Running Head: Self-Regulation Strategies for High School Students

Self-Regulation Learning Methodologies and Strategies for High School Students Achievement

Silvia E. Moore

George Mason University

**Abstract**

The purpose of this intervention study is to examine the change in high school student achievement after explicit instruction in Self-Regulated Learning. Students at a private high school in a suburb of Washington, D.C. will participate in an eight week program to learn strategies for identifying ‘best learning modality;’ strengthening weaker modalities through the identification of learning strategies compatible with learner preferences and characteristics; identifying and applying the optimal strategy approach for the disciplines of history and English; and, using tools such as agendas or computerized calendars to assist in planning and organizing student tasks. In addition, students will set weekly goals for academic success and will reflect weekly on prior week’s goals in order to adjust current week’s goal. A mixed-method for measuring the success of the intervention will be used. The instruments will include one-to-one interviews, surveys, questionnaires, and a mix of school-based level test, behavior and, homework scores.

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**Background Literature**

Self-regulation is a complex construct dependent on metacognition, self-beliefs and affective reactions. Studies conducted by Bandura (1989, 2003) and Pintrich (2000) indicate self-regulation and self-evaluation as valuable predictors for academic success. Responsibility for one’s own learning is pivotal to success in all domains of life. Facilitating self-directed learning necessitates recognition of external factors assisting learners to take primary responsibility for learning and internal factors (personality characteristics) that incline one toward personal empowerment or accepting responsibility. (Hiemstra, 1998)

Self-regulated learners are cognizant of how they learn; can recognize when learning is hampered and can evaluate learning strategies. Skilled self-regulated learners are effortful in completing tasks and are capable of remaining focused on a task despite being presented with alternative tempting options. Self-regulation is a pivotal characteristic of student achievement. Achievement goals are important motivational factors affecting self-regulation. Achievement goals are identified as being either performance-goal or mastery goals. (Pintrich 2000) The latter is positively associated with the beginning phase of self-regulation. It is the hypothesis of the researchers that students lacking self-regulation with a history of low performance will exhibit low metacognitive learning skills. Therefore, it is believed that with training and the optimal learning strategies to individual learning style/characteristics students will experience success and with each success these students will develop into self-regulated learners. A deficit in the self-regulation literature is the identification of self-directed learning readiness and metacognitive skills benchmark as well as the appropriate approach to promoting learner self-direction.

This intervention study aims to develop student self-regulation for learning using benchmarks of self-directed learning readiness and metacognitive skills advanced by Bandura (1997), Cleary (2009), Hiemstra (1998) Pintrich (2000), and Zimmerman (2000), etc. This intervention study envisions SRL as a developmental process occurring overtime, eventually characterized by learner self-direction and increasing metacognitive skills: organization, student engagement (attention in class, takes part in discussion, acquiescence to classroom/school rules), goal setting, ‘help-seeking,’ self-efficacy. We therefor intend to use a longitudinal design to track the progress of participants from 9th grade through twelfth grade. This intervention study is intended to answer the following questions:

1. If students identify their strong and weak modalities for learning, then work to strengthen the weaker modality by learning compensatory strategies (planning, monitoring, regulation and reflection), can performance-goal centered students be transformed to learning-goal centered students?
2. Will teaching Self-Regulated Learning (metacognition) lead to improved self-efficacy?
3. Will improved self-efficacy lead to acquisition/transition to performance-goal thinking?
4. Who will benefit the most from this intervention: students with learning disabilities (LD) or students without LD issues?

**Methods**

**Sampling Procedure and Size**

Initially, participants will be identified by the school administration as students who would benefit from explicit instruction in planning, organizing, goal setting and study skills strategies as evidenced by low grades and teacher observations.

Student-participants will be randomized into two identical intervention study groups (Learning Labs) and will meet 5 of 7 school days for three months. The intervention study groups will have an equalized number and matched for gender. The confidence level for this sample size is 5.27. Additional demographic data will be analyzed and reported.

Informed written consent will be obtained from all participants in accordance with procedures approved by the IRB review board at George Mason University.

**Participants**

 The participants in the intervention study will include 32 students with the age range of 14 to 15 years and 2 teachers from an academically selective private high school in Northern Virginia.

**Students**

Students with documented learning disabilities make up 32% of the schools population. Data will be reported from 32 adolescents (16 females and 16 males; ages 14-15); twenty-five percent will be students with learning disabilities; and, all will be fluent English speakers. Students with Learning Disabilities (LD) in the ninth grade make up 25% of that grade level’s population (17) and will be included and integrated into the learning labs with their non-LD peers. Sample size, including students with LD, will be 10% (60) of the 115 students in the freshman class of the school.

