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Self-Regulation Strategies Learning Labs for High School Freshman

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Abstract

This paper outlines the design of an eight-week experimental study of Self-Regulation Learning (SRL). The experimental research study, grounded in the social-cognitive theory of Self-Regulation Learning (SRL), will examine the degree to which high school students are meta-cognitively, motivationally, and behaviorally active participants in their own learning process (Zimmerman 2008) after receiving SRL training. The SRL lab consist of a three-phase training adapted from the three-phase model developed by Barry Zimmerman (Cleary & Zimmerman, 2001; Kitsantas and Zimmerman, 2002). The learning labs will utilize time-series diaries (Stoeger and Ziegler, 2007) and self-monitoring instruments (accountability forms) to measure students’ motivational feelings and learning perceptions development both in the research environment and in student-participants’ ecological context. The design will be informed by a review of SRL research and an examination of the theories and strategies for practical implications.

Self-Regulation is a complex construct that necessitates a vygotskian constructivist examination and explanation of how students become self-regulated learners (Vygotsky, 1978). Measures to uncover the SRL processes include surveys, questionnaires, interviews and most recently online tools such as computer traces, think-aloud protocols, diaries of studying direct observation and microanalysis. These measures evidence the importance of SRL for student achievement and provide a grocery list of components within the cognitive, motivational and behavioral SRL processes important in transforming learners into active academic performers. However, the data lacks pedagogical importance. It is the intent of this paper to outline recent SRL research methods and findings to operationalize the components of SRL into training phases to better understand how formal interventions can affect the increase of SRL. The design will take into account the dynamic interdependency between student beliefs and the environment and how each influences the other thereby creating a constant and dynamic loop of change.

It is beyond the scope of this present research design to include all the components within the processes of SRL; however, the learning targets chosen for this study are foundational components that characterize active learners: goal orientation and self-efficacy within the construct of motivation; the cognitive component of self-monitoring and control; and, help seeking inside the process of behavior. This study assumes these processes and their components to be within the ‘zone of proximal development’ for all high school students participant. Therefore, the learning lab environment will be designed to assist students in manifesting regular and recurrent patterns and tactics defined as *good work habits* (Corno, 2008). Issues addressed in the design of this study include scope of the course, content, and environment.

**Purpose of this Study**

 This study will examine whether students in the SRL Labs show changes in motivation, cognition and behavior. Questions this study would like to answer include: (a) what changes occur in motivation, cognition and behavior before, during and after the SRL lab? (b) Can students effectively transfer motivational and cognitive changes to other content areas? What is the role of epistemological beliefs influencing students’ use of learning strategies?

**Method**

**Participants and Settings**

The SRL lab is conceptualized as supporting positive affective dimensions of a classroom to encourage positive teacher-student relationships that facilitate student engagement in activities. Hauser et al. (2003) report that children are most vulnerable to teacher-expectation effects at key transition points, thus the learning labs will set high expectations while at the same time be sensitized to individual differences. To this end, Bredekamp & Copple’s (1997) student-centered model will be used to provide students an opportunity to work individually and collaboratively to construct their own understanding guided by the clear expectations and values; help and instruction in achieving valued outcomes; provide safe, nonthreatening environment; and everyone will be made to feel as a valued member (Wentzel & Wigfield, 2007). The teacher (certified in special education with 10 years of experience) will provide direct instruction of SRL strategies, as well as involve students in reflective conversations regarding SRL processes development/awareness.

Student participants are predominantly white from upper SES attending a private rigorous high school. Yet the group of students in the SRL labs will constitute a cultural group identified as possessing low motivation and self-efficacy. The environment design will be guided by the goal orientation theory to provide materials clearly organized conceptually while providing cognitive challenges to motivate mastery. (Pintrich, 2003)

**Procedures**

 The overall framework of the experimental study proposed is an adaptation of the three-phase cyclical analyses model of SRL by Zimmerman (Zimmerman & Kitsantas, 2002). The ‘event cyclical ’ model will be used to design the SRL learning lab into phases similar to Zimmerman’s phases: Forethought, Performance and, Self-Reflection. For the purpose of this study the phase labels are: Planning, Performance, Production.

