.06,$ $p = .807$		$F(1,15) = 0.06,$ $p = .807$

Note: *Denotes mean values. Standard deviations provided in parentheses.

We used the pre- and post-test essay prompts from Therrien et al. (2009), which emulated essay prompt questions from state-wide assessments. The authors noted that because the intent was to appraise writing ability not background knowledge, the prompts were constructed to require critical thinking and not extensive content knowledge (Therrien et al.). The pre-test prompt was as follows: *Inventions are all around us. Think of an invention that has been especially helpful or harmful to people. Write an essay that gives at least 3 reasons why the invention was helpful or harmful.* The post-test essay prompt was as follows: *Your school newspaper is printing a series of articles about heroes and heroines. Write about someone who is a hero or heroine to you. That person may be someone you know, someone you have read about, a celebrity, or a historical figure. Explain at least 3 reasons why you believe this person is someone to admire.*

Design and Procedure

Design. A 2-level (treatment or control) single factor, pre/post experimental design, was used to examine the effect of the intervention on students' essay responses. A stratified random assignment method was employed to place students either in treatment or control groups using a random digits number chart. The students were rank ordered using their reported reading grade levels obtained from their student records. We used a random

digits number chart and paired each participant to the next closest reading score. Student pairs were then randomly assigned to treatment or control groups.

Intervention. The ANSWER strategy (Hughes et al., 2005) consists of systematic instruction delivered in an explicit fashion in order to teach students a multi-step approach to effectively answer essay prompts. In order to progress to subsequent lessons, students are required to demonstrate skill mastery. The ANSWER strategy includes the following six steps: (a) Analyze the action words in an essay question, (b) Notice the requirements of the question, (c) Set up an outline, (d) Work in the details of the outline, (e) Engineer an answer, and (f) Review the answer (Hughes et al., 2005). Table 2 contains a detailed description of the ANSWER strategy steps.

Daily instruction closely followed the lesson guidelines provided in the Essay Test-Taking Strategy instructor's manual. The instructor supplemented the daily lessons with graphic organizers. In contrast to the Therrien et al. 2009 study, the students' goals were to create essay responses that consisted of one or two paragraphs instead of multi-paragraph (two or more paragraph) essays. Implementation of the ANSWER strategy employed the following elements of instruction. After the first day when the strategy was introduced, each subsequent day began with a review of the previous lesson(s). New information was presented

Lessons Four and Five

STEP 1

We **ANALYZED** the key action words. We underlined them _____ time.

STEP 2

NOTICE the requirements.

How? We underlined the requirements _____ times.

STEP 3

SET up the outline (use the requirements we underlined 2 times).

A. _____ (main idea)

STEP 4

Work in the details...indent.....and then we number (use the action words we underlined 1)

Read the essay question and construct your outline on your own paper. Example:

A. _____

1. _____

2. _____

3. _____

STEP 5

Engineer your answer. Write a topic sentence about what you are going to write.

Write a sentence for each detail. Write a conclusion or summary sentence.

STEP 6

Review your answer.

Figure 1. Sample Graphic Organizer for Lessons Four and Five.

through a process of describing the strategy steps, modeling and demonstrating the steps through think-aloud procedures, the use of graphic organizers, and frequent teacher-student interactions designed to probe for un-

derstanding and promote elaboration. Guided practice incorporated the use of graphic organizers and corrective feedback, and information covered during the lesson was reviewed. These instructional activities in-

TABLE 2
Six-Step ANSWER Strategy (adapted from Therrien et al. 2009)

A	Analyze the action words in the question. This step requires students to read the question carefully and underline the key action words once.
N	Notice the requirements of the question. Here students mark key essay requirements by underlining them twice and change the question into their own words.
S	Set up an outline. This step requires students to list the main ideas of their essay within an outline format.
W	Work in details. Here students add important details to the outline that they plan to include in their essay.
E	Engineer your answer. This step requires students to write the essay including an introductory sentence, detailed sentences about each of the main ideas in their outline, and to include a summary sentence(s).
R	Review your answer. Here students check that all parts of the question were answered and edit their essay.

cluded recommended components of effective writing instruction and were comparable to those employed in previous strategy instruction for students with disabilities (Gersten & Baker, 2001; Graham & Harris, 2003; Schumaker & Deshler, 2009; Therrien et al.). Table 3 provides an overview of the daily lessons.

