

## Self-Regulated Strategy Instruction For Basic College Writers: Results from a Randomized Experiment

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**Background:** Developmental writing courses for underprepared students are common in two-year community colleges, yet little experimental research has studied instructional interventions in those settings (Levin & Calcagno, 2008; Perin, 2013). In a prior IES Goal-2 project, we developed a curriculum based on self-regulated strategy instruction (MacArthur, 2011; Harris & Graham, 2009). Self-regulated strategy instruction has been studied extensively in elementary and secondary schools and has been found to have substantial effects on quality of writing (Graham & Perin, 2007; Graham, Harris, & Chambers, 2016). Two studies have found positive effects of strategy instruction in adult education programs (Berry & Mason, 2012; MacArthur & Lembo, 2009). A quasi-experiment in the goal-2 project found strong positive effects on quality of argumentative writing (Glass's  $\Delta = 1.22$ ) as well as positive effects on self-efficacy and mastery motivation (MacArthur, Philippakos, & Ianetta, 2015). The current study is part of an IES goal-3 project.

**Purpose:** The purpose of this study was to evaluate the efficacy of a curriculum based on self-regulated strategy instruction on writing quality and motivation.

**Setting:** The study was conducted in two community colleges in two states in the eastern United States with one college each in fall and spring semesters.

**Participants:** Participants included 19 instructors (15 women, 17 white, 2 African-American, 1-20 years experience) and 246 students (62% female, 43% white, 38% African-American, 9% Hispanic, 4% Asian, 2% Native American, 5% other; 12% were non-native speakers of English; mean age 24 years).

**Intervention:** In the curriculum, *Supporting Strategic Writers*, students learn systematic strategies for planning and revising based on genre elements. Instruction follows a sequence including introduction to a genre, evaluation of good and weak essays, think-aloud modeling, collaborative writing, individual writing, peer review with preparation, and editing. In addition, students learn metacognitive, self-regulation strategies for goal setting, task management, monitoring of progress, and reflection (Harris & Graham, 2009). Instruction was provided for a full semester course. Treatment instructors received two days of professional development and coaching. Control instructors implemented business-as-usual instruction. Both treatment and control instructors taught multiple genres including argumentative writing.

**Research Design:** A multi-site randomized trial was conducted in which instructors within two colleges were randomly assigned to treatment (i.e., *Supporting Strategic Writers* program) and control (i.e., business as usual) conditions.

**Data Collection and Analysis:** At pretest and posttest, students wrote argumentative essays without sources. Four research assistants, blind to treatment assignment, independently rated overall quality on a 7-point rubric. Each paper was read by two raters; interrater reliability

between pairs was good (range  $r = .76$  to  $.88$ ). Length was calculated by the word processor. Also at pretest and posttest, students completed a motivation questionnaire tapping goal orientation, beliefs, self-efficacy, and affect (Cronbach alphas from  $.73$  -  $.96$ ). Scores on placement tests (Accuplacer reading and writing) were collected, and students took the Accuplacer reading at posttest. At posttest, students wrote an argumentative essay using a retired 12th-grade prompt from the National Assessment of Educational Progress, which was scored by two raters trained by an independent consultant with NAEP essay scoring experience (interrater reliability  $r = .76$ ).

All instructors were interviewed at pretest to gather information on experience and teaching practices. Treatment instructors were interviewed after the semester about their perspectives on the curriculum. Treatment instructors were observed at least 3 times to evaluate treatment fidelity using a scale that included a checklist of instructional components and quality ratings. Rater agreement with criterion scores during training ranged from 84-96% for checklist items and 67-93% for quality ratings. Control instructors were observed 3 times to describe their instruction.

**Results:** Analysis of baseline equivalence between treatment and control groups found no significant differences at pretest for Accuplacer reading and writing scores, essay quality, or essay length (all  $ps > .2$ ). Fidelity of treatment was high. For implementation of lesson components, instructors scored from 1.89 to 1.96 on a 2-point scale ( $M = 1.94$ ). For quality of key components, instructors ranged from 2.4 to 3.0 on a 3-point scale ( $M = 2.85$ ).

Analyses of posttest essay quality, essay length, motivation, and reading were conducted using hierarchical linear modeling (HLM) with students nested within instructors, condition and college as fixed factors, and pretest scores as covariates. For essay quality, a statistically significant and large effect of treatment was found ( $p < .001$ ; Glass's  $\Delta = 1.75$ ), with no significant interaction between condition and college. No effect was found for essay length. For the NAEP essay, a statistically significant effect of treatment was found ( $p < .01$ ; Glass's  $\Delta = 0.67$ ). For self-efficacy, statistically significant effects were found for all three factors: self-efficacy for tasks and processes ( $p < .001$ ,  $ES = 0.50$ ), self-efficacy for grammar ( $p < .01$ ,  $ES = 0.36$ ) and self-efficacy for self-regulation ( $p < .01$ ,  $ES = 0.40$ ). Significant effects were also found for affect ( $p < .01$ ,  $ES = 0.32$ ) and beliefs about importance of content ( $p < .05$ ,  $ES = .25$ ). For the Accuplacer reading posttest, no significant effect of treatment was found ( $p > .8$ ).

**Conclusions:** This study was the first randomized control trial (RCT) of self-regulated strategy instruction with college developmental writers. It found a large effect on the quality of student writing on a final examination and a moderate to large effect on an independent measure of quality of persuasive writing from the NAEP. No interaction effects were found for college, indicating similar treatment impacts at both sites. In addition, the study found positive effects for self-efficacy as well as affect and beliefs about writing. No effects were found for reading comprehension. From a practical perspective, the study addresses the needs of a large population of students required to take developmental writing courses (NCES, 2013), and it provides evidence of impacts desired by college administrators to justify investments in developmental writing programs. Further research is needed to investigate strategy instruction in developmental courses that include a focus on writing from sources and the consequent need for improved reading comprehension.

## References

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