The impact of a self-regulatory homework intervention with attributional feedback on High School Students’ self efficacy for self-regulated leanring and engagement

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**Abstract**

The purpose of this intervention study is to examine the impact of a self-regulatory training program on academic engagement and self-efficacy. The sample of the study will include 30 high school students in the eleventh grade ages 16-17. The intervention will use goal setting, self-monitoring, self-reflection, and attributional feedback to positively affect self-efficacy for self-regulation and academic engagement toward academic achievement. Homework completion and quality will be used to measure academic engagement. In addition, the study will attempt to operationalize the factors of academic engagement in order to design an early warning system to catch struggling students before academic failure develops. The limitation of the research will be addressed as well as implications for future research, teachers, and school administrators.

The impact of a self-regulatory homework intervention with Attributional feedback on High School Students’ academic self-efficacy and engagement

 Self-regulated learning (SRL) has been demonstrated to be a significant predictor of student academic engagement, as well as having a consistent positive reciprocal relationship with self-efficacy (insert, Bandura Zimmerman, 1986b; Zimmerman & Ramdass, 2011). Self-regulation is defined as the ability to marshal one’s behavior, cognition and affect in an effort to attain a goal. Self-regulated learner are active learners, they employ goal setting to direct their efforts, self-monitor in order to adjust strategies, and self-reflect to provide themselves with feedback to improve their learning. These learners are efficacious about their learning. They are aware of their strengths and weaknesses and reflect on behaviors that impact their learning. Moreover, they can internalize feedback from experts to redirect behaviors. Conversely, students with low SRL skills lack the metacognition to understand how they learn and often exhibit a lack of motivation and self-efficacy. Moreover this latter group often lack the ability to “self-generate thoughts, feeling, and behaviors that are oriented toward performance goals which leads them to utilize superficial learning strategies versus the deep processing strategies adopted by mastery oriented students.

 Both academic engagement and self-efficacy are highly influenced by the processes inside the self-regulation model of learning. Researchers believe that academic engagement is the key to keeping kids in school. Dropping out of school, argue Appleton et al. (2008), is a slow process but reversible with interventions that focus on increasing academic engagement, a predictor of academic performance and very closely related to self-efficacy, the belief in one’s capabilities to accomplish a specific task or activity (Bandura, 1977). Therefore, the purpose of the current study is to examine the impact of a goal setting, self-monitoring, self-reflection and attributional feedback training intervention during homework practice episodes for academic engagement and self-efficacy.

 Alone, factors such as attributions, self-regulation, and homework have been researched exhaustively and found to influence academic outcomes and performance. This present intervention study will document the interconnectedness and the importance of addressing them together in order to affect a change in students' academic engagement and self-efficacy. A brief description of research related to self-regulated learning, homework, engagement, and self-efficacy is provided in the following sections.

**Self-regulation**

 The widely accepted social-cognitive model of self-regulated learning was developed by Barry Zimmerman (2000). Zimmerman’s focus on self-regulated learning (1981) was influenced by his work on of the role of self-efficacy during learning and his research on how the “vicarious experiences influenced learners’ perceptions of self-efficacy regarding their own capabilities and their willingness to persevere during problem solving” (Zimmerman, 2008; Personal interview with Bembenutty, H.).

 Zimmerman’s widely accepted cyclical model of self-regulation learning consists of three phases: forethought, performance, and self-reflection. Each phase consists of variables that interact within and between phases (Zimmerman, 2008). While all variables are critical to the learning process, for the purpose of this intervention study, I will focus on four processes: goal setting inside the forethought phase, self-monitoring which is part of the performance phase, as well as self-reflection and attributions in the self-reflection phase.

 **Goal Setting**

 Goal setting refers to the formulation of specific and challenging goals that lead to task attainment or better performance (Locke, & Bryan, 1968). Research shows that task attainment is significantly correlated to self-efficacy and academic engagement toward achievement because learners use goals to frame how they will approach a task, and how they will respond when learning becomes challenging (Dweck and Leggett, 1988). For example, Zimmerman and DiBenedetto (2010) used a microanalytic methodology to study how 51 high school students with three different ability levels (low, average, high) used self-regulatory processes to prepare for a science test. They discovered that strategic planning conducted early in the learning task was significantly correlated with positive self-regulatory behaviors in the following phases and ultimately with positive outcomes.