The second and third author conducted the fidelity data collection. Fidelity data were collected for 100% of the intervention sessions and consisted of checking off lesson steps that were completed or not completed.

Treatment group intervention. An equal number of students were assigned to the treatment and control groups with each group consisting of eight students. The intervention was conducted in six sessions with three sessions occurring every other day, three days a week, for two weeks. Each session was a 30-min period during the students’ instructional time. The students in the experimental group received the intervention together in a group setting. The instructor held a master’s degree in special education and was a certified teacher. The instructor was trained to implement the strategy by the second author after carefully reviewing the instructional manual (Hughes et al., 2005).

Control group intervention. During the ANSWER intervention, students in the control group participated in typically planned instructional activities.

Dependent variables. Students’ pre- and post-test essays were evaluated using a strategy scoring rubric designed to evaluate stu-

dents’ essays based on the implementation of the specific steps and sub-steps detailed in the ANSWER strategy (Therrien et al., 2009). The strategy scoring rubric used in this study was a modified version of the rubric Therrien et al. employed in 2009. Modifications included the following, in “Step Five: Engineer Your Answer” of the strategy scoring rubric the guidelines were modified to include the question, “Was there an Introductory Sentence?” instead of asking, “Was there an Introductory Paragraph?” Subsequently, the next question, “Did the Introductory Paragraph contain a rephrase of the question?” was modified to ask “Did the Introductory Sentence contain a rephrase of the question?” The revised strategy scoring rubric is depicted in Figure 2.

The strategy scoring rubric was divided into “strategy specific components” (Steps 1 – 4) and “essay general components” (Steps 5 – 6). The strategy specific components evaluated if students analyzed the action words, noticed the requirements, set up an outline, and worked in the details. Students could earn 0 to 4 points for the strategy specific components. The essay general components evaluated if the students engineered an answer, and reviewed or revised the answer. Students could earn 0 to 2 points for the essay general components.

The strategy scoring rubric yielded a total raw score derived by summing the scores from Steps 1 – 6 which represented the total number of strategy steps that were com-

TABLE 3
The ANSWER Strategy Lesson Activities (*adapted from Therrien et al. 2009*).

Lesson	Lesson Activities
1	The ANSWER strategy was introduced and the students were asked to write a statement indicating that they would commit to learning the strategy.
2	The intent of this lesson was to identify current strategies that the students used when they constructed essays. The first two steps of the strategy, which involved analyzing the question, were introduced. We supplemented the lesson with graphic organizers. Students were given a sample essay topic and asked to write a short essay answer. Then the steps of analyzing the action words and noticing the requirements were taught. Students completed these two steps with the sample essay question and revised their answers based on feedback. The students also completed an assessment worksheet. Their answers were checked for the demonstration of mastery.
3	In this lesson, the first two steps of the strategy were reviewed. The next two steps of the strategy, which involved creating an outline, were introduced. A new sample essay question was provided and, as a group, the students analyzed the action words and noticed the requirements. A graphic organizer was used for this lesson. The group discussed several different topic ideas for the essay. The students were taught the steps for creating an outline and practiced creating an outline for the sample essay question. The students completed a worksheet where they were asked to create an outline for one of the three topics on the page. Their answers were checked for the demonstration of mastery.
4	In this lesson, the four steps of the strategy were reviewed with the aid of a graphic organizer. The steps for creating an outline were discussed in depth. Next, the steps for writing an answer were taught. A graphic organizer was provided to the students. Students were given sample essay questions and were asked to analyze the question and construct their own outline. The last two steps focused on the types of paragraphs and sentences that can be used in an essay. The students were instructed to use their outline as a guide to writing an essay. The students checked their essay answer by referring to their outline. They also edited their answer for punctuation and spelling errors. The students' answers were checked for the demonstration of mastery.
5	For this lesson, students verbally practiced the six steps of the strategy using a graphic organizer as their guide. A rapid fire questioning technique was used.
6	The intent of this lesson was to have students independently practice using the entire strategy. An advance organizer was provided for this lesson. The instructor first briefly reviewed the ANSWER strategy. Then the students were given a new essay question and were asked to engage in the entire strategy on their own. Students' answers were check for the demonstration of mastery.
Total time	Supplemental Features
180 min	Supplemental materials included the use of graphic organizers, highlighters, and having the ANSWER mnemonic attached to the front of the students' folders. Total instructional time for the strategy across all six lessons was approximately 3 hrs.
3 hrs	

pleted. Conceptually, the strategy specific components (Steps 1 – 4) examined the application of the planning and goal setting part of the ANSWER strategy. The essay general components (Steps 5 – 6) were a generalization measure that evaluated if essay responses were topic specific, included an introductory sentence, incorporated detailed sentences aligned with the outline, and contained a summary sentence.

