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**AN EVALUATION OF THE EFFICACY OF SELF-REGULATED STRATEGY  
DEVELOPMENT (SRSD) ON IMPROVING FRESHMAN COLLEGE  
STUDENTS' WRITING ABILITIES**

By

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B.A. Saint Joseph's College of Maine, 2009

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A DISSERTATION

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Psychology

(in School Psychology)

The University of Southern Maine

August, 2014

Advisory Committee:

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By Monica R. Chenard

Dissertation Advisor: Dr. Rachel Brown

An Abstract of the Dissertation Presented in Partial  
Fulfillment of the Requirements for the  
Degree of Doctor of Psychology  
(in School Psychology)  
August 2014

The purpose of this dissertation is to describe a doctoral research study designed to implement Self-Regulated Strategy Development (SRSD) writing revision strategies, delivered in a completely online format, for college students. There is an insignificant amount of empirical research that has been conducted supporting writing interventions for college students. Self-Regulated Strategy Development (SRSD) is a writing intervention for which a significant amount of empirical research has been conducted in regards to its efficacy in elementary, middle, and high schools, with results showing positive effects for students of all ages. SRSD has features that lend itself to web-based interventions as well. Research on web-based interventions for students of all ages is on the rise, and is significant in regard to the methods of communication in which students today function. This study investigated the efficacy of a web-based version of SRSD

provided to college students in freshman writing classes. The three SRSD revision strategies chosen to investigate were REVISE, SCAN, and Compare, Diagnose, Operate. The results indicated those SRSD participants who reported using at least one of the revision strategies at some point during the semester received higher course grades in their writing classes, in comparison to those participants who did not use the strategies; secondary analysis indicated that although the SRSD students' grades were higher, when group size was controlled, the difference in grades was not statistically significant. Qualitative analyses indicate that students felt as though the REVISE and SCAN strategies were most effective, and may be the most socially valid. The findings are discussed in the context of the procedures necessary for creating effective evidence-based writing interventions in the college setting.

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## **Chapter 1: Introduction And Literature Review**

Students learn to write beginning in kindergarten or before school entry. They begin with the letters, and through the years expand to writing words, sentences, short stories, essays, and sometimes, even books. Research has indicated the importance of teaching writing in specific ways, so that all students are able to gain mastery and move to the next level (Harris, Graham, Mason, and Friedlander, 2008). While not universally applied, teachers in elementary and secondary schools have available specific, empirically validated methods to teach writing. College courses require a significant amount of writing, yet often are not accompanied by instruction or support to use effective writing practices. Those students who did not receive adequate writing instruction before reaching college, may not be able to achieve their potential simply because of their deficiencies in writing. As is evidenced in this literature review, the empirical foundation for college writing interventions is thin.

Despite little research concerning methods for improving college students' writing, writing remains an essential college skill. Recently, colleges and universities have begun to augment traditional on-campus instruction with online computerized content. The presence of online requirements in college courses makes effective writing skills even more important. In an era when college students are being expected to write more, across more diverse settings, the limited research on how to improve college students' writing skills is notable. Self-regulated strategy development (SRSD) is a writing intervention with sound empirical basis, which is used in both elementary and secondary grades (Graham & Harris, 2009). Research on SRSD has shown that it is an

effective method for improving students' writing skills. The present study examined the use of SRSD by college freshman to learn whether this intervention might be effective when used in an online format.

### **Writing Interventions for College Students**

Rochford (2003) investigated the impact that the theory of learning styles has on writing instruction in college with two related studies. Although there is no empirical evidence to support the existence of "learning styles," Rochford's research investigated college writing instruction from the viewpoint of this theory. Learning styles are part of a theory about ways in which students process, encode, and recall new information. The study was conducted at Queensborough Community College, City University of New York (CUNY) using the ACT Writing Skills Test to determine incoming students' placement in writing courses. Participants in the first experiment included 53 English Language Learner (ELL) students who completed the ACT Writing Skills Test during a previous year (control group) and were prepared for the test by traditional classroom methodology. The experimental group consisted of 56 ELL students who were prepared using "learning-style" responsive materials. The same instructor taught both of the groups, and all of the students in both groups were enrolled in the same courses. Materials included Programmed Learning Sequences (PLS) booklets, Pic-a-holes, Large composition puzzle boards, a handout, and an oral lecture. Two follow-up activities were also created: a Team Learning assignment, and the Circle of Knowledge. An additional activity included the Productivity Environmental Preference Survey (PEPS), to assess learning style preferences.

All participants in the experimental group were assessed for learning “style” using the PEPS. Rochford (2003) explained to these individuals their hypothesized specific learning styles, and encouraged them to work with the materials that matched their preferences. The Team Learning and Circle of Knowledge Activities were used to reinforce what they had learned. The control group received a traditional classroom lesson, accompanied by a short handout. The participants, both in the control and experimental groups, practiced writing ACT letter compositions and received direct feedback. Data analysis for this experiment included a *t*-test for independent samples, after first confirming that the pre-test scores before intervention were equal across both of the groups (Rochford, 2003). Results showed that there were significant differences between the groups’ outcomes. For the experimental group, 59% obtained scores greater than seven and 44.7% received a score of 8 or higher. In the control group, 39.6 of students received a score greater than 7, and 3.8% received a score of 8 or higher ( $p \leq .01$ ).

The second experiment in Rochford’s (2003) study included 14 remedial writing students who had failed the ACT Writing Skills Test at least once. It was not indicated whether or not these students participated in the first study. As in the first experiment, the participants were tested using the PEPS for their learning style preferences and prepared with the appropriate materials. Students were given practice with one ACT letter composition during the workshop, but also were given the opportunity to practice additionally on their own time in the Learning Center. A *t*-test of dependent means was conducted to compare pre- and post-treatment ACT scores. Results of this study indicated a significant difference between students’ pre-and post-scores on the ACT test.

Without a control group in the second experiment, it is difficult to determine if the results were based on other effects (e.g., Hawthorne or maturation). Both of Rochford's (2003) experiments supported the importance of the instructors' consideration of students' learning "styles" when preparing not only writing instruction, but instruction in other areas as well. Results of these studies should be interpreted cautiously, as there is no evidence to support the notion of learning styles, and because there was no control group in the second study. Nonetheless, even if a learning "style" is defined as a learning preference, the results suggest that students may benefit from considering their learning needs and expected tasks as part of effective writing practice.

Glover (1980) investigated the effects of a creativity-training workshop on college students' writing. The sample included 58 sophomore and junior students enrolled in an undergraduate psychology course during the fall semester. The experimental group included 14 volunteer students from the class of 58, and the non-training group was made up of the remainder of the class. The control group consisted of an additional class with 27 students. The control group was administered the Torrance Tests of Thinking Creatively With Words one week prior to the workshop, and they were administered the same test again six weeks later. The experimental group was not administered the Torrance Tests of Thinking Creatively. The workshop was held during 21 evening sessions, where participants explored unusual uses for common items using the Unusual Uses Exercise (UUE), which is an adapted subtest of the Torrance Test. After the UUE, the Problems Solutions Exercise (PSE) was introduced, in which students named daily

problems, and then listed as many possible solutions for the problems in 10 minutes.

This test was also administered every session.

Data were analyzed by two independent raters who were blind to the purpose of the study or the conditions involved, who scored the UUE and PSE responses on four defined variables: Fluency, Flexibility, Elaboration, and Originality. Results indicated that fluency increased in comparison to baseline levels in the Unusual Uses condition, and slightly in the Problem Solution condition, and neither returned to baseline. Flexibility increased in the Universal Uses Condition, and did not return to baseline. Flexibility in the PSE increased in the Unusual Uses condition, and even more during the Problem Solution condition. Originality in the UUE increased in the Universal Uses condition and decreased slightly during the Problem Solutions condition but did not return to baseline. Students were assigned to write four papers as part of this experiment and independent raters blind to the purpose of the study scored them on a scale of 0 to 100 (where 0 equals no creativity at all, and 100 equals the most creativity possible). Graphed results indicated that the non-training group's ratings remained stable across the 4 papers, but that the training group showed a gradual increase in creativity across all 4 papers. Overall, the study results support the use of the UUE and PSE in increasing college students' creative writing skills (Glover, 1980). A limitation of this study in regards to the current literature review is that the focus of the experiment was only on creativity, and not writing skills.

Kauffman, Ge, Xie, and Chen (2008) examined the impact of metacognition on students' problem-solving skills and writing abilities in a web-based instructional

module. Participants in this study included 54 undergraduate education majors enrolled in educational psychology courses at a large southwestern university. Materials included a web-based program, a pre-experimental demographic questionnaire, pre-experimental measures of academic self-efficacy and metacognitive awareness, two case studies, problem-solving prompts, reflection prompts, and demographic and prior knowledge scales. Participants were assigned randomly to two groups: one receiving problem-solving prompts, and one receiving reflection prompts, during their online coursework.

The case studies in Kauffman et al., 2008 were authentic scenarios in which teachers were having problems with their classroom management. After reading the first case study, students were given an assignment to send an e-mail to the teacher that would suggest possible solutions for the classroom problems. Students either received or did not receive the problem-solving prompts during their letter-writing, and all students were asked to review and edit their solutions before completing the assignment. Students then either received or did not receive reflection prompts providing suggestions regarding how they might reflect on their written responses. Depending on how students responded to these prompts, they were either prompted to make further edits, or encouraged to revise but told they could move ahead if they wanted to. Case study two was implemented in the same manner.

A scoring rubric was used to assess how well students identified problems, explained problems, and provided appropriate solutions. The scores from each case study were aggregated, resulting in a composite score, and students' responses were assessed for overall writing quality. For the problem-solving analysis Levene's test of equality of



error variances, and a MANCOVA were conducted. Results indicated a significant positive difference in the writing of students who received prompts. These students solved problems more effectively than those who did not receive prompts and these students were better problem solvers, but only when they also received problem-solving prompts. Results also indicated that students who received reflection prompts wrote statistically significant higher quality responses than those who did not, but only when they also received problem-solving prompts. For both groups, the problem-solving prompts positively affected their writing (Kauffman et. al, 2008).

