Cost Analysis for the Supporting Strategic Writers Curriculum

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March 31, 2023

Abstract

Supporting Strategic Writers (SSW) is an instructional approach and curriculum for college developmental English and integrated reading and writing courses. SSW is based on strategy instruction integrated with practices common in college English. Students learn strategies for writing and critical reading of sources based on rhetorical analysis and genre. In addition, they learn metacognitive, self-regulation strategies such as goal setting, task management, progress monitoring, and reflection. Research over 10 years, funded by the US Department of Education, included 3 experimental studies that found large positive effects on quality of writing and motivation. The purpose of this cost analysis is to help college personnel, including both administrators and faculty, make decisions about whether to use the SSW curriculum in their developmental courses and to guide them in allocating sufficient resources for implementation.

Introduction

Community colleges, with open admissions and low tuition, offer a chance at a college education for many students who would otherwise not be able to attend. However, large numbers of community college students are required to take non-credit 'developmental' courses in writing, reading, or math. About 30% of new students take developmental courses in writing and/or reading (Bailey et al., 2010; Chen, 2016), and fewer than half of students referred to developmental reading or writing go on to pass first-year composition (Bailey et al., 2010; Chen, 2016), much less to earn a degree. Active research efforts have addressed this problem with structural reforms to placement procedures, integration of reading and writing, and accelerated courses (Hodges et al., 2020; MacArthur, in press). But little research has focused on pedagogical methods for teaching writing and reading.

Since 2010 with funding from IES, our research team has worked to design and evaluate an instructional approach for developmental writing based on strategy instruction with self-regulation. In our *Supporting Strategic Writers* approach, students learn strategies for writing and critical reading of sources based on rhetorical analysis and genre. In addition, they learn metacognitive, self-regulation strategies such as goal setting, task management, progress monitoring, and reflection. The initial development grant (R305A100614) ended with a quasi-experimental study (MacArthur et al., 2015) that found positive effects on writing quality as well as on motivation, especially self-efficacy.

The current IES efficacy grant (R305A160242, funded 2016-2023) conducted two rigorous randomized control trial (RCT) studies. The first study (MacArthur et al., 2022), with 2 colleges, 19 instructors, and 207 students, found results similar to the quasi-experiment – a large effect on writing quality and positive effects on motivation. In addition, positive effects were found on an independent writing assessment using a released prompt from the National Assessment of Educational Progress (NAEP, 2012). This study, like the earlier quasi-experiment, focused on writing in multiple genres (e.g., personal narrative, argument) based on background knowledge but without sources.

The second study (MacArthur et al., in press) expanded the curriculum to focus on writing using sources. The genre-based writing strategies were expanded to include strategies for critical reading of sources, note-taking, and integration of ideas from sources with writers' own ideas. The study involved 2 new colleges with 23 instructors and 187 students. We found moderate effects on quality of argumentative writing with sources. We also found positive effects on the quality and inclusion of main ideas in summaries of published articles. Unfortunately, we did not find significant effects on motivation.

Following completion of the two experimental studies, we continued to work with the colleges that had participated in our research, as well as some new colleges, with the goals of adapting the curriculum to the needs of individual colleges, making professional development more efficient, and planning dissemination. Two of the colleges that participated in our research have adopted SSW for use in all of their developmental writing courses.

Perspective for the Cost Analysis

The primary purpose of this cost analysis is to help college personnel, including both administrators and faculty, make decisions about whether to use the SSW curriculum in their developmental courses and to guide them in allocating sufficient resources for implementation. The analysis includes costs to the college, faculty, and students. Costs are estimated for implementation by a group of faculty from a college. Individual instructors can use the curriculum independent of their colleagues, but we have not estimated costs for that situation.