**Teachers**

Learning labs will be led by one (1) special education teachers licensed to teach special education employed by the school and the researcher-participant also licensed in special education.

**Setting**

The school is located in a suburban area of Washington, D.C. with a population of approximately 508 students (predominantly white upper socioeconomic status).

**Materials**

Materials for this study will include student journals, weekly academic accountability sheets/calendars, list of evidence-based strategies, pretest/posttest and, scales to measure cognitive, metacognitive, self-regulation practices and motivation. A more detail description follows.

**Experimental Condition Materials**

Participants will utilize journals to record reflections of ‘what worked/what didn’t work.’ An academic accountability forms to plan and organize tasks assigned in content courses (math, science, English, Social Studies) in a week will be used to visualize a week’s task and to keep track of task completion and non-completion (will be highlighted to assist participant visualization of how many times in one week non-completion occurred). Agenda/calendars to record tasks for the week (agendas can be school issued or electronic). In addition, students will be provided with a list evidence-based strategies to be used in one, some, or all domains, i.e. mnemonics, Cornell note taking, index card for memory use, audio notes, etc. Journals and academic accountability forms will be coded for analysis.

**Experimental condition student inventory materials**

A learning styles inventory survey online, Abiator's Online Learning Styles Inventory, will be used to help students identify and become cognizant of their ‘best’ modality for learning information. In addition, the 2nd edition (LASSI) (Weinstein, Schulte, and Palmer, 2002) will be used to measure learning strengths and weaknesses of students’ strategic and self-regulated learning.

Finally, aptitude test to determine a composite measure (Ravens Progressive Matrices & Lorge-Thorndike verbal and nonverbal tests) will be administered to identify which students made the most gains.

**Observational measures materials**

Academic accountability logs and researcher notes will be kept for each participant and will be used to record activities for each session/observations/and interview notes. This data will be coded for analysis.

**Measures (Data Sources)**

Data sources to be collected in this intervention study include the pretest, the post test, student and teacher interviews and observation notes; as well as school-based academic records. Journals will be utilized by participants to self-reflect on the impact that strategies (variables) introduced in the study have on self-regulated learning activities of organization, student engagement (attention in class, takes part in discussion, acquiescence to classroom/school rules), goal setting, ‘help-seeking,’ self-efficacy (independent variables).

The variables will be coded and measured utilizing SPSS to correlate variables of planning, organizing, motivation, adapted learning strategies and, time management improvement. In order to measure success of intervention a post-test will be administered. The diagnostic instrument used will be the MSLQ (20 minutes) (Garcia Duncan and McKeachie, 2005; Pintrich, Smith Garcia, and McKeachie, 1991) and will indicate areas of students’ SRL strengths and weakness.

**Procedures**

This intervention study is designed to develop student self-directed learning through the acquisition of skills such as organization, student engagement (attention in class, takes part in discussion, acquiescence to classroom/school rules), goal setting, ‘help-seeking,’ self-efficacy. In essence, understanding how to ‘learn to learn.’

 At the onset and conclusion of the intervention participants will be administered two survey instruments. The LASSI (15 minutes) will be used to measure participants pre-intervention SRL strengths and weaknesses. In addition, participants will be administered a learning styles test (15 minutes) to begin a discussion of metacognitive process of self-awareness. The learning style inventory will identify participants ‘best’ learning modalities. With this information participants will be guided to identify strategies already in their repertoire.

Next, participants will be guided in completing the ‘academic accountability plan.’ This grid of academic courses which participants must fill-in tasks to be completed for the week. The tasks are found in teacher created website; homework handouts sheets or recorded from bulletin boards in class. The ‘accountability plan’ will be kept with the intervention study teacher and distributed to students in each session meeting. This accountability plan will be the primary monitoring instrument for student planning and completion.

Strategies for organization, student engagement (attention in class, takes part in discussion, acquiescence to classroom/school rules), goal setting, ‘help-seeking,’ self-efficacy (independent variables) will be introduced (research-based strategies compiled by researchers) incrementally and on an as needed basis during one-to-one interviews or throughout the intervention study sessions as a whole-class instruction. Strategy adoption and/or deletion will be monitored through researcher observation and participants’ journal entries. Strategy based on preference is a treatment that will be an ongoing discussion in the learning lab to ensure participants develop the ability to identify and choose strategies for learning best suited for the delivery systems used in specific academic domains: English, history, math and science. Specific details of the intervention study session design follows.