 **Phase I: Planning.** While the SRL lab will be homogeneous the basic motivational theories and principles utilized for this phase are relevant and useful for understanding competence in all children (Hudley, Graham & Taylor, 2007). Within the construct of motivation the planning phase will focus on teaching students to set goals. Using vygotsky’s constructivist ideas, the strategy to optimize the process of self-efficacy will be the S.M.A.R.T. goal strategy. Students will be taught to set Specific (intermediate goals), Measurable, Attainable, Realistic and Tangible goals. Each step in the S.M.A.R.T strategy will be defined for student-participants to gain an awareness of the learning outcomes and goal setting process.

According to Zimmerman’s report of studies in the educational Psychologist (1990) perception of self-efficacy is pivotal in building motivation; moreover, self-efficacy is developed when learners achieve performance success in task domains. Therefor, the SRL lab will focus on helping students learn to set goals and consistently attain them in order to acquire higher levels of self-efficacy. It is expected that as self-efficacy improves student motivation will increase to continue doing what helped them succeed. The ‘planning’ phase of the SRL lab is designed to promote the reciprocal relationship between goal setting and self-efficacy (Schunk, 1984) toward self-regulation.

 **Phase II: Performance.** Self-monitoring is considered an important component of academic success. The ability to sustain attention from the onset of a task to its completion is a key identifier of a self-regulated learner. However, detecting the key strategy for building self-monitoring is difficult. Self-monitoring is domain and context sensitive. Strategies adopted for self-monitoring have to be coupled with instruction for how to interpret feedback from the academic learning environments. This is one of the most difficult phases to teach students because the students who need this training ‘don’t know what they don’t know.’ Hence, an important facet of this phase will be to discuss epistemic beliefs held by students and how those beliefs influence learning and achievement. Epistemic beliefs will lead all discussions prior to introduction of learning strategies inside this phase. Strategies will be designed according to those proposed by Weinstein et al. (2011).

 The Performance phase will be based on components of strategic learning strategies as prescribed by Weinstein et al. in the *Self-Regulation and Learning Strategies* chapter of Self-Regulated Learning (Bembenutty, 2011). A list of rehearsal, elaboration, and organizational strategies will be developed and associated by content-specificity. The performance phase is designed as a metacurriculum class where “learning strategies will be placed along a continuum from highly content specific to more content independent” (50) The repertoire of strategies has been amassed from SRL studies by numerous researchers including Zimmerman, Bembenutty, Cleary, Kitsantas, Schunk, Weinstein, Acee, Jung, etc.

 An integral function in this phase is the goal to teach students how to identify their epistemic beliefs and to help them understand how these beliefs shape their learning. The SRL lab will attempt to help them espouse a more constructivist epistemic belief concomitantly with the development of more effective standards for learning. Research by Dahl, Bals, and Turi, reported by Muis (2007) revealed that students who believed knowledge is constructed set standards for learning that are more conducive to using strategies that produce better learning outcomes. Moreover, these learners are better able to identify and apply content specific strategies to produce better learning outcomes

**Phase III: Production.** Help seeking is an adaptive learning strategy and one which social-cognitive and Vygotskian (a child’s cognitive development is necessarily linked to social influences, 1978) view as interdependent with motivation. Help seeking is an important skill, and one that poor learners are reluctant to use unless explicitly directed or mandated to do so. Conversely, motivated students seek help and are confident that it will enhance their learning. Help seeking is an example of how social forms of support can enhance SRL and motivation beliefs rather than detract from them (Zimmerman & Schunk 2008).

Help-seeking strategies inside the SRL learning lab will be guided by goal-direction and intentionality of successful task completion. Lessons to teach help seeking strategy will begin with instruction through conversation and ‘whole’ class instruction regarding knowing when it is necessary to seek help. Instruction will include self-reflection. The design for help-seeking instruction was borrowed from Richard Newman (2008). Newman outlines three sets of questions to teach learners when preparing them to seek help:

1. Necessity of the request…I’m confused: what exactly don’t I understand, have I tried my hardest? Have I exhausted all my non-human resources? If so, then I need to ask for help.

2. Content of the request…what exactly should I ask for? Should I just say, “I don’t understand?” or should I be more specific?

3.Target of the Request… Whom should I ask? Who is most likely to know the answer? Who is least likely to make me feel dumb?

All phases of the SRL lab design are interdependent and cross-interdependent, but none is more dependent than the production phase. It is here that the motivation and cognitive processes influence and is influenced by steps taken toward outcomes (academic success). Help-seeking will be taught explicitly to bring to student awareness the ‘hidden’ processes that illicit help-seeking. The production phase structure has strategies folded into three sections labeled: necessity of help, content of the request and, target of help.