 More evidence for the positive effects of goal setting for academic engagement is offered by Martin (2011) who reports that persistent academic engagement of 7,637 high school students from 14 Australian schools was positively affected by the adaptive behavior resulting from goal setting. The studies structural equation model (SEM) showed positive intentions, goal setting, played a mediating role in student persistence and a deterrent role for avoidance and helplessness behaviors. Moreover, this study supports the idea that self-regulated learners are more efficacious about their academic outcomes. An additional study by Spinath and Steinmayr (2012) with 348 eleventh grade German high school students substantiates this finding. They also found that learning goals predict intrinsic motivation to affectively evaluate an activity.

**Self-Monitoring & Self-Reflection**

 While goal begins the process toward self-regulation, monitoring moves it along. Monitoring & self-reflection are effortful processes that create standards to define the target goal and select and adapt cognitive strategies to effectively inform changes in the learning pattern of learners (Winn, 2011). The feedback gained from monitoring elicits a self-reflection process to alert learners of the possibility that adjustments to the goal, the strategies, or the environment may be needed in order to attain the goal (Wigfield, Klauda, & Cambira, 2011).

 Researchers agree that monitoring one’s progress is a key process of self-regulation that allows learners to make ongoing adjustments in their learning behaviors to improve outcomes. (Kitsantas, 2010; Lan, 1996; Pintrich, 1999; Shapiro, 1984, and Zimmerman, 2008). In fact, Hadwin and Webster (2012) found that student judgments gained from monitoring their performance increased their academic self-efficacy significantly. In their study of 170 college students in a college course designed to teach students life-long self-regulating skills, they found that monitoring learning progress positively predicted student self-efficacy.

 In addition to increasing self-efficacy perception in students, frequent self-evaluation has also been shown to produce higher expenditures of effort from students. For example, Bouffard-Bouchard et al. found that high school students who reported feelings of higher self-efficacy persisted longer on task and obtained higher performances then those students who did not persist. One significant finding associated with performance was the importance for students to accurately evaluate their abilities to effectively problem solve. Therefore, it is critical that students approach learning with a plan to effectively engage in self-regulated learning.

 **Attributional feedback**

The reasons learners give themselves and others for the outcomes they attain are known as attributions. Attribution theorists define attribution as subjective inferences implicating causality (Stoeger & Ziegler, 2011; Weiner, 2005). Sources of attributions derive from the types of inferences made by learners. “Adaptive inferences guide learners to new and better forms of self-regulation” (Stoeger & Ziegler, 2011) While defensive inferences suggest to learners that the cause of a failure lies within an uncontrollable variable such as luck or lack of ability or intelligence. A study by Zimmerman and DiBenedetto (2010) reported a difference in self-efficacy and academic engagement related to attributions and self-reflection. In this study, reported earlier, they found high achievers were more likely to attribute their performance to strategies and exhibited more adaptive learning behaviors as compared to students in the low or average achievement levels.

 The implicit theories held by learners play an important role in shaping self-regulated learners. For instance, learner's beliefs about intelligence influences the internal standards they use to create goals, exert effort toward attainment, and persist in the face of difficulty (Muis, 2007; Shunk, 2001; Zimmerman, 1998).  A student who believes they are ‘smart’ is more likely to exhibit confidence in their ability to learn and exhibit resilience when they fail at a task. Inversely, a student with an entity view of intelligence will tend to believe that ‘smart is something you are born with and cannot be learned.’ Learners who believe intelligence is fixed are likely to exhibit maladaptive learning behaviors such as avoidance of challenges; adoption of strategies aligned with rote learning versus deep processing; and, are more likely to attribute failures to uncontrollable externals, while attributing success to ‘luck’ or ease of task.

