eyRunning Head: High School Students’ Attribution Beliefs on Goals, Engagement, and Achievement

The role of Learning Beliefs on the acquisition of Self-Regulated Learning and Academic Achievement of Students Transitioning to High School

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**Abstract**

The purpose of this experimental study is to examine the primacy of attribution beliefs in initiating the self-regulatory component of goal setting to promote motivation for academic engagement and academic achievement (Graham & Weiner, 2010; Ford, 2001). It is conjectured that stressful life experiences (such as transitioning from middle school to high school) could be the source of negative attributional styles that lead some students to a downward academic trajectory. The sample of the study is 60 high school students in the 9th grade, 14 to15 years old. The variables studied include attribution styles, goals, academic engagement and academic achievement. Homework completion and homework quality are used to measure academic engagement, while exam grades and GPA are used to measure academic achievement. The limitation of the research will be addressed, as well as implications for teachers, school administrators, and future research.

 The role of Learning Beliefs on the acquisition of Self-Regulated Learning and Academic Achievement of Students Transitioning to High School

 The reasons learners give for academic successes or failures (causal attributions) influence their future expectations, motivation, and emotions (Weiner, 2008). Furthermore, learners who attribute their success or failures to internal (ability as malleable) and controllable (e.g., effort) causes are more inclined to feel efficacious about school and more inclined to use self-regulatory processes like goal setting than their peers who claim internal (ability as stable) and uncontrollable (e.g., luck or difficulty of subject) causes for their success or failure (Schunk, 1994). When learners recognize, appreciate, and understand their academic ability as unstable they are able to engage in appropriate actions (e.g., goal setting) and engender a greater sense of control over academic behavior and more motivation to achieve (Mccombs & Marzon, 1990; Stewart et al., 2010).

**Literature Review**

**Students in Transition**

 The period between middle to late Adolescence is marked by an increase in stressful life events due in part by the biological and psychological changes, as well as by the social forces encountered by 15 to 18 year olds (Berk, 2013; Rodriguez-Naranjo & Caño, 2011). Students transitioning to high school are especially at risk of experiencing a decline in self-esteem and academic achievement during this period as they are not only experiencing the developmental changed unique to this stage but are also undergoing a stressful life (**Benner, 2011;** Wallis and Barrett, 1998; **Wigfield, Eccles, McIver, Reuman, & Migdley , 1991).** A number of studies have found an accumulation of disadvantages for adolescents who struggle at this transition period continue throughout high school **(Benner & Graham, 2009; Nield et al., 2008; Roderick 2003).** Therefore, it is important for students’ academic future to negotiate this period effectively.

 Clearly, not all students succumb to the pressures of the high school transition. While some students show resilience in the face of challenge, others fold under the pressure of the new environment, increase importance in grades, and an increase in the work requirements. Some motivation theorists suggest that the core beliefs held by students shape their responses to challenges (Dweck, Blackwell, Trzesniewski, 2007). For example, some students may see challenges as setbacks to be overcome, while others may not overcome the difficulties without the help of others.

**Attribution Beliefs**

*Negative beliefs [constructed from experiences] trigger negative perceptions and emotions resulting in both nonfunctional thinking and* behaviors (MCombs & Marzano, 1990).

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 Perry and Weiner (2010) report that dysfunctional attributional thinking (reasons for success or failure to internal, stable, and/or uncontrollable causes) erodes goal striving, the purpose or reasons that learners use to persist in the face of failure (Stewart et al., 2010; Pintrich, 2000). Students at the crucial junctures between middle school and high school (Nield, 2009) are especially vulnerable to maladaptive attribution beliefs. At this transitional period, students may exhibit lower grades, anxiety, and an inability to manage the workload in comparison to middle school **(Akos & Galasssi, 2004; Letrello & Miles 2003).** Clearly, an intervention focused on making meaning of past experiences to revise dysfunctional attributional styles, a significant risk factor for the development of maladaptive behavior, can have long-range effect for high school students’ academic engagement and academic achievement.

 According to Weiner (1979), causes for success and failures are represented along three dimension: internal or external to the individual, stable or unstable over time, and controllable or uncontrollable by the individual. Effort is regarded as internal, controllable and stable. Ability on the other hand is internal, uncontrollable and unstable. Success attributed to stable causes results in higher expectations than attributing success to unstable causes. A learner’s affect (e.g., pride or shame) is influenced by the attribution of success to internal (e.g., effort) or external (e.g., luck) causes. The choices of tasks, effort, persistence and achievement depend on learners’ perception of how much control they have over academic outcomes.