Data collection.

The pre-test essay was administered the week prior to program implementation and the post-test was administered the week after program completion. Two graduate students in the College of Education evaluated the essays. The graduate students had extensive experience administering and evaluating assessments. In addition, training was

Strategy Scoring Rubric		
Strategy Specific Components		
Step 1: Analyze the Action Words (1 each)	⇒ Were the key action word(s) underlined once?	____ / 1
Step 2: Notice the Requirements (1 each)	⇒ Were the requirements underlined twice?	____ / 1
Step 3: Set Up an Outline (.5 each)	⇒ Was an outline constructed?	
	⇒ Did the main points/ideas in the outline match the requirements in the question?	____ / 1
Step 4: Work in Details (1 each)	⇒ Were relevant details listed under the main points in the outline?	
	⇒ _____ / 1	
Essay General Components		
Step 5: Engineer Your Answer (.2 each)	⇒ Was there an Introductory Sentence ?*	
	⇒ Did the Introductory Sentence contain a rephrase of the question?*	
	⇒ Was there a sentence for each requirement in the question?	
	⇒ Did all sentences pertain to the topic?	
	⇒ Was there a concluding sentence (summary)?	
	_____ / 1	
Step 6: Review Your Answer (.5 each)	⇒ Were all outlined items included?	
	⇒ Was the question adequately answered?	
	_____ / 1	
TOTAL SCORE	$\frac{\text{Points Earned}}{\text{Total Points}} = \frac{\quad}{6} = \quad \%$	

Figure 2. Strategy Scoring Rubric. This rubric was modified from the original Strategy Specific Rubric employed by Therrien et al. (2009). * Denotes items that were modified from the Therrien et al. original Strategy Specific Rubric.

provided by the first and second authors where the raters were introduced to the components of the strategy rubric. The raters practiced using the strategy rubric to evaluate examples of essay prompts and answers. The raters were not aware of the AN-

SWER study. They were not involved in data collection nor were they aware that the essay responses they were evaluating were pre- and post-test results. Therefore the raters were blind to what the intervention was, who was in the treatment and control groups,

and which essay was the pre-test and post-test.

Procedure.

The study employed the following sequence. First students ($N = 16$) were assigned via a stratified random sampling method to the treatment or control group. Next the pre-test essay prompts were administered. Then students in the treatment group received instruction in the ANSWER Strategy over a two-week period while students in the control group attended their regularly scheduled activities. Next the post-test essay prompts were administered to students in the treatment ($n = 8$) and control ($n = 8$) group students. The pre- and post-test essays were then evaluated by the graduate student raters using the strategy scoring rubric.

Results

Treatment Integrity and Inter-Rater Reliability

Treatment integrity checklists containing the essential instructional components for each lesson were used to collect data for all (i.e., 100%) sessions. An overall integrity percentage of 99% was obtained with a range per observation between 97–100%. Final rubric scores for pre and post-test measures were calculated by averaging the two rater scores. Correlations between rater scores were calculated for all measures and averaged $r = .987$.

Strategy Scoring Rubric

Students' post-test scores including effect size (ES) differences on the strategy scoring rubric are summarized in Table 3. Students in the treatment group scored an average of 3.706 on the post-test compared to 0.925 for students in the control group. ANCOVA results using pre-test scores as the covariate indicated that this result ($d = 2.63$) was statistically significant $F(1, 14) = 27.07, p < .0001$. To ascertain what might account for the difference in the post-test, the strategy scoring rubric was broken down into two parts. Rubric steps one through four were examined as strategy specific components while rubric steps five and six were examined as essay general compo-

nents. The strategy scoring rubric is depicted in Figure 2.

An examination of the strategy specific aspects revealed that none of the students utilized any of the strategies on the pre-test and that students in the treatment group earned approximately 60% of the points on the post-test compared to 0% for control. This difference was statistically significant and yielded a large effect size ($d = 4.68$). When the essay general component aspects were examined, there was no statistically significant difference between conditions however the effect size was moderate ($d = .40$) (Cohen, 1988). Students' post-test scores including effect size (ES) differences on the strategy specific aspects and the essay general component aspects are summarized in Table 4.