Our research studies compared the experimental SSW curriculum with business-as-usual (BAU) instruction. Many of the resource costs associated with SSW are the same as BAU. The largest costs of instruction -- faculty instructional time and classroom space -- are the same for SSW and BAU. Thus, the cost analysis focuses on incremental costs of SSW beyond BAU. The incremental costs are also most relevant for college decisions about adoption. Furthermore, faculty costs are highly variable since nationwide more than half of instructors of developmental courses are adjunct faculty; therefore, estimates of dollar costs would vary by college. Our analysis provides estimates for college personnel in hours without corresponding dollar figures. Estimates for outside personnel are provided as hours and dollar figures. We understand that this decision is unusual for cost analysis. However, we believe that it is most helpful for the audience of college administrators and faculty, who want to know how much work will be involved as well as dollar costs.

The cost analysis is based primarily on the resources used in the two randomized control trials (RCT) because we have the most accurate data, and because the costs reflect the implementation that resulted in the positive outcomes reported in the studies. However, cost estimates based on the RCTs are from the initial implementation of SSW with full professional development (PD) and coaching for instructors. In addition, data from the RCTs do not reflect the fact that many colleges will want to adapt the SSW curriculum to their own context. For example, they may use the approach in a developmental writing course, an integrated reading and writing course, co-requisite courses, or even apply it in first-year composition (FYC). Thus, in addition to the primary cost analysis based on the RCTs, we will discuss resource costs based on our dissemination efforts and ongoing work with our college partners. We continued to work with several colleges after the formal research studies to further refine and adapt SSW to their settings. We also worked with new colleges. These activities provided opportunities to see and evaluate costs of continued implementation when many of the faculty already are trained, and also to see how colleges adapt the program.

As noted above, the first study focused on writing without sources, whereas the second study extended the course to focus on writing using sources. In future use, colleges may choose either version. For the most part, the ingredients and costs are the same for both versions. However, instructors reported more difficulties in study two and spent more time on course preparation; differences will be noted in the ingredients below.

Logic Model

The cost analysis is guided by a logic model showing the resources and activities included in the program as well as the outputs and outcomes (see Figure 1). The model shows the ingredients needed to implement the program. The cost analysis then uses the "Ingredients Method" (Levin, McEwan, Belfield, Bowden, & Shand, 2018).

Figure 1.

Cost Analysis Logic Model

Inputs	Activities	Outputs	Outcomes – End of semester	Outcomes – Long term
• SSW curriculum materials • PD provider/ coach • Instructors time for PD • Instructor (or course leader) time for course preparation) • Administrator time for coordination • Video recording equipment for coaching	• PD workshop (18 hours) • Course preparation (instructors with optional administrative coordinator) • Coaching (3 classes)	• Instructors learn to teach SSW curriculum • Students learn writing strategies and learning strategies	• Improved quality of written essays For writing with sources version: • Improved comprehension of source articles • Improved quality of written summaries	• More students enroll in and pass FYC
• Instructor time teaching and grading • Classroom space • Student access to computers	• Full semester course • Student writing assignments	• Students complete course		

Ingredients

In this section, we describe the ingredients needed to implement the SSW curriculum. We present ingredients and costs for a group of instructors from a college working together. As noted earlier, we present incremental costs of using SSW instead of continuing with BAU instruction. Our analysis provides estimates for college personnel in hours without corresponding dollar figures. Estimates for outside personnel are provided as hours and dollar figures. Materials are also estimated in dollars. Table 1 divides the ingredients into amounts that are fixed regardless of the size of the number of instructors (4-10) and variable amounts per faculty. The totals at the bottom of the table are based on a group of 10 instructors.

Common Costs for SSW and BAU

In all of our design research and experimental research, SSW was implemented in the context of a regular college course for a full semester with a single instructor. Instructional time, i.e., time spent in class, was the same for SSW and BAU. In addition, the number and length of writing assignments were designed to be roughly comparable to BAU courses, and our comparisons of syllabi confirmed that assignment demands were similar. Thus, instructor time

for grading and providing feedback was also similar. Also, student class time and workload were similar between SSW and BAU. There were differences in instructor time devoted to professional development (PD) and course preparation, which are discussed below.