**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 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 &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 leading to positive outcomes.

 More evidence for the positive effects of goal setting for academic engagement is offered by Andrew 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 and 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. These researchers found that learning goals predict intrinsic motivation to effectively evaluate activities toward goals. This study found that the motivational effect of goal setting is a strong predictor of academic success. Therefore, the present study hopes to initiate effective goal setting by helping students make adaptive attributions for success or failure in order to encourage students to sustain academic engagement and academic achievement.

**Academic Engagement-Behavioral engagement**

Researchers agree that academic engagement is a ‘messy’ construct (Appleton et al. 2008) that holds the key to keeping kids in school. Dropping out of school, argue these researchers 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).

 Defined as the “degree to which students are ‘connected’ to what is going on in their classes” (Steingerg et al., 1996, p. 131), academic engagement is largely conceptualized as a tripartite dimension of behavioral engagement (attendance, grades, homework quality/completion, attending,), emotional engagement (positive/negative reaction to failure), and cognitive engagement (autonomous purposeful activities/effort toward mastery) (Fredricks, Blumefeld, & Paris, 2004).

 A number of research studies show a significant link between engagement and academic outcomes, however, research has yet to thoroughly conceptualize the factors of academic engagement partially because engagement is difficult to quantify. For instance, Helme and Clarke (2001) used a qualitative approach to find behavioral indicators of cognitive engagement (the thinking that happens in preparation for learning) by analysis of video recordings. These researchers recorded 54 mathematics lessons over a three-year period involving three teachers and 24 student interviews. As a result of the data they reported five behaviors that indicated cognitive engagement at the individual level (verbalizing thinking, self-monitoring, concentration, gestures, and seeking information and feedback), six at the small group level (questioning, completing peer utterances, exchanging ideas, giving directions, explanations, or information, justifying an argument, and gestures). At the whole class level Helme and Clarke submit four factors behaviors that indicate engagement: asking and answering questions, making evaluative comments, contributing ideas, and completing teacher utterances. It is important to note, that engagement sits on a continuum in which the behaviors that indicate engagement span from superficial engagement to active engagement.

 In another study, Harris (2011) attempts to define the factors of engagement through the collective understanding of teacher perspectives. In this phenomenographic design study, Harris interviewed 20 secondary English teachers from three state schools in Queensland, Australia. The semi-structured interviews identified six categories related to how teachers define student engagement, i.e., behavior (participation and rule following), enjoyment (interest), motivation, thinking, seeing purpose (value), and owning learning (SRL). Teachers in this study operationalized behavioral engagement as asking questions and ‘doing’ what is asked of them (students). Like Harris, Andrew Martin (2006) sought to operationalize academic engagement by developing a scale to assess motivation and academic engagement, termed the Motivation and Engagement Scale (MES).

 In a 2008 study, Martin used the MES for high school students (MES-HS) to investigate the effect of an intervention on the motivation and engagement of 53 male high school students from a large independent boys school in Sidney Australia. The study targeted students identified by teachers as under performers. Martin used the MES-HS to identify cognitive and behavioral dimensions from which to measure student motivation and engagement. The intervention was composed of 11 modules providing students with training for revising beliefs about self-efficacy, task value, goal orientation, planning, monitoring, persistence, anxiety, control, avoidance, self-handicapping behaviors, and disengagement. This study reflected the three phase self-regulatory model in that each module contained key strategies of SRL. These included defining a task and setting goals (Phase I in SRL), self-reflection (Phase II in SRL), and receiving feedback from the mentor/teacher (Phase III in SRL). According to Martin, this multi-dimensional intervention yielded positive results when comparisons were made between the intervention group and comparison group’s pre- and post-test scores. The results showed significant differences in motivation and engagement between the two groups. The largest effect was in the feeling of control (agency), while value of task, monitoring, affect, and avoidance showed a medium effect. Martin’s findings are significant in that it shows the effectiveness of targeting specific behaviors rather than focusing on the outcomes, as the present study’s focus (goal setting and homework submission).