Discussion

The ANSWER strategy (Hughes et al., 2005) holds promise in improving the essay composition skills of post-secondary students with developmental disabilities. The present study investigated the effectiveness of the ANSWER strategy with post-secondary young adults with developmental disabilities. The results of this study indicated that the students in the treatment group improved their essay test-taking skills after a total of approximately 3 hrs of instruction (distributed across six 30 min lessons). The following research questions were posed. Could the students acquire and apply the ANSWER strategy? Would there be differences in how the students mastered the strategy aspects versus the generalization aspects of the ANSWER strategy? The results of this study indicated that students in the treatment group significantly out-performed the control group when post-test results were compared. The large effect size of $d = 2.63$ indicated that the students in the treatment group were able to acquire and apply the ANSWER strategy.

Next, the students' acquisition and application of the specific strategy steps were examined. A comparison of the post-test strategy specific components scores (Steps 1–4) indicated that students in the treatment group significantly out-performed those in the control group yielding a large effect size of $d =$

TABLE 4
Post-test Scores for Strategy Scoring Rubric Components

	Strategy Scoring Rubric Components		
	Overall strategy scoring rubric	Rubric sections aligned with strategy specific components (1-4)	Rubric sections aligned with essay general components (5-6)
Treatment group	3.706* (1.43)	2.500* (.76)	1.206* (.90)
Control group	0.925* (.42)	.0000*	0.925* (.42)
Effect size difference (Cohen's <i>d</i>)	2.63	4.68	.40
ANCOVA Comparison	$F(1, 14) = 27.07$ $p < .0001$	$F(1,14) = 87.50$ $p = .0001$	$F(1,14) = 0.57$ $p = .463$

Note:* Denotes mean values. Standard deviations provided in parentheses.

4.68. When the post-test essay general components scores were compared there was no statistically significant difference between conditions. However the effect size in favor of the treatment group was *d* = .40 which indicated a promising trend.

Implications for Practice

When the students’ individual pre-test essays in the treatment and control groups were examined a pattern emerged. None of the essay responses exhibited any evidence of planning or goal setting through the incorporation of outlines or pre-planning notes. Many of the essays consisted of a series of disjointed sentences devoid of an introductory sentence or summary sentence. Hayes and Flower (1987) described this characteristic as “knowledge-telling” where the writer’s goal is to produce a written product that includes any information pertinent to the topic at hand (p. 22). The writer may list all of his or her topical factual knowledge but will not couch or organize his or her written response to fit the audience or situation (Hayes & Flower).

In contrast, following the ANSWER strategy intervention, students in the treatment group constructed post-test essays that did include planning strategies and that incorporated strategy specific steps. The majority of the students in the treatment group read and analyzed the essay prompt. They also developed an outline indicating that the students incorporated pre-planning and goal setting before

they constructed their essays. When one examines the generalization aspects of the post-test responses, five out of eight (63%) students in the treatment group constructed essay responses that exhibited the mechanics of expository writing such as the inclusion of an introductory sentence, constructing one’s written response in an organized sequential manner, and ending one’s essay response with a conclusion or summary sentence(s). Even though the results for the generalization component of the strategy were not statistically significant, it did appear that the majority of the students in the treatment group applied aspects of the strategy when they created their essays.

Only one out of eight students (13%) in the control group constructed a post-test essay response that contained an introductory sentence. No responses contained a conclusion or summary sentence. The control groups’ post-test essays were comparable to the pre-test essay responses for both groups (treatment and control). Subsequently when one examines the post-test essay responses of the treatment group it is evident that this brief (3hr) intervention had a positive impact upon the quality of the students’ post-test essay responses.

Limitations and Future Research

There were several limitations with regard to this study. First, the components of the ANSWER strategy that addressed the actual

construction of an essay prompt response did not yield significant effects when the treatment and control groups were compared. As previously mentioned, the "essay general components" rubric scores represented a generalization measure. In addition it is important to note that the essay general components rubric section consisted of only two items. Therefore it is difficult due to the truncated nature of the scale to reach a statistically significant difference. However the effect size of $d = .40$ was impressive considering the truncated nature of the generalization measure, and the fact that the raters were unaware of the ANSWER strategy that was taught to the students. Although the six-steps of the strategy were taught to mastery through modeling, feedback, and daily practice tests, perhaps more individualized instruction was needed for generalized responding. Each student could have had individualized goals in order to supplement instruction.