Levine (1990) evaluated the effectiveness of a pilot program at SUNY College of Technology at Farmingdale, which consisted of the use of peer tutors to improve college students' writing in a psychology class. Participants included faculty members, peer tutors, and students. Materials included regular class materials, and an anonymous class evaluation. All participating faculty members were assigned one peer tutor for their classes. Each tutor spent a maximum of one hour helping each student by reviewing rough drafts for composition, style and grammar, but not content. The program was evaluated using an anonymous course evaluation, grades from papers, and grades of papers from a previous semester where the tutors were not available.

Results of Levine's (1990) study indicated a significant increase in papers handed in on time by students in the tutored class, as compared to those in the non-tutored class. In the non-tutored class, 35% of the papers were handed in late; in the tutored class the percentage was only 3%. With respect to the evaluations, the class that received peer tutoring felt more favorably about peer tutoring, and believed that the program should be

continued into the next academic year. Nonetheless, the results also indicated that the assistance of a peer tutor did not significantly affect student achievement. For the two classes, the one in which students received tutoring and the one in which students did not, final course grades and grades on the term paper were nearly identical.

Adams, Gearhart, Miller, and Roberts (2009) investigated the efficacy of the Accelerated Learning Program (ALP) in improving the writing of college students at the Community College of Baltimore County (CCBC). ALP is a program available on a voluntary basis for all students whose score on the Accuplacer exam indicates the need for a remedial writing class; these individuals were the participants in this study. These students were fully integrated into the college-level writing course and then provided additional support by means of a second course. Participants met immediately after the college-level writing course and the same instructor who taught the college-level writing course provided support to help students succeed in the composition assignments in the previous class. Support classes consisted of questions, brainstorming, reviewing drafts, coming up with writing topics, and the writing of short papers that served as scaffolding for the next essay.

Adams et al. (2009) took results from the 30-sections of ALP offered at CCBC for over 2 years (N = 240 students) and compared them to results from a comparison group of students who took the traditional upper-level basic writing course during a fall semester two years earlier. One result from this study was that the ALP success rates, as defined by measured improvements in students' writing; and retention, were both higher than the comparison group. Adams et al. credited the results to the mainstreaming,

cohort learning, small class size, contextual learning, acceleration, heterogeneous grouping, attention to behavioral issues, and attention to life problems of ALP students.

Denscombe and Robins (1980) examined a self-assessment program for college students to enhance essay writing by generating feedback to tutors about students' problems, time devoted to essay work, and an attempt to encourage students to participate in both production and assessment of essays. Participants in this study included 85 first-year college students in an introductory sociology and politics course. Materials included five forms given to students: (a) a list of the assessment criteria for self-evaluation by students, (b) information for tutors regarding the time it took to write the essay, (c) a list of typical problems encountered by the student, (d) an informational sheet about proper essay writing, and (e) a form with information regarding editing. Both students' grades and data regarding students' use of these materials were analyzed.

According to Denscombe and Robbins (1980), there were a number of statistically significant positive results of this study, including: improvement in the quality of written work, a near-elimination of the presentation of inadequate essays, a lesser amount of hurried work, and students being more accurate about their self-evaluations in that they did not inadequately inflate their grade points on the self-evaluation measure. On the other hand, some students did not feel it was their job to evaluate their own essays, and tutors, rather than students initiated most discussions. Overall, the self-assessment program led to observable improvements in the writing abilities of college students as evidenced by higher quality essay work, and improved communication between staff and students.

Pagano, Bernhardt, Reynolds, Williams, and McCurrie (2008) investigated the use of a highly specific rubric for evaluating student writing in first-year writing programs at six institutions, including Columbia College Chicago, California State University—Sacramento, Florida Gulf Coast University, Towson University, and the University of Delaware. Results showed that the students at the more selective universities scored higher in writing and that the students demonstrated writing improvements over the course of a semester. The results suggest that providing college students with details about how their writing will be scored was related to overall writing quality.

### **Self-Regulated Strategy Development (SRSD)**

The limited amount of research that has been conducted on effective writing programs in college, and the limited empirical basis of the methods described previously, contribute to the need for an expanded literature review. There have been writing interventions developed for younger students (e.g., middle school and high school) that are empirically based. One of these interventions is Self-Regulated Strategy Development (SRSD). SRSD is described by Harris, Graham, Mason, and Friedlander (2008) as an approach to writing strategies instruction in which students are taught genre specific, general, and fundamental writing strategies. SRSD also consists of teaching students how to use self-regulation strategies to help manage their writing. Students move through the stages of this curriculum at their own pace, and are given the opportunity to master each component before progressing. Considerable empirical

support for this program when used with secondary students (e.g., grades 7-12) provides validation for the exploration of its potential usefulness in the college classroom.

Chalk, Hagan-Burke, and Burke (2005) examined the effects of the SRSD model on the writing performance of 15 sophomore students who received special education services in a high school located in a southeastern part of the United States. Materials included SRSD teaching materials (e.g., writing probes, scripted administration directions). The study was implemented using a repeated-measures design, with baseline, pre-skill instruction, modeling, controlled practice, independent practice, post-instruction, maintenance, and generalization conditions. Participants were given SRSD instruction in small-group settings. The instruction consisted of (a) developing background knowledge, (b) reviewing baseline scores with students individually followed by the introduction of the DARE (develop, add, reject, end) self-regulated strategy model, (c) modeling of the strategy, memorizing the strategy, (d) collaborating to practice, (e) independently practicing, maintaining and generalizing, and (f) demonstrating instructional validity.

The classroom teacher administered the writing probes to students, and the students were given 15 minutes to complete the essays with no assistance from the teacher. These writing samples were scored collaboratively by the lead author and the special education teacher based on both length and quality. Data analysis was conducted using a repeated-measures analysis of variance (RMANOVA), follow-up trend analysis, and pair-wise tests using least-significant difference (LSD) procedures to determine which conditions were significantly different. Results indicated significant increases in both word production and quality of essays following SRSD instruction, with the

majority of growth in word production. This article lends support to the use of SRSD in improving secondary students' writing (Chalk, Hagan-Burke, and Burke; 2005).

De La Paz (2005) investigated the effectiveness of the SRSD model of teaching writing in an integrated social studies and language arts unit. Participants were eighth grade students in a suburban school district in northern California and consisted of general education students and students who were receiving special education services. The experimental group consisted of 70 randomly selected students with varying writing and learning abilities, selected by two teachers who worked on a team with these students. Teachers on the team also selected the control group, which included 63 students, none of whom had disabilities. Materials used in this study were the district-adopted textbook, additional primary sources representing conflicting points of view, and a selection of six topics. Procedures for the experimental group included the modeling of each strategy (e.g., historical reasoning strategy, argumentative writing strategy), small group work, and essay completion. The historical reasoning strategy included a reconciling of both primary and secondary accounts containing conflicting information or points of view to build a complex understanding of ideas. The argumentative writing strategy taught students to plan and compose argumentative essays, part of which included brainstorming and organizing ideas, and using the DARE mnemonic explained earlier. Students in the control group did not receive this instruction.

The students in the experimental group were all interviewed before and after the instructional unit. Study measures included essay length, persuasive quality, number of arguments, historical accuracy, historical understanding, and social validation. Results of

this study indicated that, although students with disabilities initially wrote shorter papers, the post-test essay length of students with disabilities was the same as the average pre-test length of essays written by comparison students. Before intervention, students with disabilities wrote papers that were rated lowest in persuasiveness, but post-test papers were scored nearly equal to pre-test high-ability writers. After instruction, students in the experimental group wrote papers with more arguments and with more historical accuracy than those in the control group. Overall, results indicated that the combined historical reasoning and SRSD instruction improved students' writing (De La Paz, 2005).

While there are some studies showing the effectiveness of SRSD for secondary students, there are more numerous studies with elementary students. Mason and Shriener (2008) investigated the effects of SRSD instruction for teaching writing to 6 elementary school students with emotional or behavioral disorders. Participants were students in the second through fifth grade, and were divided into two age groups. Group 1 consisted of 3 students ages 8-9, and Group 2 consisted of 3 students ages 10-12. The experiment was a multiple-probe across subjects design where writing quality was evaluated for all participants both prior to and after interventions. Materials for this study included materials for SRSD instruction and the writing probes. Before instruction began, a persuasive essay was assigned to the students for baseline.

SRSD instruction consisted of 6 stages of strategy acquisition with embedded procedures for self-regulation: (a) introducing POW+TREE and discussing steps for each strategy, (b) reviewing POW+TREE, locating essay parts and transition words in an essay, students reviewing and graphing their own essays, (c) memorizing, practicing,

modeling, speaking out-loud, and personal self-statements, (d) modeling by instructor with student collaboration, (e) students writing their own notes and essays with teacher guidance, and (f) instructor guiding practice lessons until independence achieved.

Immediately following this instruction, students wrote a persuasive essay. There was also a generalization assessment during post-instruction testing. Data were analyzed using visual inspection procedures for the number of essay parts written, percentage of non-overlapping data points for intervention, post-intervention and maintenance, and the instructional group means and standard deviations for essay quality, number of words, and number of transition words. Results of this study were that all students showed improvement in performance in writing with the SRSD strategy POW+TREE. With the exception of one student, no one returned to a baseline level of performance for the parts of the essay, number of words, or quality scores. For students who participated in the intervention, the post-test number of words written was significantly higher than baseline. The increase in number of words written was computed by using a computer analysis of essays. The teacher typed the essays into a computer and they were verified by a manual check; then the mean number of words written for each set of students was computed. For those students who did not receive intervention, the mean number of words written at baseline, during instruction, during post-instruction, and at maintenance were 10.14, 47.33, 68.11, and 52, respectively. For those who did receive the intervention, the counts were 33.25, 79.31, 65.78, and 54.50. The use of transition words was significantly higher among those who received intervention as well (Mason and Shriner, 2008).