 In a second study, Martin (2012) again used the MES-HS, but in this study he sought to examine the role of personal best goals, ‘self-referenced targets’, in achievement and behavioral engagement of 87 junior and senior high school students (N = 29, with Attention Deficit Hyperactivity Disorder) from a major urban area of on the East coast of Australia. He found a significant effect for engagement and achievement on homework completion, planning and monitoring, task, management, persistence, and disengagement for both sets of students. However, when controlling achievement, differences between the groups emerged. Four of the six dependent variables exhibited a stronger relationship for students with ADHD (homework completion, persistence, self-handicapping behaviors, and disengagement). Conversely planning and monitoring as well as task management was stronger for student without ADHD. The findings reveal that there may be benefits for implementing an intervention such as the one in this proposal. The significant and positive association between PB goals and academic outcomes may indicate that increasing goal setting may support higher academic gains for students with ADHD by promoting academic engagement behaviors, i.e., homework completion.

 As the literature thus far indicates, attributions, goals, and engagement are intricately associated to academic engagement. The present study aims to examine these elements inside an attributional retraining intervention study.

**Attributional Retraining**

Attributional Retraining aims to “foster adaptive explanatory thinking” (Haynes et al. (2009) to improve student self-responsibility for academic outcomes. Studies conducted with students transitioning to college show strong evidence that AR improves academic achievement for these students(Appleton 2001, Ford, 2001; Hall et al., 2007; Hudley, Mega et al., 2013; Perry et al., 2010; Stewart et a., 2013). The results of these studies indicate that after attributional retraining students who learn to recognize outcomes as a result of effort, rather then ability, are more likely to be academically successful.

 A search of AR studies at the high school level reveals that most studies focus on establishing the ‘link’ between attributions on self-regulation and academic achievement **(McClure et al., 2013; Swinton et al., 2011; Wolters et al., 2013)** rather than attribution revision effects. One study that focuses on AR, rather than the link between attribution to academic, evaluates an attributional retraining conceptualized in the social-cognitive approach of modeling **(Bandura)**. Ziegler & Stoeger (2004) presented 379 high-achieving fifteen-year olds with a video featuring an interview of two former chemistry students. The ‘Expert’ interviewer (psychology professor) led the students in a discussion of their experiences with the subject of chemistry. The student viewers were exposed to three main ideas for revising their attributional thinking: (1) success and failure are controlled through effort, (2) “when the correct attitude is maintained anyone can reach the goals they set for themselves, (3) and for this reason, occasional failure is not cause for resignation.” The researchers report that while the boys in the study showed no change in attribution style or academic achievement, the training generated a significant improvement in the attributional style of the girls who had a tendency to attribute their achievement to controllable causes and were less likely to explain failures with stable causes. The researchers believe that attributional retraining leveled out gender differences in chemistry instruction for the girls who faced stereotype-threat environment behaviors **(cite)**. While gender-specific effects of AR are not substantiated by research **(Ziegler & Shober, 2000)**, this study reveals the important influence that AR training presents for students who engage in the learning process in a minimal way due to dysfunctional attributions.

 Another study exploring the effects of AR at the high school level, Berkley, Mastropieri & Scruggs (2011), coupled attributional retraining with a reading comprehension intervention for students with mild learning disabilities in grades 7-9 and found that AR influenced student academic achievement. These researchers report that students who received a 4-week reading comprehension intervention along with 120 minutes of AR showed that effort attributions for success could be altered. Moreover, Berkley and her colleagues found that students who received AR persisted more strongly after the instruction ended, the effect size of AR group remained higher (1.21) at 6-week delay posttest than the group who only received reading comprehension strategies (.71). These results show how students with mild learning disabilities who often face a more difficult time transitioning to high school than their peers without learning disabilities **(cite)** benefited from AR training.

Like Berkley et al. (2011) this present study proposes to couple attributional retraining with a goal setting intervention to improve student academic engagement and academic achievement. The self-regulatory component of goal setting is situated in the forethought phase of Zimmerman’s (1981) three-phase model for self-regulated learning.

 Zimmerman’s widely accepted three-phase cyclical model of self-regulation learning consists of the forethought, performance and self-reflection phases. In the forethought phase, learners ‘think’ about ‘why’ and ‘if’ a task is worth doing. They set goals and make a plan for ‘how’ the goals will be accomplished, and ‘what’ strategies will be needed to attain the task. The strategies are used in the performance phase. In this second phase of SRL, learners use the cognitive plan from the forethought phase to perform the actions necessary for achieving the goals. In the self-reflection phase, learners compare their performance to the standards set in the forethought phase. If learners are satisfied with the results, they will continue to use the methods they devised in phase I; if they are not satisfied with the outcome, they will make the necessary adjustments to the goals and plan for completing tasks. 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, we will focus on goal setting inside the forethought phase.