In addition, the requirements for classroom space and technology are comparable for SSW and BAU. The SSW instruction does require a computer and projector for instructor use to display materials, but most college classrooms have this equipment. During the studies, students did write using word processors during class time, but only for assessments related to the research. Student writing was done primarily out of class, and students in both SSW and BAU were expected to word process their papers and use computers to access course materials. Also, the SSW requires students to access materials online, including sources for their writing, but again, access to a computer out of class is a common requirement of college writing courses. In our studies, all control instructors required students to submit their written work typed on a word processor.

Curriculum Materials

The SSW curriculum materials include an *Instructors' Guide* (IG) and a *Student Book* (SB). The *Instructors' Guide* includes explanations of the writing strategies, the metacognitive Strategies for Academic Success, and pedagogical principles of strategy instruction with self-regulation. It also includes detailed lesson plans and all materials needed for instruction. The Student Book includes shorter descriptions of the writing and metacognitive strategies as well as all materials needed for learning and completing assignments. During the experimental studies, we provided instructors with printed and electronic copies of both the IG and SB. The student books were printed by local copy services used to printing course materials, and the cost was covered by the grant.

In our dissemination work, we provided electronic copies of the IG and SB with permission to print copies for instructors and students. In addition, to make it easier for instructors and students to use the SSW materials in these texts, we provided on online source with copies of materials that instructors would want to display and that students/instructors would want to write on (e.g., evaluation rubrics). In most cases during the dissemination work, instructors opted to print copies of the IG and SB for themselves and also opted to have students purchase copies of the Student Book from copy services. We have based our estimates on this practice. The IG was about 200 pages and the SB about 125 pages. Printed copies of both for instructors would cost about $65 (at $.20/page) per instructor. This is an additional cost for instructors or programs; in a BAU program using a textbook, it is likely that the publisher would provide a free copy to instructors who adopt the textbook. However, the cost to students would be substantially less than purchasing a textbook. The cost to students of the SB would be about $25 per student. However, based on review of college developmental writing textbooks by active publishers in the market (Pearson, Cengage, St. Martin), students could expect to spend $100-135 for a paperback (or $50 for an ebook). Thus, our cost estimate includes a savings of $75 per student.

A book, *Writing Instruction for Success in College and the Workplace*, from Teachers College Press is due to be published in fall 2023. The book will explain the theoretical principles and instructional practices used in the SSW curriculum. The strategies for writing and critical reading of sources, as well as the metacognitive self-regulation strategies will be thoroughly

explained. Along with the book, instructors will have access to online materials including the existing IG and SB. The cost of the book in paperback has been established by the publisher at $40 ($39.95).

Advance Planning

An important first step in planning to use the SSW curriculum in a college is a series of discussions between college leaders and authors of SSW curriculum. In the research studies, this planning involved discussions of college goals and current course organization, review of current syllabi, and explanation of options within SSW, such as genres of writing and whether to include use of sources. In our dissemination work, these discussions were more flexible and complex; we discussed the expectations of FYC, recent plans or changes in developmental English, and even the possibilities of using SSW in FYC. The advance planning also involves planning for the PD.

On the SSW side, these discussions would most likely be by the authors of SSW, MacArthur or Traga Philippakos. We will not charge for these discussions. On the college side, it has been common to have the chair of developmental education or English, or another administrator. We estimate a total of about 8 hours for such discussions, spread over several conversations.

If individual college instructors wish to use the SSW curriculum, the authors will be available for discussion, but we were not able to estimate time requirements because so much depends on the individual instructor.

Professional Development and Coaching

In the two research studies, SSW staff provided 3 days of professional development (PD) prior to the start of the semester, 6 hours per day plus 2 hours of homework; since a half day focused on research procedures, only 15 hours were PD on instruction. The PD was provided in-person, which sometimes required travel and hotel stays for the PD providers. We also provided coaching, which involved observing each class 3 times during the semester and providing feedback to instructors both orally and in writing. Most of that coaching was done in person, except for 1 college that was quite distant where we provided the first coaching session in person and then used Zoom and video to observe from a distance.