Sawyer, Graham, and Harris (1992) extended the research on the effectiveness of SRSD in teaching writing to students with learning disabilities. Participants in this study included 43 students with learning disabilities in the fifth and sixth grades (25 male, 18 female). These students were randomly assigned to three instructional strategy conditions: direct teaching, SRSD without explicit self-regulation instruction, and full SRSD. Materials included lesson plans for teachers, a story grammar scale, a holistic rating scale, a self-efficacy measure, permanent products to measure strategy usage, and writing stimuli. Instruction was delivered to the participants by four pre-service teachers in small groups of two or three students, 3 days per week, for 3 weeks. The sessions lasted between 20 to 56 minutes. Baseline and post-test measures consisted of an essay, and a self-efficacy measure.

Data analysis consisted of a one-way ANOVA with the average performance of each instructional group as the unit of analysis, means and standard deviations for the story grammar scale, and holistic quality rating on a writing probe for all three conditions, and the Fisher-Hayter procedure to measure pairwise multiple components of the story grammar scale for all groups. Results indicated that there were no significant differences among the three experimental conditions in the amount of time it took to complete the instruction, and there was no significant difference found between the structure or quality of stories written by students in the control and instructional groups at pre-test. Pairwise multiple comparisons were conducted between the three strategy instruction conditions, the practice control condition, and the normally achieving group using the Fischer-Hayter procedure. The largest pairwise difference was between scores

for students in the full SRSD group and scores for students in the control group, with the SRSD group having significantly higher scores.

Results from the follow-up study revealed that participants in the normally achieving group and those in the SRSD without explicit self-regulation group wrote stories with higher grammar scores than participants with learning disabilities in the control group. The maintenance results indicated that there were no significant differences in the schematic structure or quality of stories written by students in the strategy groups. The self-efficacy survey indicated that in both baseline and post-treatment, there were no significant differences among any groups. Overall, results indicate that SRSD had a significant positive effect on the writing of students with learning disabilities in this study (Sawyer, Graham, and Harris, 1992).

De La Paz (1999) studied the efficacy of SRSD for middle-school students both with and without learning disabilities. Participants included 22 students of varying academic abilities from two middle schools in a suburban southeast school district (11 boys, 11 girls). Materials included the written subtest of the Wechsler Individual Achievement Test (WIAT), which was administered to all participants before the study to identify participants without disabilities; a manual for teachers, and essay probes (expository essay topics from previous exams). Students with disabilities were selected from those students receiving special education services at the school. Effects of SRSD instruction were assessed using a multiple probes design. At baseline, an essay was given to each group. Teacher preparation consisted of two full-day workshops and a manual. Students were taught strategies for planning an expository essay in advance, the teacher

modeled these strategies, the group participated in collaborative practice, and then the students practiced independently. The strategy taught was PLAN + WRITE. This includes paying attention, listing the main ideas, adding supporting ideas, numbering the ideas, working to develop a thesis, remembering goals, including transition words, using different kinds of sentences, and using exciting words. Next, the teacher led students in activating prior knowledge, reviewing, modeling, and collaboratively practicing their knowledge, and then having students practice independently. Instruction was continued until each student demonstrated mastery of each writing strategy. The post-instruction essay probe was administered one week after students achieved mastery. A maintenance probe was administered within four weeks of mastery. All of the probes were administered under identical guidelines: instructions were read, students were given 35 minutes to complete the essay, and assistance was not given to any student during the writing process.

Essays were scored for planning, length, essay elements, and quality; these items were averaged. Data were collected on the level of participation in the project (attendance, number of independent essays completed, and memory of planning strategies). The post-intervention probes were also graded. Results of this study indicated that after SRSD instruction, all of the students improved in their essay writing, which was signified by an increase in length of essays, a decrease in the amount of nonfunctional text written, and an improvement in the quality of papers. Four weeks after the instruction, the maintenance probe indicated that students with learning disabilities maintained the gains observed post-instruction, the low-achieving students

maintained their post-instruction scores for all variables, and the average students maintained their gains. Overall, SRSD was shown to influence positively both what and how students with and without learning disabilities write (De La Paz, 1999).

### **Online Interventions**

The previous reviews included some studies of interventions provided using the internet. Advances in technology have led to changes in education in many colleges, with a rise in classes held online and interventions accessed via the internet. The prevalence of the internet in students' lives and the inclusion of the internet in many interventions for students contribute to the need for an expanded literature review to include the exploration of interventions with online components.

Jones, Johnson-Yale, Millermaier, and Perez (2008) explored college students' use of the internet in their academic work and perceptions of the internet as a part of their college education. Participants were recruited via a mass e-mail, which was sent to all students at 29 colleges, and to a random sample of college students stratified by grade level at 11 other colleges. The total number of completed surveys was 7,421. Materials included an 88-question survey instrument, which included questions regarding students' use of the internet, their use of internet in academics, and their perceptions of how using the internet impacts their success in the classroom. In addition to the survey, ethnographic data were collected in the form of observations of students using computers at several colleges in the midwest. Data were also collected from a survey of the U.S. population regarding internet use conducted by Princeton Survey Research Associates.

Results of this study indicate that college students generally have a positive opinion about the internet and its impact on their education. A majority (84%) of the students used the internet to communicate with professors, and 51% of those surveyed felt as though this means of communication improved their interactions with professors. Results also indicated that there has been an increase in the number of online-only courses offered. About 67% of participants reported that taking an online course (100% of course components online) was a satisfying experience and 61% indicated that these courses were worth the tuition. Only 27% reported that online-only courses were comparable to a traditional course and 53% reported that less was learned online than in a traditional class. In summary, this study indicates that the replacement of traditional teaching methods by internet technologies is happening in a slow and steady manner (Jones et. al, 2008).

Dempsey, Fisher, Wright, and Anderton (2008) investigated faculty and student training, support, challenges, and use of resources of both students and teachers for whom the internet is used as an enhancement for a traditional class or as a means for teaching an entire class in the college setting. Participants included 707 undergraduate, graduate, and professional students at a university in the southeastern United States and 140 professors from the same university. The university employs the use of the internet for fully online and blended courses. This group-based research study included six groups: faculty who taught online courses, faculty who taught blended courses, faculty who taught only traditional courses, students taking online courses, students taking blended courses, and students taking only traditional courses. The participants in the traditional course group

were selected randomly. Materials included a survey conducted via the internet and telephone and contained 53 items for those who had experience with online courses, and 27 items for those with no online course experience. Questions addressed the need for training and support in hardware and software used in online teaching and the opinion of the importance of formal training.

Results indicated that 77% of the faculty members surveyed indicated that formal training in the online course components was “important” or “very important” for the faculty. Ten percent of the students surveyed indicated that they had “below average” or “novice” levels of computer skills, and 18% of students taking fully online courses reported that they had “low” computer skills levels. Students indicated that they would complete training in some of the more advanced programs for online learning such as online test-taking and scholarly research, but less than 20% of the students in the three groups felt the need for training in basic computer skills. Overall, this study indicates that both students and faculty members agree that they could benefit from formal training in more advanced online course programs and applications (Dempsey et al., 2008).

Castello, Inesta, Pardo, Liesa, and Martinez-Fernandez (2012) investigated the efficacy of a writing intervention for undergraduate psychology students in an online and a face-to-face format. Participants consisted of 58 undergraduate psychology students in four psychology seminars in Barcelona, Spain. Participants were randomly assigned to two conditions: writing tutorial and control group. The writing tutorial group consisted of 28 students who received the writing tutorial either online ( $n = 12$ ) or face-to-face ( $n = 16$ ). The control group consisted of 30 students who received usual seminar instruction

and individual tutor guidance. A quasi-experimental design was used to compare the two conditions and course modalities. The online tutorial condition consisted of a Wiki and a Moodle forum learning environment. The Wiki was used as space for peers to comment and make suggestions on the writing of others, and the Moodle forum was a domain for communication and knowledge formation in a group format. In the face-to-face condition, students commented on the written work of others during in-class writing sessions. In both intervention conditions, there were two different session types: sessions introducing students to writing instruction, and writing tutorial sessions. Students' writing was analyzed using an assessment grid and then analyzed using factorial analysis; text quality was analyzed in regard to differences between the conditions, and a questionnaire was developed to assess students' knowledge of the material. Suggestions made by students and the tutors were analyzed qualitatively, and the type and amount of revisions suggested were categorized and analyzed. A questionnaire was also administered to students regarding degree of satisfaction with the intervention, which was analyzed using factorial analysis.

Results of this study indicate that all students in the writing tutorial conditions (online and face-to-face) received higher ratings for quality of written texts than those students in the control group. Writing was scored as higher quality in both text organization and authors' voice, but there was no significant difference found between the face-to-face and online interventions. There was no significant difference found between the online and face-to-face conditions in regards to students' final text quality, revision strategies of academic texts, knowledge of discursive mechanisms of academic

papers, and satisfaction with the intervention. Investigators calculated the received suggestions that students implemented in their texts in both of the intervention groups to obtain a ratio of changes. In initial revisions, the ratio was higher for the on-line condition, but there was no significant difference between the groups in ratio of changes. Qualitative analysis of student responses to the satisfaction survey revealed that both intervention groups positively assessed receiving feedback from their tutor and from their peers, managing emotional aspects of writing better, becoming aware of the resources which allow their writing voices to become more visible, and becoming aware of the nature of both academic writing and revising. Both intervention groups also negatively assessed the amount of work in revision, and the fact that they had to do peer revisions. Finally, there were no significant differences found between the two intervention groups (face-to-face and online) in terms of the overall quality of their writing. Overall, an online writing intervention was found to be of equal relevance and use as a face-to-face intervention for undergraduate psychology students (Costello et al., 2012).