To our knowledge, no research has attempted to investigate the effect on academic engagement and achievement by unifying the self-regulatory process of goal setting and attributional retraining at the high school level. In fact, we propose to extend the research initiated by researchers of social psychology who have studied AR extensively in the college transition setting. According to these researchers, more research is necessary that details how specific learning behaviors improve academic learning **(Hayesnes et al., 2009 MORE)** . Therefore, in the present study we focus on transitioning high school students and how an attribution-revision intervention will affect self-regulation (goal setting), academic engagement and academic achievement. We are also interested in determining whether attribution retraining changes improves the types of goals high school students devise, and whether these goals lead to greater academic engagement and improved GPA.

The questions this study hopes to answer include:

1. Do students in an attribution retaining program set more specific and challenging goals that lead to task attainment or better performance than their peers who do not receive attribution retaining?
2. Does an attribution retraining intervention affect academic engagement over and above goal setting?
3. Does an attribution retraining intervention affect academic achievement over and above goal setting?
4. For whom does the attribution retraining intervention matter most?

 It is hypothesized that the intervention group will show higher levels of goal setting, academic engagement, and achievement than the comparison group. It is also expected, that low performing students will show a higher increase in these variables than their higher performing peers. In addition, we expect to see a correlation between attribution style and goal setting; as well as attribution style and academic engagement/achievement.

**Methods**

**Participants**

 Participants consist of a convenience sample of 60 ninth-grade high school students enrolled in Human Development course at a private school in a suburban area of a major east coast city in the United States. The school has a population of approximately 508 students, predominantly white, from the upper socioeconomic status.

**Students.** Data will be reported from 60 adolescents (ages 14-15); all students will be fluent English speakers. Students with Learning Disabilities (LD) in the 9th grade make up 32% of that grade level’s population (17) and will be included in the population.

**Design.**  This study can be considered a 2 (Attribution retraining with goal setting and goal setting with no attribution retraining) X 2 (average students and low average students) between-subjects factorial design, because there are two independent variables. The intervention has two levels, AR and NoAR. The student condition has two levels: average (A/B) and low average (C and lower). The dependent measures are goal setting, academic engagement (homework submission and quality) and academic achievement GPA.

**Measures**

All measures will be included in one survey to be administered electronically. Demographic data will be displayed first, followed by items aimed at measuring attribution beliefs, goal setting and academic engagement.

 **Personal data questionnaire**. A brief questionnaire developed to obtain information of participants’ age, year in school, grades achieved, and ethnicity.

 **Attribution Style Questionnaire- Adolescents (ASQ-A).**  The ASQ-A is a modified version of the Attributional Style Questionnaire (ASQ) with 54 items corresponding to 18 hypothetical events. The ASQ-A assesses attributional style in adolescents (Rodriguez-Naranjo & Caño, 2010). The internal consistency is considered satisfactory with an alpha coefficient of .68 to .87.

 **Academic engagement measures**. The Motivation and Engagement Scale for High School (MES-HS; Martin 2008b) is comprised of five behavioral engagement scales (three adaptive dimensions and two maladaptive dimensions) with four items each. The scale consists of a total of 20-items on a 1 to 7 likert scale aimed at measuring high school students’ motivation and behavioral engagement in the areas of planning and monitoring, task management, persistence, self-handicapping, and disengagement. The reliability coefficient for range from .77 to .89. An additional measure of behavioral engagement related to homework completion will consist of 3 items assessed as open-ended items.

 **Goal Setting Questionnaire (no-treatment group).** In order to measure goal progression, we developed a questionnaire in the format of Metalsky et al.’s (1987) Aspiration Questionnaire (AQ). After receiving G training, participants will be asked to indicate prior grades attained in English, math, and history and to set future grade goals on a 1-13 scale (i.e., F, D-, D, D+…B+, A-, A, A+) that they will aspire for in the coming quarter for these subjects. In addition, students will be asked to consider what may keep them from attaining the goal and to identify three-strategies they can use to improve goal attainment (*what things can you think of that may keep you from meeting your goal?” “List at least 3 action steps necessary to attain your goal.”*