To replicate the PD and coaching provided in the research studies would involve costs for the PD providers and for instructor time. Assuming that a group of instructors received PD together, as in the studies, the time for a PD provider would include 15 hours of in-person contact time, as well as 8 hours for preparation and follow-up. The PD during the research involved multiple staff from SSW, but a single PD provider would be adequate. If overnight travel were involved, then travel and hotel costs would need to be added. Providing in-person coaching for 3 classes for each instructor would require substantial time; it is difficult to estimate because it depends on class scheduling and how many classes could be observed in a day. With fortunate scheduling, a coach might observe 3 instructors in a day; observing 9 or 10 instructors would likely require 3 or 4 person days. It seems unlikely to us that community colleges would be willing or able to assume the costs for fully in-person PD and coaching.

Fortunately, in our dissemination work after the experimental studies, we found that it was possible to offer some or all of the PD online, and to conduct the observations and coaching entirely online. For college sites within a couple hours' drive of a PD provider, PD could be completed in-person in 2 days. Costs for the PD provider would include 12 hours of in-person time as well as 8 hours for preparation and follow-up (20 hours total), plus travel time and expenses. For college sites at a greater distance, PD could be provided entirely online. The overall time for the PD provider would be similar, but the PD could be scheduled in shorter blocks over more sessions, for example, four 3-hour sessions. Time for instructors in either option would include the 12 hours plus 4 hours of homework between the sessions (total 16 hours).

The time of SSW staff required for observation and coaching would be dramatically reduced by using online observation. For online observation, there would also be costs for video recording or simultaneous online observation using Zoom or another tool. In our studies, instructors set up computer tablets and used Zoom to connect with the coach; the sessions were recorded when the coach could not be present at the class time. The study provided this equipment, but college media centers could provide needed equipment. Or, in some cases, instructors arranged to have classes recorded by staff from the college media center. Using online observation made it possible for a coach to complete an observation and feedback in the time of the class plus an hour or two to write feedback and discuss it with the instructor by phone. We estimate the coach time at 3 hours per observation/feedback session or 9 hours per instructor for 3 sessions. We estimate the instructor time for coaching to include 1 hour per observation (3 hours total) for reading and discussing the feedback with the coach.

In addition to the 2 authors, we have 3 college instructors who participated in our studies and have experience providing PD on SSW; they could contract for PD or coaching. We estimate the cost of these consultants at $40/hour. The cost of PD is similar for any size group of instructors. The cost of coaching is proportional to the number of instructors.

Course Preparation

Although the curriculum includes detailed lesson plans and all materials, there is still work involved in setting up the course the first time it is offered. These course preparation activities could be done once per college by an instructional leader or small group of faculty. Optionally, these could be done by each instructor independently, depending on the college policies and traditions. Our estimates of the time required assumes that these activities will be done once for all instructors. Our estimate is based on work with two colleges during our dissemination work; in both cases, the bulk of course preparation was done by an instructional leader, either the department chair or a lead instructor.

First, developing a syllabus and organizing materials in a Learning Management System (LMS such as Blackboard or Canvas) would be most efficient if done in common. Using a common syllabus and LMS would save individual instructors a lot of time. It also has the advantage of facilitating discussion among faculty about adapting the course for future semesters. Setting up the LMS course involves creating: an online syllabus, assignments with rubrics, home page and weekly pages, and links among these elements (e.g., syllabus and weekly pages link to assignments). For use of sources, it also requires creating links to source articles online. In addition, it requires creation of discussion boards and other collaborative procedures

(e.g., for peer review). For our estimate, we assume that the course would meet in person; setting up the LMS for a fully online course would require additional effort. Based on the two colleges, we estimate about 15 hours of work for an instructional leader to set up the LMS.

Second, colleges that use the version of SSW with sources may choose to use the source articles in the IG and SB or replace them with more up-to-date articles. If they replace them, there would be a cost for someone to select new topics and articles. The source materials themselves would be free assuming they are selected from sources available through the college library. Our cost estimate assumes that 2 sets of source materials (total 6 articles) will be replaced. This type of work is a common part of course preparation, so faculty should be able to do it. We estimate about 12 hours of time for this work, again done by a lead instructor.