Kovach, Miley, and Ramos (2012) investigated the use of online writing studios in a quality improvement methods course and the impact of this intervention on students' writing abilities and changed perceptions of the writing process. The writing studio was implemented in a Quality Improvement Methods course, in which five groups were developed consisting of four students each. Students were required to submit drafts of each of the three written assignments of the semester, and also to post a paragraph summarizing the struggles they experienced while writing the assignment. Peers in the group gave feedback about the work of the others, and were required to post a paragraph,



which consisted of a response to what the peer listed as a struggle and additional feedback about the work. Peers were also required to post each group member's draft with comments regarding revisions in the margins. A pre-post survey was also administered to the students containing both quantitative and qualitative components. A rubric was developed to assess student performance in the domains of content knowledge and writing competency. Two independent raters analyzed the students' written assignments. *T*-tests and paired sample *t*-tests were used to determine whether the use of online writing studios was associated with improved student performance on written assignments, and perceptions about the writing process.

Results indicated that there was no significant difference in aggregate performance on the first written assignment between the two groups ( $p = .55$ ), or the second written assignment ( $p = .25$ ); but there was a significant difference in performance on the final written assignment ( $p = .04$ ). During the semester when the online studios were used, there was a decrease in the proportion of student work labeled as "weak," and the proportion of work labeled "basic" or "good" increased. The researchers used a paired samples *t*-test and found that there was a significant difference in scores for students in the online intervention between assignments two and three ( $p = .001$ ), and between the first and third assignments ( $p = .002$ ). Results from the survey regarding perceptions of writing illustrate that self-perceptions of the writing process were higher for students in the online writing studio, and these students' self-perceptions as writers increased significantly from pre- to post-test. This study supports the potential of online writing intervention programs for college students (Kovach, Miley, and Ramos; 2012).

Empirical evidence of successful college writing intervention programs is limited. Rochford (2003) validated the importance of considering student learning preferences when developing writing instruction for college students. Glover (1980) published research that supports the positive effects of creativity training workshops on college students' writing. Kauffman et al. (2008) identified the importance of metacognition on college students' problem-solving skills and writing abilities, and both Adams et al. (2009) and Denscombe and Robbins (1980) furthered research on writing intervention programs for college students. With a limited amount of research on empirically supported writing programs for college students, the research on the Self-Regulated Strategy Development (SRSD) intervention for students in elementary and secondary school was reviewed to consider its applicability for college students. Chalk, Hagan-Burke, and Burke (2005), De La Paz (1999, 2005), Mason and Shriner (2008), and Sawyer, Graham, and Harris (1999) provided evidence for the efficacy of SRSD in improving students' writing abilities. The findings of the reviewed research indicate that some of the methods for teaching writing to students in grades K-12 hold potential and should be revised to be used with college students. In particular, the SCAN; Compare, Diagnose, Operate; and REVISE strategies might be effective for college students who need writing intervention.

Empirical evidence of academic interventions in an online format is also limited, but promising. Jones et al. (2008), Dempsey et al. (2008), Castello et al. (2012), and Kovach, Miley, and Ramos (2012) each conducted studies which investigated the efficacy of interventions provided online versus in a face-to-face format. The findings of

the reviewed research on the efficacy of online academic interventions indicate that advances in technology can be beneficial in working with students. The SRSD strategies implemented in an online format might be effective for college students who need writing intervention.

This literature review includes limited research on writing interventions and interventions provided online designed specifically for college students because of the general absence of such research. Glover's (1980) research was confusing in that the methods were not adequately discussed so a review of that research was difficult. The limitations of this literature review suggest that there might be a potential benefit from research on the use of SRSD as a writing intervention for college students. With limited evidence to support effective writing interventions for college students, and adequate evidence to support the use of SRSD for secondary level students, this research was aimed at the development of such an interventions with a focus on revision of the Self-Regulated Strategy Development (SRSD) method and application of this method online to increase its application validity for college students.

Given the strong evidence for the positive effects of SRSD among elementary and secondary students, it was hypothesized that the SRSD methods focused on revision (SCAN; Compare Diagnose, Operate; and REVISE) modified for college students and provided completely online would result in improvements in college students' writing skills. This study addressed the question of whether specific modifications to SRSD methods provided online for college students will result in improved writing scores on curriculum-based measures of college writing as well as students' course grades.

## **Chapter 2: Method**

### **Research Design**

A quasi-experimental group-based research design was used with both quantitative and qualitative components to evaluate the effects of Self-Regulated Strategy Development (SRSD) on college students' writing. The group-based research design was selected because it is well suited to the study of classroom-level interventions.

### **Participants**

Participants of this study included students (N=108) in multiple sections of freshman college writing courses at one college located in the Northeast. The experimental group (N=12) included those students who volunteered to participate in the research, and completed at least one journal entry online. Participants were age 18 or 19 with a mean age of 18 years, 3 months. The experimental group included only female participants. Exclusion criteria for participants included any student under the age of 18. The control group (N=96) consisted of those students who volunteered to participate in the study, but did not, and those who did not volunteer to participate in the study. All procedures were reviewed and approved by the University of Southern Maine Institutional Review Board (IRB).

### **Setting**

All study procedures occurred online using the college's computerized learning management system (LMS) called Angel. The Angel system is an online course platform that allows students to access materials such as Power Point presentations, videos, reports, faculty created website resources, and assessment materials on the internet.

Angel is formatted so that college course instructors can post reflection prompts for students to keep journals, discussion boards for full-class discussions, and a forum for any class questions or notifications. Participants logged onto the Angel platform to complete timed course writing assignments and the resources and materials for this study were included at the Angel site for the courses.

### **Dependent Measures**

The primary dependent measures in this study were course grades, three types of curriculum-based measurement (CBM) writing probe metrics gathered through Angel, and qualitative analysis of the students' journal entries. The mean final course grades of students in the experimental and control groups were compared. The writing probes were evaluated using metrics developed for total words written (TWW), correctly spelled words (CSW) and correct word sequences (CWS) developed by Fuchs and Fuchs (2007). In addition, journal entries posted on Angel throughout the semester were analyzed qualitatively. Entries were coded for general positive and negative experiences, and information regarding which strategies were used and which were found to be more useful than others. The journal entry information included students' estimates of how long it took to use specific SRSD strategies.

### **Materials**

Materials for this study included a handbook of writing strategies for college students based on writing strategies included in Harris, Graham, Mason and Friedlander's (2008) *Powerful Writing Strategies for All Students* (Appendix A), online journals through Angel, curriculum-based measurements (Appendix B) via Angel, instructions for

grading the curriculum-based measurements (Appendix C), and Power Point presentations for each of the writing strategies that were posted on Angel for students to use as a resource (Appendix D). The three Harris et al. (2008) writing strategies included in the Handbook were all methods for revising, and included SCAN, Compare, Diagnose, Operate, and REVISE. Narrated Power Point presentations (Appendix D) that described and explained each method were also provided on Angel for students to access.

### **Procedures**

At the beginning of the Fall 2013 semester, the researcher visited each section of the College Writing and First Year Experience courses taught by professors at the host college who agreed to allow their students to participate (a total of 9 classes). All students in each of these sections were invited to participate. An incentive, consisting of enrollment in a monthly drawing for a \$25 gift card to Amazon.com, was offered to students to remain active in the study. Remaining active in the study was measured by completion of the monthly online curriculum-based measure, and completing at least one online journal per month. Students were reminded each month what the incentive was and how to be eligible for it. Students who received a prior gift card continued to be eligible for an additional gift card the following month. Students who were willing to participate (N=60) signed an informed consent, were given a hard copy of the Writing Strategy Handbook (Appendix A), and instructions on how to locate materials online in the Angel system.

The experimental group participants were instructed to utilize the Handbook strategies when writing their assignments for their College Writing or First Year

Experience courses. Next, they were instructed to log onto Angel after submitting each writing assignment for these classes and to complete a journal entry identifying which strategy they used, how they believed it helped them, and the time it took to use the strategy. At the beginning of the study, and monthly on the 10th of each month, the experimental group participants completed a timed writing curriculum-based measure (CBM) on Angel, which helped track progress in writing skills. For each CBM, timing began as soon as the student clicked “begin” and the prompt was shown. Students were given a total of 4 minutes to complete the CBM and were advised to plan for one minute, and write for the remaining three minutes. Angel began timing as soon as the student opened the CBM page. During the first minute the students were instructed to think about what they would write. At the end of the first minute the students were prompted to begin writing.

The researcher sent out monthly e-mails or text messages, based on the mode of communication selected by students on the informed consent, to remind the experimental group students of the importance of their continued participation in the study. At the end of the semester, the professors submitted individual grades for those students who remained in the experimental group and aggregate grades for the control students. The experimental group students’ grades were analyzed individually as well as on a group basis, and aggregate grades for the control students were used for analysis. All grades submitted were kept confidential, and pseudonyms have been used in reporting study results.

**Data Analysis**

Two independent samples *t*-tests was conducted to determine if final course grades for the experimental and control groups were significantly different. To evaluate the results in relation to the monthly writing probes, the researcher graphed the monthly mean of the curriculum-based measures using line graphs in order to determine whether or not there was a trend in scores over time. This resulted in three graphs, with one each for TWW, CSW, and CWS. In addition, the CWS scores for the students who completed all of them were graphed as well.



### Chapter 3: Results

#### Effects of SRSD on Final Course Grades

Two independent-samples  $t$ -tests were calculated comparing the final course grades of the experimental and control groups. Students in the SRSD Group were those students who signed an informed consent, and who used at least one of the writing strategies, as determined by completion of at least one online journal entry. For students in both conditions, written assignments comprised 70% of students' final course grades. The first  $t$ -test was conducted to learn whether the students' course grades were statistically different from each other based on whether they participated in the SRSD intervention ( $N=12$ ) or not ( $N=96$ ). Due to a large difference between the groups' standard deviation scores, equal variances were not assumed. A significant difference was found ( $t_{(106)} = 4.14, p = .000$ ) between the groups' final course grades. The mean final course grade of the participants in the SRSD group (mean = 90.5, SD = 4.27) was significantly different from the mean course grade of the control group (mean = 83.5, SD = 9.73). The mean course grades of both groups are displayed in Table 1.