***Necessity of help*** Strategies inside this section will allow students to identify environmental cues that indicate help-seeking is needed and appropriate by learning to analyze homework feedback, errors on quizzes/tests, recognize factors that impact remaining attentive during (need background information for lecture to make sense or the vocabulary is unknown), Cannot take part in question/answer discussion, and self-questioning (“I will get a ­“X” grade on the quiz/exam/test because I…”).

 ***Content of the request.***According to Newman, help-seeking research has focused on informational questions when seeking to operationalize strategies for help-seeking (requests for explanations, hints, confirmations and final answers). The design of this study is guided by these and expects to teach students to “thoughtfully tailor the content and target of a request to meet their specific needs and successfully carry out the request” (Newman, 2008). Content of the request strategies will include teaching students how to identify when they don’t know in order to formulate a question that meets the specific breakdown of knowledge. The strategies inside this phase will include the incorporation of cognitive and motivational processes available (taught in phase I) to activate help-seeking behaviors. Therefore the approach will focus on teaching students to distinguish between “not knowing” and “more information is needed for clarification.” For example, Nelson-Legall (1981) asserts that the questions that student’s level of assistance can be determined by recognizing the type of questions posed: asking for a hint is indicative of “instrumental” help seeking, “I know this but I can’t find it in my memory;” whereas asking for the answer is indicative of executive” help, “I don’t know.” Help seeking is an adaptive process that will be taught to students in the following sequence: 1) seek an explanation, 2) ask for a hint, 3) confirm your answers, 4) ask for final answer, and 5) seek help (Newman and Schwager, 1995.

 ***Target of the Request*.**  SRL Research indicates that students with mastery versus performance orientations are more likely to seek instrumental help as they see help finding as useful for understanding and are not threatened by help seeking. Moreover, the ideal adaptive help seeker understands the best resources available. For the purpose of this study students will be guided to build a list of resources available to them for each content area. The resources list is expected to include textbooks, online websites; help books, peers and teachers.

The SRL environment will be designed to promote students to seek support and be less inhibited to ask for help by creating a supportive environment with teachers they perceive as more supportive (Karabenick, 2004). The design of the SRL lab environment will be guided by the six areas of ‘Mastery Learning Environment,’ MLE, (Task type, Autonomy or authority, recognize outcomes, grouping practices, evaluation of process, and scheduling of time) developed by Ames, (1992). Each MLE area will be coupled with strategies from the general framework by Maehr and Anderman (1993): create tasks that are relevant to the student by using content materials to teach strategies in all phases; guide students to find answers by encouragement and recognizing initiative but ensuring that efforts come to fruition; create and maintain a list of strategies that enhance task-goal emphasis, build-in opportunities for cooperative learning)

**Data Sources & Measures**

Collection of data will encompass pretest/posttest scales to measure cognitive, metacognitive, self-regulation practices and motivation. Motivated Strategies for Learning Questionnaire (MSLQ, Garcia Duncan and McKeachie, 2005; Pintrich, Smith Garcia, and McKeachie, 1991); Data from report cards, assessments, and teacher comments will be gathered and analyzed to report pretest/posttest data.The 2nd edition Learning and Strategy Studies Inventory (LASSI, Weinstein, Schulte, and Palmer, 2002) will be used to measure learning strengths and weaknesses of students’ strategic and self-regulated learning.

A learning styles inventory survey online, Abiator's Online Learning Styles Inventory, will be used to facilitate ongoing discussions for understanding the diverse and domain specific modalities for learning information. It is believed that student ‘buy-in’ may be aided by helping students understand how information is acquired and how this information how the information can be gained through different modalities for recall later (Pahsler et al. (2008).

. In order to answer the questions this study is proposing the data sources have been designed to triangulate the variables of motivation, cognition, and behavior. In addition, school records, teacher surveys and questionnaires will attempt to answer the question of whether students effectively transferred motivational and cognitive changes to other content areas. Finally, the diaries have been designed according to Schmitz and Wiese’s time-series analyses of diary data study. In this study, the researchers used diaries to collect data in phases: pre-reaction, action and post-action. For the purpose of this study the diaries will be used to collect information within all phases: planning, performance and production. More importantly, the time-series diaries will be used to collect data regarding transfer of learned strategies from the experimental research study context into students’ context (homework at home). Although time-series diaries do not afford the “out door” psychology, that research like Stevens et al. (2008) present in their study of *“The Ecology of Games*,” it does provide ecological valid data on daily learning.

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