Individual instructors, even using a common syllabus and LMS, will need time to prepare their materials and plan for individual class sessions. The IG includes detailed lesson plans and assignments. However, it is a 'new prep' and will require some extra time both before the semester and before each class session. Instructors who used the version of SSW with sources reported that it took more time to prepare for individual class sessions than usual.

These costs for course preparation apply to the initial semester of use. We have less information about repeated use, but our interviews with faculty who continued to use SSW in later semesters indicate that planning time was less than usual because of the clear organization of SSW lessons. We do not have any data on the time required for course preparation under BAU conditions. In the studies, most BAU instructors used well established syllabi and course materials. Certainly, instructors who were preparing to teach a course for the first time would devote substantial time to course preparation. In our cost estimates here, we compare BAU using established materials to the costs of introducing SSW for the first time. We think that after that initial semester, that instructor time will be more or less equivalent for SSW and BAU.

Student Perspective

Potential costs to students include their time and effort and the cost of materials. If students use electronic versions of the Student Book, they will have no cost for materials. If they are expected, or wish, to purchase a copied version, we estimate the cost at $25. This is far less expensive than most English textbooks; as noted above, we estimated the cost of a textbook for developmental writing at $100-135. As for time and effort, the number and type of writing assignments in SSW is typical of most developmental writing courses; this was the case in our experimental studies.

Total Costs

The total costs in hours and dollars are listed at the bottom of Table 1. The fixed costs (i.e., those that stay the same for groups of 4 to 10 instructors) include 32 hours of personnel from SSW with a dollar cost of $950, as well as 35 hours of time from college personnel including leaders and instructors. Variable costs, per instructor, include 9 hours of SSW personnel with a cost of $360, and 19 hours of instructor time. In addition, materials are estimated at $40 for the Teachers College Press book and optional printing of the IG and SB for instructors. Multiplying these per instructor costs for a group of 10 instructors yields total costs

of 122 hours of SSW personnel time ($4,550), $400 for the book, and 54 hours of college personnel time.

This cost analysis provides estimates for the initial introduction of the SSW curriculum in a college. The analysis provides our best estimates based on our experimental studies and subsequent work with colleges to implement SSW. In our experience, colleges have adopted the SSW curriculum and tried to implement it with fidelity following the lessons in the Instructors' Guide and Student Book with only modest adaptation. Others have adapted SSW to fit with their instructional goals and programs. As noted earlier, we have supported colleges and instructors in adapting SSW to a variety of programs, including summer bridge programs and first-year composition. This cost analysis is based on implementation with only modest adaptation.

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Table 1.

Ingredients: Incremental Costs in Hours and Dollars

Category	Ingredient	Fixed costs: Group of 4-10 instructors		Variable costs: Per instructor		Student cost: Per student
		Hours	Dollars	Hours	Dollars	
Common Costs for SSW and BAU	Class time for instructor	0	0	0	0	
	Time for grading & feedback	0	0	0	0	
	Student class time & workload	0	0	0	0	0
	Classroom space	0	0	0	0	
	Computer for presentation	0	0	0	0	
	Student access to computer	0	0	0	0	0
SSW curriculum materials	Teachers College Press book				$40	
	Instructor Guide				0	
	Student Book				0	
	Optional print copy of IG and SB for instructor				$65	
	Online materials				0	
	Print copy of SB for students vs paperback textbook					($75)
Advance planning (discuss fit of SSW & courses; plan PD)	Chair, lead instructor	8				

	SSW author	8	$0		
Professional Development	PD provider (prep & wkshop)	20	$800		
	Travel if in-person	4	$150		
	Instructor time for PD			16	
Coaching (3 observations online)	PD provider ($35/hr)			9	$360
	video camera & zoom (tablet)				variable by college
	instructor			3	
Course Preparation (lead instructor)	Setting up LMS	15			
	Selecting new source articles	12			
Totals	SSW personnel	32	$950	9	$3,60
	college personnel	35		19	
	materials				$40 to $1,05