Table 1

#### *College Writing/First Year Experience Course Grades*

Group	Course Grade
SRSD Group (N = 12)	90.5 (SD = 4.27)
No SRSD Group (N = 96)	83.5 (SD = 9.73)
All Participants (N = 108)	84.3 (SD = 9.50)

According to this analysis, the students in the SRSD group received significantly higher course grades than those in the control group, however, the group sizes were very

different. In order to learn whether the differences in course grades remained significant when group size was controlled, a second *t*-test was conducted in which the SRSD group's grades were compared with a random sample of 12 students in the control group. This second analysis, again with equal variances not assumed, showed that the two groups' grades were not significantly different from each other ( $t_{(24)} = 1.82, p = .093$ ). This finding suggests that although the students in the SRSD group received higher course grades than the students in the control group, when group size was adjusted, this difference was not statistically significant.

### **Progress Monitoring Curriculum Based Measures**

The researcher used line graphs of the participants' mean scores for the analysis of monthly progress monitoring curriculum-based measures (CBM); only five students completed all of the writing prompts. Figures 1, 2, and 3 depict the mean scores for total words written (TWW), correctly spelled words (CSW), and correct word sequences (CWS), respectively. These data indicate that there was not a significant increase in TWW, CSW, or CWS over the five writing samples. Notably, after the baseline measure, the mean scores dropped slightly and remained constant until the final probe was administered in December, at which point the scores increased. It is important to note that the December post-test measures indicate that TWW, CSW, and CWS were higher than the baseline measure, suggesting that use of the SRSD methods might have influenced these students' overall writing skills across the full semester. It is notable that the scores on the three types of CBM co-varied in similar ways; this could mean that there were writing prompt effects on the scores.

Figure 1

*Mean Total Words Written (TWW)*

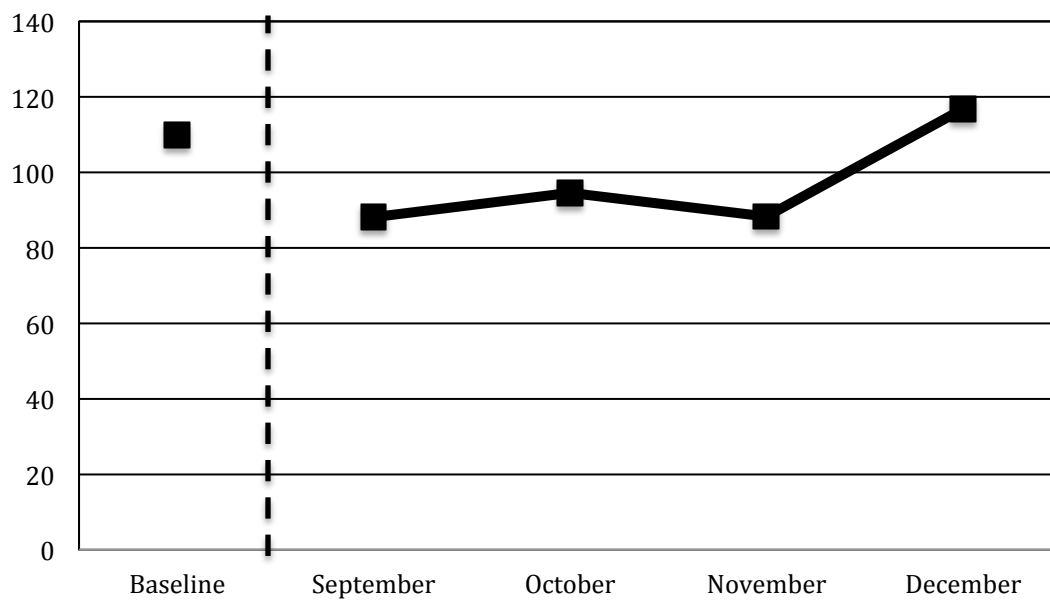


Figure 2

*Mean Correctly Spelled Words*

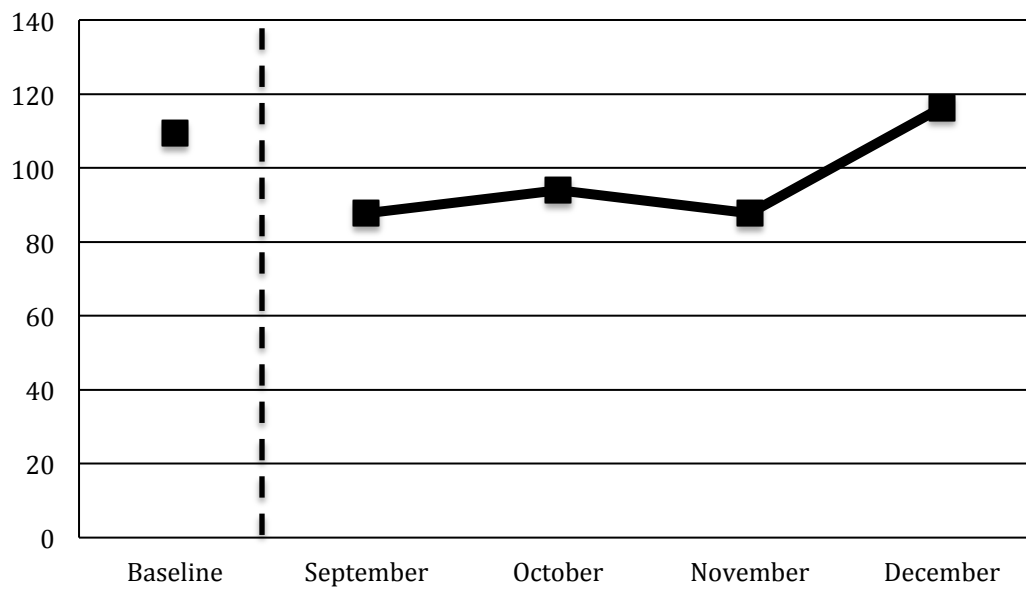
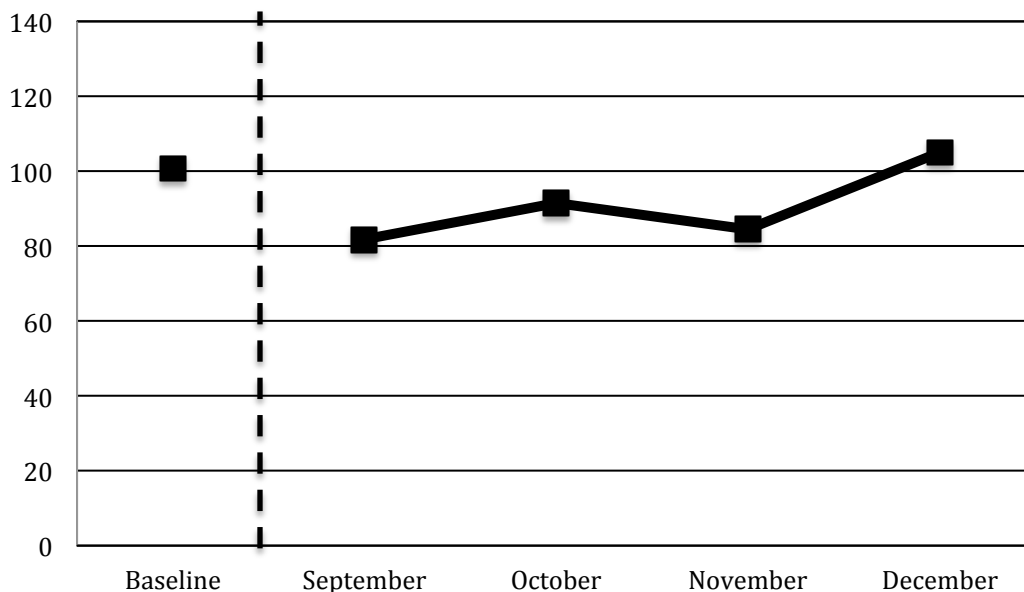


Figure 3

*Mean Correct Word Sequences*

In addition to reviewing the mean CBM scores for all SRSD participants similar graphs were created for those participants who completed the baseline CBM, and each additional CBM for the following months. Figures 4, 5, 6, 7, and 8 depict the scores for correct word sequences (CWS) for those participants. CWS was selected for these graphs because it is the most difficult writing CBM and the best one to capture changes in college students' writing skills. Note that the Y axis values vary according to the range of each student's data. These data indicate that there was not a significant increase in CWS over the five writing samples. For all but Participant 12, after the baseline measure, the mean scores dropped slightly and remained constant until the final probe was administered in December, at which point the scores increased. For Participant 12, after

a September score above the initial baseline, scores decreased for the following month and then spiked in December.