**Experimental Condition**

Participants in the study will be part of a small learning community environment, personalized experience, whereby a “sense of growth, of personal agency, of competence, of being someone whose individuality is recognized and fertilized” is used to create a “habit of mind.” (Gtazek & Sarason, 2007, pp. 14-15. On the first day of the intervention study session (Learning Labs), participants will be taught how to identify their ‘best learning’ modality (variable) using a learning styles inventory test (20 minutes). This information will be used to recognize diverse modalities needed in different domains (20 minutes) presented by intervention study teacher and/or teacher-researcher. Participant efficacy (independent variable) for choosing learning strategies specific to academic domains (variable) will be facilitated by the use of a list of evidence-based practices identified by researchers using prior SRL research data compiled and organized by domain specific use. Personal journals will be introduced (10 minutes) and used to reflect on task practices (completion, non-completion of tasks, as well as study choices). The journals will be used to keep an ongoing record of development of self-regulation practices.

The intervention study (learning labs) will meet two to three times per week. During each session students will be required to (1) plan and organize the “Academic Accountability Planning Sheet.” Incomplete task will be highlighted and tasks not included on the sheet (impromptu assignments assigned by content teachers) will be added. Students will identify projects/tasks that necessitate ‘chunking’ (broken down into smaller task) and will assign task completion dates using AAP. (2) Next, students will transfer the tasks in the AAP to their personal accountability devices (agenda books or electronic calendars) in order to remember tasks. (3) Student interviews with teacher will be conducted twice per week and will focus on completion/non-completion of tasks planned for the week and what choices proved positive or negative to academic success. Interviews will be recorded using the AAP calendar. (4) Finally, participants will journal their task experience and any insightful information gained during the intervention study session to demonstrate be conducted to gather information about the cognitive processes and beliefs moderating the independent variable (SR Learning Labs).

In order to assist participants in visualizing how many times per week non-completion occurs, a non-completed task on the accountability calendar will be highlighted to assist participants in gaining cognition of planning and completion through the activity of visualizing and reflecting on ‘non-completed’ task, “ highlighted” (variable/habitual training).).

Motivation building will be developed through a desire to become competent. This competency belief will be introduced using school-based test/exams for teaching error analysis and reflection of practices discovered during interviews. Participants and research-participant will examine tests/quizzes through an error analysis and study preparation activities to uncover the variables (learning strategies) that impacted academic scores. The examination and discussion of test/quiz preparation will be discussed in light of the test exam grades. If the test/quiz grade is an ‘A’, then preparations will be deemed adequate and participant will be requested to journal the successful strategy/s used. If test/quiz grade was a ‘B’ or below, a discussion of test preparations activities along with ‘what else’ could be have been done will take place. Participants will journal new strategies to be used for next exam and reflect on the previous preparation error/s or success. This activity is ongoing during the intervention study.

**Fidelity of Treatment**

Clear guidelines and protocols for the intervention sessions and teacher instruction will be in place and training will occur. Bi-weekly reviews of data logs, journals, and intervention delivery will be examined to assure adherence to the designated protocol (i.e. the set number and timing of strategy introductions, interviews, journal entries).

**Scoring Procedure**

A change in self-regulation will be assessed by comparing pretest and posttest self-reported self-regulatory skills scale instrument. Scores of 5 or 6 will be associated with positive self-regulation and scores of 0 or 1 will denote failure to regulate. To get an indicator as to whether or not the self-regulation intervention generalized, a comparison of homework completion in participants’ history/English classes prior to intervention and post intervention will be conducted.

A critical component of the intervention study is participant self-efficacy development. Self-efficacy changes will be measured using semi-structured interview notes; teacher-researcher field notes and student journal entries. The interviews will be used to identify effective/non-effective study skills and/or behaviors and to teach self-talk strategies. Meanwhile ,the journals will be utilized to keep a record of strategies tried, discussions regarding learning methods, and other thoughts on task completion as perceived by .participants. Journal entries will be used in self-reflection post-survey as well.

**Research Design**

This intervention study is a quasi-experimental design as the setting prohibits using artificial groupings. The quasi-experimental design will focus on student acquisition of strategies to develop self-regulated learning. Students not assigned to the intervention study will attend traditional instruction setting.

**Proposed Data Analysis**

* ANOVA and Student’s t-test used for testing difference between age and gender groups.
* Correlation to examine the relationship between different areas of self-regulation and academic achievement.
* Multiple regression analysis to assess combined influence of self-regulation on academic achievement

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