 **Attribution and Goal Setting Questionnaire (treatment group).** In order to measure attribution and goal setting progress, we developed a questionnaire in the format of metalsky et al.’s (1987) Aspiration Questionnaire. After AR/G training, the treatment group will be asked to indicate prior grades attained in English, math, and history and to consider the behaviors that contributed to the grade, (*“What contributed to your grade in this subject?” ”Think about how you studied, prepared for tests, contributed in class…what can you do differently this quarter?” “What will you continue to do that worked for you last quarter?”).* Following the evaluation of past experiences, the treatment group will be asked to set grade goals on a 1-13 scale that they will aspire for in the coming quarter in English, math and history. In addition, students will be asked to consider what may keep them from attaining the goal and to identify three-strategies they can use to improve their chances that they will attain the goal set (*what things can you think of that may keep you from meeting your goal?” “List at least 3 action steps necessary to attain your goal.”*

 **Measurement of Progress Toward Goal.** A goal monitoring questionnaire was developed to measure goal progress. All participants will be asked to indicate their progress toward goal for each subject on a scale from 0-3 scale (0=lower than goal, 1=almost reached goal, 2=goal reached, 3=excellent).

 **Measurement of Progress Toward Goal and Attribution.** A goal monitoring questionnaire was developed to measure goal progress. All participants will be asked indicate their progress toward goal for each subject on a scale from 0-3 scale (0=lower than goal, 1=almost reached goal, 2=goal reached, 3=excellent). AR/G participants are asked to write the major cause for their success/failure, *i.e., “What contributed to your goal progress?” “Is there anything that needs to change in your approach to this class (i.e., organization, planning, study habits, classroom behavior, test preparation)?”*

**Particular Attribution Questionnaire (PAQ).** The PAQ is a modified version of the Attributional Style Questionnaire(ASQ) created by Metalsky et al. (1987) with a reliability coefficient of alpha .81. the PAQ measures the same attributional dimensions and scales as the original ASQ, but participants are asked to think about a recently experienced ‘real’ situation and grade the cause of the situation according to the dimensions of internality, stability, and globality.

**Procedure**

Participants are 9th grade students in two sections of a mandatory human development class, treatment and no-treatment group, and will receive partial credit for participation. The treatment group will receive an attributional-retraining (AR) and goal setting (G) training, while the no-treatment group will only receive goal setting training. The treatment protocol will occur in five phases (Haynes et al., 2009), see figure 1. In phase 1 a survey will be administered to both groups to collect biographical, attributional style, and academic engagement information to be used as a baseline for analysis of data. In phase 2 (two days later) treatment group will undergo causal search activation by reflecting on performance to date in math, history, English, and science classes and reflecting on the behaviors that caused the grades. Attribution reflection will be followed by goal setting training. The no-treatment group will receive only goal setting training: a review of grades achieved to date in math, history, English and science followed by an exercise on how to set more challenging goals that are Specific, Measurable, Attainable, Realistic, and Timely (SMART). During phase 3, the induction, participants are presented with attributional content in the form of a video interview with two high school seniors who discuss their high school experience. They discuss ability versus effort; controllable versus uncontrollable elements of learning, and how revising attributional thinking can change academic behaviors. Following the student discussion, a commentator **(??)** reviews the discussions and concludes with the importance of internal, controllable, and unstable attributions for academic success.

 Phase 4 is designed to consolidate and reinforce AR and goal setting. Treatment group is given two handouts (attributions and goal strategies). The attribution handout is a two-column list of adaptive and maladaptive attributions, while the goal strategies handout is a list of strategies for goal setting. Students are asked to tick the attributions they most often use to explain their performance, this is followed by a discussion on the internal, controllable and unstable reasons that support academic behaviors for success (30 minutes). The goal strategies handout lists the adaptive and maladaptive strategies most often used to achieve goals. Students are again asked to tick the strategies they use. This is followed by a discussion on how goal setting promotes effortful learning. The NoAR group is only exposed to the goal strategies handout.

 In the final phase of the intervention (phase 5) participants are administered a posttest to assess treatment outcome.



Figure Adapted from Haynes et al. (2009)

**Phase 1: 45 minutes**

Time 1 measure**:**

Treatment No Treatment

**ASQ-1 & MES-HS administration ASQ-1 & MES-HS administration**

**Phase 2: (two days later) 1 hour**

Treatment No Treatment

(1) Video attribution theory/discussion (1) Goal setting training

(2) Goals setting training (2) Regular classroom instruction

(3) Regular classroom instruction -Human development

-Human development

**Phase 3: (three weeks later) 1 hour**

Treatment No Treatment

(1) Goal progress /attribution for success (1)Goal strategies list/discussion

failure reporting

(2) Goal strategies list/revision of goal discussion attainment

**Phase 4: (end of quarter)**

References **(in progress)**

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