Figure 4

*Participant 1: Correct Word Sequences*

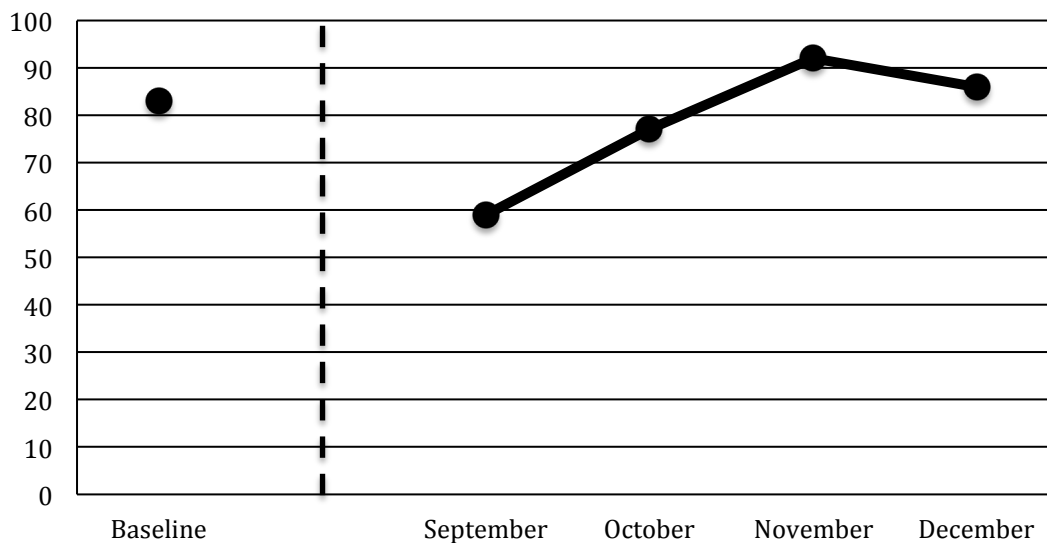


Figure 5

*Participant 8: Correct Word Sequences*

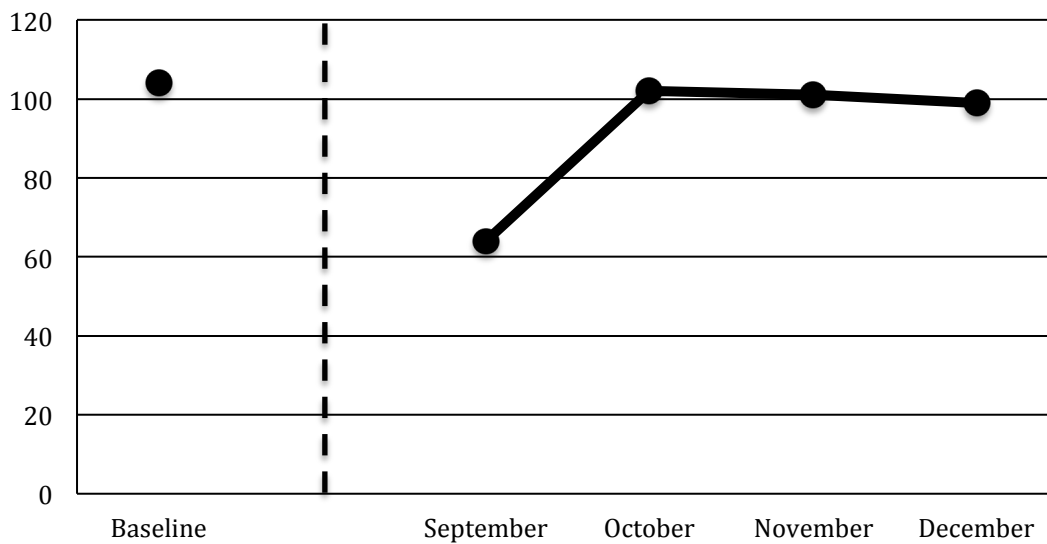


Figure 6

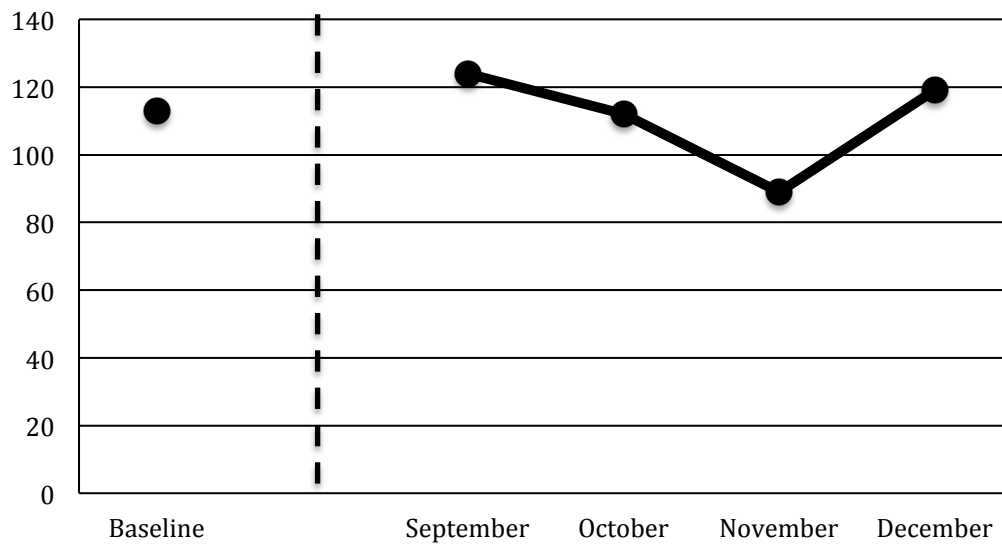
*Participant 12: Correct Word Sequences*

Figure 7

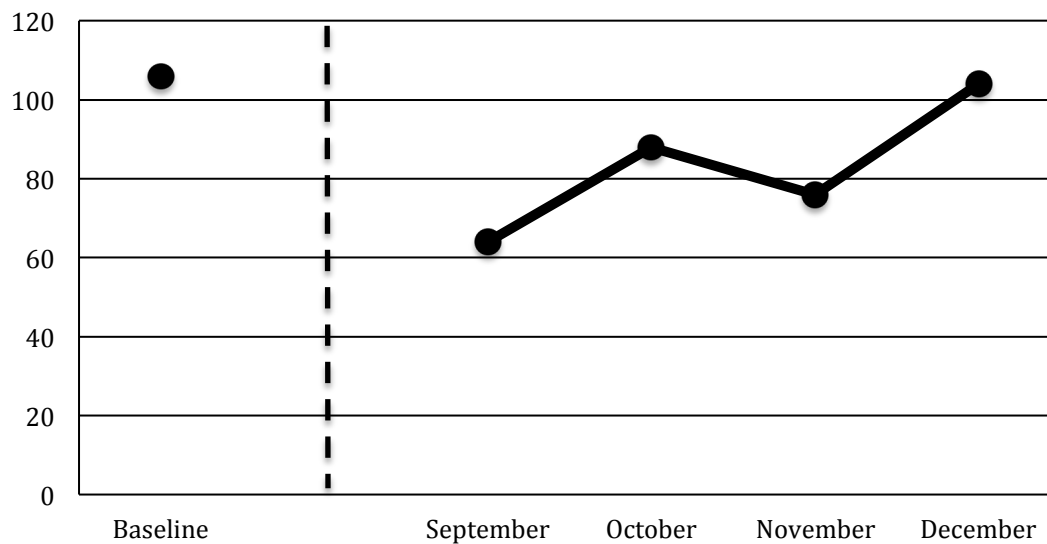
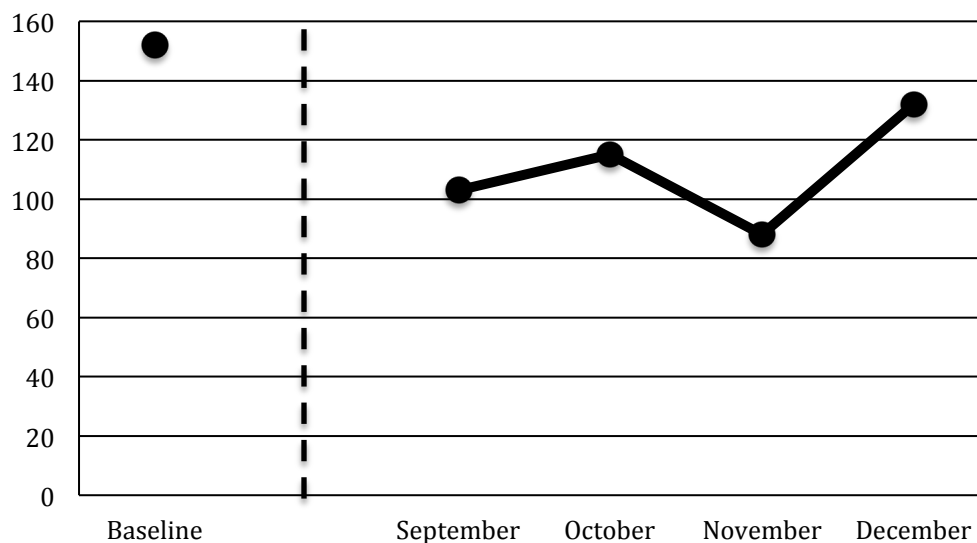
*Participant 13: Correct Word Sequences*

Figure 8

*Participant 15: Correct Word Sequences***Qualitative Analysis of Student Journals**

Nine of the SRSD Participant students completed at least one online journal during the semester indicating which strategy was used, what assignment it was used for, and approximately how long it took. Eight of the participants (89%) used the REVISE strategy. Five of these students (63%) used it more than once, and 100% of all participants who used this strategy indicated positive experiences with it. The average reported time it took students to use this strategy in revising a paper was approximately 15 minutes. Participants indicated that the most ideal or helpful components of this strategy were that more errors and rewording needs were noticed when written assignments were read aloud as opposed to silently, it was a quick strategy to use, and it was most helpful when used more than once, which was easy to do because it was so quick. Half of the students who reported using this strategy indicated that they planned

on using it again. The REVISE strategy was the strategy selected most often by the participating students, and it was the strategy that was used more than once. These data suggest that the REVISE strategy may be more socially valid for college students than the other strategies.

Three of the SRSD Participant students (33%) used the SCAN strategy. None of the students used it more than once. Students did not report the amount of time it took to revise written work using this strategy. Nonetheless, all participants who used this strategy indicated positive experiences with it. Participants indicated that the most helpful components of this strategy were the ability to add or get rid of components that were not needed or did not belong, to ensure their paper made sense before other readers read it, and to notice any edits or changes that needed to be made.

Two of the SRSD participants (22%) used Compare, Diagnose, Operate to revise their written work. Neither of these participants used it more than once, and only one of the comments was positive. Participant 8 indicated that this strategy was not as helpful as REVISE or SCAN, and that she probably will not use this one again. Participant 9 indicated that she used this strategy because it seemed the easiest to use.