 Some studies show that a significant link exists between attributions and academic engagement and self-efficacy on performance. For example, using attributional retraining treatment, Stewart and her colleagues (2011) were able to explain 25% of the variance for student failure in a college freshman psychology course. The experimental research with 661 college students (140 in treatment group, 521 in control group) affirms that when students receive attributional feedback, they are more likely to adjust their learning behavior toward academic engagement in order to yield positive outcomes (73% of the students less likely to fail then the control group). For the students in the treatment group, the attributional feedback allowed them to restructure their explanations for poor performance (lack of ability, test difficulty, bad luck) to controllable attributions such as effort and choice of strategies. One conclusion drawn from this study is the importance of including attributional feedback to intervention research designs to include a comprehensive approach for addressing the sources that inform self-regulatory processes that leverage self-efficacy and academic engagement.

 **Homework**

 Homework for the purposes of this study is defined as any task assigned by the teacher and carried out at non-instructional time (Bembenutty, 2011). The purpose of homework is deemed to have positive effects on students’ academic trajectory (Cooper, 1996, Bembanutty 2009, Kitsantas & Zimmerman 2009)). Furthermore, research on homework indicates that in addition to offering academic improvement, it also promotes self-regulation. Opponents of homework argue that it leads to physical and emotional fatigue. While this is a realistic outcome for many activities, education research indicates that self-regulated students are able to plan, organize and prioritize homework completion resulting in less emotional and physical fatigue, as well as a reduction of time on homework. For instance, Xu (2010) explored the association of homework and time management. Using self-reported grades and surveys it was discovered that 1,046 students’ (8th and 11th grade) time management was positively influenced by the target goal of grades (10% variance) and planning & organizing of the material and place for studying (48% variance). In addition, she discovered that time management proved a strong pathway to homework completion (63% of variance explained).

 Similarly, Kitsantas, Cheema, and Ware (2011) attempted to identify the relationship of homework and time management, as well as the predictive power of homework on achievement from a sample of 5,200 15-year-old students from 221 schools. The results indicated that the frequency of time, not the quantity, spent on mathematics homework improved achievement. In addition, these researchers reported that math efficacy was associated to students’ mathematic achievement. These findings support the efforts of the current study in utilizing homework as a variable for predicting academic self-efficacy and engagement.

 Therefore, the purpose of the current study is to examine how a homework self-regulated learning program will contribute to the academic engagement and self-efficacy of high school students’ math achievement. It is hypothesized that student homework completion rate will increase, followed by an increase in mathematics GPA. It is also expected, that a correlation exists among homework completion, elf-efficacy for self-regulation, and academic engagement .

Yes, add research questions here.

**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 placed into a SRL course and will meet 5 of 7 school days for three months.

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 1 teacher/researcher 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 30 adolescents; twenty-five percent will be students with learning disabilities.

**Teacher**

 SRL course will be led by one (1) special education teacher/researcher licensed to teach special education employed by the school.

**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).

**Measures**

 **Personal data questionnaire**

To be developed.

 **Semi-structured Interviews about?**

Interviews (Fredericks, J., McColsky, W., Meli, J., Montrosse, B., Mooney, K., Mordica, J., 2011).

 **Academic engagement measures**

Student School Engagement Scale/Questionnaire with a Cronbach’s alpha of .74-.86 (SEQ, Dornbucsh & Steinberg, 1990);

 **Self-efficacy for self-regulated learning**

Self-efficacy survey SELF, adapted from Zimmerman & Kitsantas, 2007)

**Observation about**

The Behavioral Observation of Students in Schools (BOSS) will be used to collect observational data on engagement using five categories: active engagement, passive engagement, off-task motor, off-task verbal, and off-task passive. BOSS has an interrater reliability of .90–1.00 and is validated by construct and criterion related. Interviews will be recorded and the data transcribed for coding.

**Materials and Procedures**

 To be determined: however, it will include modules for each of the processes to be addressed. The modules will begin with attributional exploration and training inside phase 3 of the SRL model.

**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 measuring student academic engagement and self-efficacy through the acquisition of strategies to develop self-regulated learning for homework.

**Experimental Intervention –here you need to describe the intervention**

**Data Analytic Approach**

* 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
* T-test for independent samples

**Expected Results and Limitations**

            One limitation of the study will be the use of academic engagement as related to global measures such as self-efficacy. There seems to be a limited number of researchers who have looked at these measures together. Another limitation of the study will be trying to avoid a method variance between rating and observation measurements.

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