A second limitation is the length of the intervention. Extended instruction might help to ascertain if the students are able to generalize the strategy. The third limitation was the fact that due to time constraints, we were not able to determine whether the students who had been taught the strategy were actually generalizing the strategy in their other classes. Finally, we were not able to administer a maintenance test.

Future studies should continue to investigate the use of this strategy with individuals with developmental disabilities who are enrolled in post-secondary settings. Several points should be addressed in future investigations. The ANSWER strategy intervention could be extended beyond teaching students to mastery and include the administration of multiple probes to assess mastery and over learning. Each student could have individualized essay writing goals that are tied to individual student outcomes. Future studies should also build in opportunities for students to practice answering essay test questions in novel settings and include maintenance tests to determine if the students are continuing to use the strategy over time.

Conclusion

In 2009, Penner-Williams, Smith, and Gartin noted the importance of written expression in the lives of adults. The authors asserted that adults must master written language skills not only to communicate with others but also to be gainfully employed. Adults frequently participate in written forms of communication such as writing notes for themselves (Penner-Williams et al.) and communicating via email, blogs, tweets, and so on. If difficulties in written expression are not reconciled at some stage in an individual's development then one remains at a disadvantage and cannot become fully engaged in his or her adult environment. The inception of post-secondary programs for individuals with developmental disabilities involves the development and implementation of unique curricula that emboldens individuals with developmental disabilities with the capacity to access the components of college life (e.g. academics, employment preparation, community life). Academics are an important component to college life and as such there is a need for evidence-based strategies.

In the present study, we investigated the effectiveness of the ANSWER strategy in improving the essay composition skills of post-secondary students with developmental disabilities. We proposed that if students applied the six steps of the strategy they would produce comprehensive and organized essay prompt responses. We concluded that the post-secondary students with developmental disabilities who were taught the ANSWER strategy were able to learn the strategy; however, they may need additional structured support outside of instructional settings to ensure that they utilize the strategy effectively in novel settings. The ANSWER strategy holds considerable promise as an effective strategy for use in inclusive settings at the post-secondary level. It is our hope that this study will stimulate additional data based research in order to identify evidence-based practices that are effective for individuals with developmental disabilities who are enrolled in post-secondary settings.

References

- De La Paz, S. (1999). Self-regulated strategy instruction in regular education settings: Improving out-