## Chapter 4: Discussion

The purpose of this study was to examine the effects of implementing a modified version of Harris and Graham's (2009) Self-Regulated Strategy Development (SRSD) with freshman college students enrolled in first year College Writing or First Year Experience classes. More specifically, the research investigated the extent to which these students' use of SRSD in revising their written assignments for classes would result in a greater increase in course grades at the end of the semester, in comparison to having students submitting papers without revision, or using their own revision strategies. Participating students' growth, as recorded using CBM, was examined using graphs of their scores. Furthermore, this study examined qualitative data students' journal entries about how long it took them to use these strategies, whether or not these strategies were useful, and if they would use these strategies again.

In regard to the extent to which an adaptation of SRSD for college students resulted in improved writing performance among freshman college students, an initial *t*-test that compared the grades of members of the SRSD group who reported using at least one of the writing strategies with those of the control group showed that the SRSD students earned higher grades. However, due to the large difference in the size of the two groups, additional analysis using a *t*-test with a random sample of non-SRSD students matched in size to the SRSD group size (N=12) showed no significant difference in grades between the groups. Although this result is different from findings among grade K-12 SRSD applications by Chalk, Hagan-Burke, and Burke (2005), De La Paz (1999, 2005), Mason and Shriner (2008), and Sawyer, Graham, and Harris (1992), it must be

interpreted with great caution because of numerous confounds in the study design, including group size. Despite one of the  $t$ -test results suggesting that use of SRSD methods led to improved writing quality as judged by the course instructor, the second result, which controlled for group size, returned a non-significant  $t$  value. Thus, the relative differences in the group's final grades cannot be attributed solely to the SRSD methods. The high attrition from the experimental group is a confound. Over half of the students in the classes initially agreed to participate and use the SRSD methods. By the end of the study, that number was down to 12 students. It is possible, even probable, that the 12 participants who remained in the study through the end were more interested and motivated to improve their writing than the students who signed up but did not complete all procedures.

Although the number of participants in each group of this study was not equivalent, the initial finding of significantly higher course grades for the SRSD condition students suggests that older students (e.g., college age) might benefit from strategic writing instruction in ways similar to younger students, even if their participation in this study was influenced by a pre-existing motivation to improve their writing. It is possible that incorporation of the SRSD strategies as a required component of college writing courses might be a better way to evaluate effects of the methods. Embedding the methods into specific college writing courses could be a next step in determining the relative benefit of these methods for college students. Specifically, making the use of SRSD methods a required part of a course could help students utilize them enough to use them automatically when writing.

It is important to note that the “instruction” that the college students received was essentially self-taught. Those SRSD methods observed to be the mostly likely to help older writers were adapted and compiled, but in order to use the methods, the students had to read the materials, view the slides and practice on their own. In addition to future research that includes SRSD methods as required course components, additional studies that examine the generalizability of the writing skills to other courses is needed. If additional research shows that SRSD methods are effective in both targeted courses and more generally, it would make sense for colleges to make such methods available for all students using online tools. Most colleges have some form of learning management system where such resources could be housed to be available for all students. For example, the Angel system that was used for this study was accessed through the college’s website.

Students logged in with their unique user names and passwords, and were then taken to their individual course portals. Their semester courses that utilized the online Angel system were listed on this portal, including a course titled “Writing Strategies,” which was the site for the intervention investigated in the current study. All of the components for this intervention (e.g., narrated Power Points for each of the revision strategies, monthly progress monitoring CBMs, and journal submission link) were found under a “Lessons” tab at the top of the page after students selected the intervention course. It is unfortunate that a very small number of those students who originally agreed to be in the study (N=60) actually completed the required activities (N=12). This may have been the result of limited training in navigating the Angel system, a factor that

should be addressed in future research. Challenges related to access to Angel might have impacted both the number of participants and amount of participation by each student.

A freshman college course focused on accessing the learning management system, and the resources available could be extremely valuable for college students. Focus on how SRSD strategies like those investigated in this study can be accessed and utilized through both campus and personal technology could be extremely valuable as well. Future investigation of these writing strategies provided in an online format, and paired with a small amount of in-class instruction regarding the relevance, utilization, and accessibility of these resources, could be helpful in supporting the efficacy of these resources in improving college students' writing abilities.

The students' mean scores on progress monitoring writing CBM (e.g., TWW, CSW, CWS) showed a slight decrease in scores after baseline, with a stable trend across the following months. Interestingly, mean TWW, CSW, and CWS scores increased to an above-baseline level on the final progress-monitoring probe. The general trend in mean scores with a post-intervention score above baseline is different from the amount of growth shown in previous studies. Similar to this study's pattern of growth, Glover (1980) measured the growth of participants' fluency, flexibility, elaboration, and originality over participation in 21 evening sessions of the Problems Solutions Exercise, and indicated that scores over time varied, but did not return to baseline. De La Paz (1999) measured the growth of students' writing abilities from baseline to post-test, and then utilized maintenance probes. Studies conducted by Denscome and Roberts (1980); Chalk, Hagan-Burke, and Burke (2005); De La Paz (2005); and Sawyer, Graham, and

Harris (2008) used pre- and post-test to measure the effects of various writing interventions, but did not measure the process or linearity of students' growth. The scarcity of research measuring the linearity of students' growth over time while receiving writing interventions indicates a significant need for more of this kind of research.

One potential reason for the inconsistency of the current study with the existing literature on the efficacy of SRSD may be related to the format of progress monitoring assessment administration in this study. While the CBM writing probes were administered once monthly, and participants were reminded monthly of these probes, completion was not a requirement. By comparison, in research conducted by Kauffman et. al (2008), writing prompts administered to students were required class assignments and were assigned as part of students' course grades. Chalk et al. (2005) administered writing prompts to students during class time, and De La Paz (2005) and Mason and Shriner (2008) used papers submitted as required class assignments to measure students' writing abilities.

An additional reason for the inconsistency with the existing literature on the efficacy of SRSD may be related to the format of the study, and college students' priorities. Closer to the end of the semester, around the time of final examinations, the number of students completing the online curriculum based measures declined significantly. Future research should include a course requirement for students to complete the online curriculum-based measures so that a more steady participation level can be achieved.

The REVISE strategy was reported to be the most effective tool for college students in revising their written work. Five of the participants (63%) used this strategy more than once, and all of the participants who utilized this strategy indicated positive experiences (100%). The reasons given for the benefits of this strategy were that it was easy, short, and showed immediate results. Still, only half of the participants using this strategy noted that they would use it again, suggesting that it might not be the best option for all writers. Comments about the use of the other strategies suggested that they were not as immediately useful for the students, however, individual preference is important in selection of revising methods, thus, no one SRSD strategy is likely to be truly “best” over the others. Providing multiple strategies for college students to utilize in revising their writing is important, and the inclusion of each of the strategies investigated in this study will be beneficial in providing students’ with a wider array of options regarding tools to improve their writing.

Although the results of this study did not lead to major improvements in CBM progress-monitoring scores in writing, students who reported using at least one of the SRSD strategies to revise their writing received a significantly higher final course grade in College Writing or First Year Experience. Although a preliminary step in adding to the literature on college writing instruction, the findings are consistent with prior research documenting the benefits of SRSD.

### **Implications for College Writing Instruction**

This study’s findings indicate that more research about how to improve college students’ writing skills is justified. The small gains observed in this study must be

interpreted very carefully due to many confounds, but suggest that college students might benefit from SRSD methods. It is important to keep in mind that this study used only computer-based self-teaching methods, and more directed instruction could affect future outcomes. The findings of this study are hopeful in regards to the prospect of the integration of SRSD into college writing courses. Students given access to and taught these specific methods of revising would have tools in not only their college writing courses, but also the vast number of additional college courses that require a significant amount of writing. The SRSD used in this study appeared to be linked with higher final course grades for the small number of students who completed all procedures. This raises the question if SRSD methods were taught and used regularly would they show additional benefits in improving students' writing abilities.

This is the first study using qualitative measures to identify positive and negative components of the use of SRSD in the college population. These data can contribute to future research as well. It may be that additional adaptation of certain SRSD methods for college writers will yield even better results. Based on the current results, a combination of REVISE and SCAN might be a better set of revision methods for college-age writers; or, it is possible that having students use only one method is best (see limitations section below). In addition, it would be helpful to have more research about the best venue for writing instruction supports in college settings. This study took the methods to the students, but allowed them to decide on appropriate use. It might be that incorporation of the SRSD methods into courses or taught by writing center staff would be more effective.

### **Limitations and Future Research**

The outcomes of this study must be interpreted cautiously due to a number of limitations. First, the study participants were volunteers from students in nine college classes at a private liberal arts college in the Northeast. Although the design is not unusual in educational research, it does limit the generalizability of the findings. It may be that the students who volunteered would have made gains without the SRSD methods because they were motivated to improve their writing anyway. As with all instances of the quasi-experimental group design, there were confounding variables, which are threats to the internal validity of the study. The lack of random assignment to groups as well as no pre- to post-test comparisons limit the extent to which the findings can be generalized. For example, differences in the course grades between the experimental and control groups might be attributed to a variety of factors (e.g., different teachers, motivation, other writing improvement supports, previous high school academic success), in addition to the use of the SRSD writing strategies.

Second, in-person instruction was not provided to the students in the SRSD writing strategies and the professors' grading methods were not uniform. Instead, each of the participants was given a manual, and access to Power Point presentations with verbal instruction on each of the topics, but it is impossible to determine precisely whether students utilized these materials, and if so, how much time they spent doing so. Further, each of the participating professors graded their students' writing subjectively. A more structured study with a universal rubric (Pagano et al., 2008) used by all participating professors would make the results more reliable and valid.



A third limitation of this study is the small number of participants. Participants were selected on a voluntary basis, and because components of the study (e.g., use of SRSD strategies, completion of writing CBMs) were not incorporated into the class, but instead layered on as an additional component, participation was lower than anticipated. Participants did not reliably complete the online writing CBMs on a monthly basis, nor did every participant report utilizing a SRSD strategy for every written assignment.

In addition, the availability of three research strategies to research participants decreased the strength of the data obtained for each SRSD method by itself. In other words, the students may have been given too many SRSD method choices. Future research should focus on one of the strategies, REVISE, because it was the most popular among the students. Such follow up studies would help to strengthen the literature base for the use of an SRSD intervention in the college setting. Specific components of the REVISE strategy can be investigated, and a more in-depth analysis can be done regarding its effectiveness.

Additional research should first seek to replicate present findings with an experimental design, ideally with more subjects and pre- and post-testing. Such follow up studies would benefit from additional assessment measures that capture the growth in students' writing skills. If such studies yield promising results, then integration of SRSD methods into college writing course assessments would be justified. Additional studies could then compare the relative differences in offering SRSD supports as optional online tools, with use of SRSD as required course components. Finally, research that identifies

which college students could benefit most from SRSD use would assist college faculty in offering differentiated instruction in the ways that K-12 classroom teachers do every day.

## Chapter 5: Summary

This study investigated the efficacy of the use of Self-Regulated Strategy Development (SRSD) in improving college students' writing abilities. Participants were volunteers from Freshman College Writing and First Year Experience courses at a private liberal arts college in the Northeast. Although students who reported using the SRSD revision strategies before submitting their assignments received significantly higher course grades than the control group in an initial comparison, results from a comparison that controlled for group size indicated the difference in grades was not statistically significant. Qualitative data indicated that the students who used the writing strategies were generally pleased with their experiences. Additional reports showed that REVISE and SCAN were easier to use and more helpful than Compare Diagnose, Operate. These findings suggest that additional research on SRSD at the college level is needed. The current study used a very low-intensity approach to improving students' writing by making resources available online. Additional research that includes more students, additional assessments, and comparisons of the online resources with direct instruction by professors would be a welcome addition to the literature about improving college students' writing skills.

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Appendix A

# Powerful Writing Strategies for College Students: Strategies for Revising

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Monica R. Chenard

**Material Adapted from Harris, Graham, Mason, and Friedlander (2008).  
Powerful Writing Strategies for All Students. Baltimore: Paul H Brookes  
Publishing Co. (2013)**

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Chapter 1: SCAN

Chapter 2: Compare, Diagnose, Operate

Chapter 3: REVISE

Material Adapted from Harris, Graham, Mason, and Friedlander (2008). *Powerful Writing Strategies for All Students*. Baltimore: Paul H. Brooks Publishing Co. (2013)



## Chapter 1: SCAN

### Lesson Overview and Objectives

This lesson is aimed at reviewing and revising persuasive essays. When you revise previously written material, you are not only making the writing better, but you are making yourself as a writer more proficient in writing. The six-step checklist is a list of steps for revising an essay. The SCAN strategy is a mnemonic device to be used when revising persuasive essays.

### What is the Six-Steps for Revising Checklist?

1. Read your essay.
2. Find the sentence that tells what you believe. Is it clear?
3. Add two reasons why you believe it.
4. Scan each sentence.
5. Make changes.
6. Read your essay and make final changes.

### What is SCAN?

**S** = Does it make **Sense**?

**C** = Is it **Connected** to my belief?

**A** = Can you **Add** more?

**N** = **Note** errors?

Use both of these tools when editing a persuasive essay. SCAN is a good resource for asking yourself the questions to determine if various components of your essay are complete.

## Chapter 2: Compare, Diagnose, Operate (CDO)

### Lesson Overview and Objectives

The revision of your own work can be improved by learning how to revise. Revising leads to better writing. This lesson explains the steps that are useful in revising both your own work and the work of others.

### What are the Components of Revising?

#### 1. *Add*

Read through your essay and add any missing or helpful words, phrases, or sentences. Add words or phrases using a caret.

#### 2. *Delete*

Use the same basic procedures as when you are adding to your essay. If a word or phrase is off-topic, redundant, does not sound like it is needed, or a weak or incomplete idea, draw a single line through the content so that you can revise it.

#### 3. *Change*

Read through your essay to look for words or ideas that would fit better somewhere else, or that would be better understood if worded differently. When moving word(s), highlight the word(s) to be moved, and draw an arrow to the desired location. When re-writing, highlight the material to be changed, and then write the new material directly above the highlight.

### What is Compare, Diagnose, Operate (CDO)?

**Compare:** Read the sentence.

**Diagnose:** Determine what is wrong with the sentence (i.e. it does not sound right, it is not what I intended to say, the idea is incomplete, etc.).

**Operate:** Decide what can be done to fix your problem and make your revision.

Use these descriptions when revising your paper. Practice these steps and try to memorize them for future classes. Record the things you say to yourself (“self-statements”) when doing these things, and continue to use those statements which you felt were helpful.

## Chapter 3: REVISE

### Lesson Overview and Objectives

REVISE is another strategy for editing your own writing and the writing of others.

### What is REVISE?

**R** = Read your essay out loud. Highlight or mark places where you think changes need to be made.

**E** = Evaluate the problem(s).

**V** = Verbalize what you are going to do to fix the problems.

**I** = Implement the changes.

**S** = Self-check the goals you set for yourself. Make revisions based on these goals.

**E** = End by re-reading and making any additional changes.

This strategy is simple, and much like the revision strategy discussed in the previous chapter. This strategy may be easier to remember though, because the mnemonic device is more appropriate for the task at hand.

## Appendix B

**Curriculum Based Measurement Writing Probes****College**

Directions: The following prompt is a quick assessment of your writing. You will have one (1) minute to plan and three (3) minutes to write an essay in response to the prompt provided. Be sure to do your best writing.

Baseline: “I have bad news for you, I’ve been kidnapped...”

September: A major catastrophe has occurred that has changed the way we live and the environment in which we live...

October: She was walking, when she spotted something that did not belong...

November: He did not know that the other man was angry...

December: I was eavesdropping on the two women next door...

Prompts adopted from:

Fiction Prompts (2011, 2012, 2013). Poets & Writers. Retrieved 24 Jan 2013 from

[www.pw.org/writing-prompts-exercises](http://www.pw.org/writing-prompts-exercises).

## Appendix C

**Scoring Writing CBM: Correct Word Sequences**

Adopted from: Fuchs and Fuchs (2007). Using CBM for Progress Monitoring in Written Expression and Spelling, p. 12. Retrieved 24 Jan 2013 from [http://www.studentprogress.org/summer\\_institute/2007/Written/Writing\\_Manual\\_2007.pdf](http://www.studentprogress.org/summer_institute/2007/Written/Writing_Manual_2007.pdf)

1. Before scoring, read the entire sample.
2. Place a vertical line where a sentence should end.
3. Underline all incorrect words (words that are spelled incorrectly, words that are grammatically incorrect, words that are used incorrectly).

*\*Note: "A correct word sequence is one that contains any two adjacent, correctly spelled words that are acceptable within the context of the same to a native English speaker. The term "acceptable" means that a native speaker would judge the word sequences as syntactically and semantically correct" (p. 12).*

4. A carat method is used during scoring: Incorrect sequences are marked by putting a carat below the two words, and correct sequences are marked by putting a carat above the two words.
5. "When placing carats in a Written Expression CBM sample, correct carats are placed between any two non-underlined words, between a non-underlined word and line at the beginning of a sentence, and between a non-underlined word and the punctuation at the end of a sentence" (p. 12).


## Appendix D

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## SCAN


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Material adapted from Harris, Graham, Mason,  
and Friedlander (2008). *Powerful Writing  
Strategies for All Students*. Baltimore: Paul H.  
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SCAN can be used to review and revise a persuasive essay in conjunction with the Six-Steps for Revising Checklist.



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### What is the Six-Steps for Revising Checklist?


1. Read your essay.
2. Find the sentence that tells what you believe.
3. Add two reasons why you believe it.
4. Scan each sentence.
5. Make changes.
6. Read your essay and make final changes (USING SCAN!)



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### What is SCAN?

- **S** = Sense?
- **C** = Connected?
- **A** = Add?
- **N** = Note?



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Use both of these tools when editing a persuasive essay!




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## COMPARE, DIAGNOSE, OPERATE (CDO)


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and Friedlander (2008). *Powerful Writing  
Strategies for All Students*. Baltimore: Paul H.  
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This strategy is helpful to use when  
revising your essay!



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### What are the Components of Revising?


1. **Add**
2. **Delete**
3. **Change**



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### What is Compare, Diagnose, Operate (CDO)?

- **Compare:** Read the sentence
- **Diagnose:** Determine what is wrong with the sentence.
- **Operate:** Decide what can be done to fix your problem,  
and make your revision.




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## REVISE

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**REVISE** is a strategy for editing your own writing and the writing of others.


**R** = Read your essay out loud  
**E** = Evaluate problem  
**V** = Verbalize solution  
**I** = Implement changes  
**S** = Self-check goals  
**E** = End



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### Read Your Essay Out Loud


- Read your essay out loud to yourself.
- This may help you pick up on changes that need to be made.



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### Evaluate the Problem


- Judge or decide what the problem is.



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### Verbalize Solution


- Say what you are going to do to fix the problem!
- Add?
- Delete?
- Rewrite?
- Move?



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### Implement Changes

- Make the changes: Add, delete, rewrite, or move things.





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## Self-Check Goals

- Self-Check your paper based on the goals that you had before revision.
- Is your paper more believable to your reader?
- Did you include enough information so that the reader can understand your position?
- Did your changes make sense?
- SELF-CHECK!



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## End

- Read and make any additional changes.



### **Biography of the Author**

Monica Chenard was born in Rumford, Maine, where she received her high school diploma in 2005. She graduated with her B.A. in Psychology, with a minor in Sociology, from Saint Joseph's College of Maine in 2009, and received her M. S. in Educational Psychology from the University of Southern Maine in 2011. She is a candidate for the Psy.D. degree in School Psychology from the University of Southern Maine in August 2014.