- comes for students with and without learning disabilities. *Learning Disabilities Research and Practice*, 14, 92–106.
- Delano, M. E. (2007). Use of strategy instruction to improve the story writing skills of a student with asperger syndrome. *Focus on Autism and Other Developmental Disabilities*, 22, 252–239. doi:10.1177/10883576070220040701
- Deshler, D. D., & Schumaker J. B. (1986). Learning strategies: An instructional alternative for low-achieving adolescents. *Exceptional Children*, 52, 583–590.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.
- Englert, C. S., Mariage, T. V., Okolo, C. M., Shankland, R. K., Moxley, K. D., Courtad, C. A., . . . Chen, H. Y. (2009). The learning-to-learn strategies of adolescent students with disabilities: Highlighting, note taking, planning, and writing expository texts. *Assessment for Effective Intervention*, 34, 147–161. doi:10.1177/1534508408318804
- Englert, C. S., Raphael, T. E., & Anderson, L. M. (1992). Socially mediated instruction: Improving students' knowledge and talk about writing. *The Elementary School Journal*, 92, 411–449.
- Gersten, R., & Baker, S. (2001). Teaching expressive writing to students with learning disabilities: A meta-analysis. *The Elementary School Journal*, 101, 252–274. doi:10.1086/499668
- Graham, S., & Harris, K. R. (2003). Students with learning disabilities and the process of writing: A meta-analysis of SRSD studies. In L. Swanson, K. R. Harris, & S. Graham (Eds.), *Handbook of research on learning disabilities* (pp. 323–344). New York: Guilford.
- Graham, S., & Harris, K. R. (2009). Almost 30 years of writing research: Making sense of it all with The Wrath of Khan. *Learning Disabilities Research*, 24, 58–68. doi:10.1111/j.1540-5826.2009.01277.
- Grigal, M., Neubert, D. A., & Moon, M. S. (2001). Public school programs for students with significant disabilities in post-secondary settings. *Education and Training in Mental Retardation and Developmental Disabilities*, 36, 244–254.
- Grigal, M., Neubert, D. A., & Moon, M. S. (2002). Postsecondary options for students with significant disabilities. *Teaching Exceptional Children*, 35, 68–73.
- Guzel-Ozmen, R. (2006). The effectiveness of modified cognitive strategy instruction in writing with mildly mentally retarded Turkish students. *Council for Exceptional Children*, 72, 281–297.
- Hall, M., Kleinert, H. L., & Kearns, J. F. (2000). Going to college! Postsecondary programs for students with moderate to severe disabilities. *Teaching Exceptional Children*, 32, 58–65.
- Hallenbeck, M. J. (2002). Taking charge: Adolescents with learning disabilities assume responsibility for their own writing. *Learning Disability Quarterly*, 25, 227–246.
- Harris, K. R., Graham, S., & Mason, L. H. (2003). Self-regulated strategy development in the classroom: Part of a balanced approach to writing instruction for students with disabilities. *Focus on Exceptional Children*, 35(7), 1–16.
- Hayes, J. R., & Flower, L. S. (1987). On the structure of the writing process. *Topics in Language Disorders*, 7(4), 19–30.
- Hughes, C. A., Schumaker, J. B., & Deshler, D. D. (2005). *The Essay Test-Taking Strategy* (1st ed.). Lawrence, Kansas: Edge Enterprises, Inc.
- Individuals With Disabilities Education Improvement Act 2004, Pub. L. No. 108–446.
- Lane, K. L., Harris, K. R., Graham, S., Weisenbach, J. L., Brindle, M., & Morphy, P. (2008). The effects of self-regulated strategy development on the writing performance of second-grade students with behavioral and writing difficulties. *The Journal of Special Education*, 41, 234–253. doi:10.1177/0022466907310370
- Mercer, C. D., Mercer, A. R., & Pullen, P. C. (2011). *Teaching students with learning problems* (8th ed.). Upper Saddle River, NJ: Pearson.
- Newman, L., Wagner, M., Cameto, R., Knokey, A. M., & Shaver, D. (2010). *Comparisons across time of the outcomes of youth with disabilities up to 4 Years after high school: A report of findings from the National Longitudinal Transition Study (NLTS) and the National Longitudinal Transition Study-2 (NLTS2)* (NCSER 2010–3008). Menlo Park, CA: SRI International. http://www.nlts2.org/reports/2010_09/nlts2_report_2010_09_complete.pdf
- Penner-Williams, J., Smith, T. E. C., & Gartin, B. C. (2009). Written language expression: Assessment instruments and teacher tools. *Assessment for Effective Intervention*, 34, 162–169. doi: 10.1177/153408408318805.
- Polloway, E. A. (2009). Written language assessment: Introduction to the special series. *Assessment for Effective Intervention*, 34, 132–133. doi:10.1177/1534508408318801
- Salahu-Din, D., Persky, H., & Miller, J. (2008). *The Nation's Report Card: Writing 2007* (NCES 2008–468). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, Washington, DC.
- Schumaker, J. B., & Deshler, D. D. (2009). Adolescents with learning disabilities as writers: Are we selling them short? *Learning Disabilities Research & Practice*, 24, 81–92. doi:10.1111/j.1540-5826.2009.00282.x
- Stodden, R. A., & Whelley, T. (2004). Postsecondary education and persons with intellectual disabilities: An introduction. *Education and Training in Developmental Disabilities*, 39, 6–15.

Therrien, W. J., Hughes, C. A., Kapelski, C., & Mokhtari, K. (2009). Effectiveness of a test-taking strategy on achievement in essay tests for students with learning disabilities. *Journal of Learning Disabilities*, 42, 14–23 doi: 10.1177/0022219408326218

Weir, C. (2004). Person-centered and collaborative supports for college success. *Education and Training in Developmental Disabilities*, 39, 67–73.

Zaft, C., Hart, D., & Zimbrich, K. (2004). College career connection: A study of youth with intellectual disabilities and the impact of postsecondary education. *Education and Training in Developmental Disabilities*, 39, 45–53.

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