USING ACADEMIC CONTROL BELIEFS TO PREDICT COLLEGE STUDENTS' SELF-REGULATED LEARNING BEHAVIORS

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Abstract- This study examined whether and to what extent college undergraduate students' academic control beliefs can predict the learning behaviors they take when carrying out academic tasks. The purpose of this study was to better understand what kinds of learning behaviors internal students demonstrate that may lead to their overall high achievement. Undergraduate students (n=152) from various disciplines at a Southeastern public university in the United States volunteered to participate. The results indicated that academic locus of control beliefs was a strong predictor of academic self-efficacy and time management for routine, recurring tasks, but not time management for long-term, nonrecurring tasks. Implications of the study and future directions were also discussed.

Index Terms- Locus Of Control Beliefs, Self-Regulated Learning Behaviors.

I. INTRODUCTION

As more and more students enter colleges in the United States, the number of students who are academically underperformed for college-level work is increasing [9]. One factor that influences students' learning is the typical behaviors students exhibit when they are studying [3], [19]. This study examined the importance of various learning behaviors carried out by college students. Furthermore, the study examined whether and to what degree one psychological attribute, *locus of control,* can predict students' learning behaviors.

A. Self-Regulated Learning Behaviors

Learning behaviors are the actions students take to reach their learning goals when carrying out academic tasks [8]. This study examined students' learning behaviors using self-regulated learning theory [1], [19]. According to this theory, self-regulated learning is a self-directive process during which learners take controls of and evaluate their own cognitive, motivational, and behavioral endeavors in order to accomplish academic goals. Self-regulated learning focuses on autonomy and mindfulness. Self-regulated learners are likely to monitor and reflect on their own behaviors [20], manage their time effectively [11], and adjust their behaviors when having poor academic outcomes [20]. Self-regulated learners also actively control their emotions and attitudes by maintaining academic self-efficacy [11] and changing the values they place on academic tasks [5].

Existing literature has repeatedly supported that improving students' self-regulated learning behaviors is an effective way of producing better academic performance [12], [15]. Indeed, self-regulated learning behaviors predict academic performance

independently of several exemplary predictors of performance such as cognitive ability and prior academic achievement [1], [19]. However, learning behaviors, like any other kinds of human behaviors, are complex. The actual learning behaviors that learners choose to take could be influenced by many factors. Among these factors, one psychological construct that researchers have often sought to understand human behaviors is individuals' personal control beliefs, namely locus of control.

B. Academic Locus of Control Beliefs

Locus of control refers to individuals' beliefs in the degree of control that they can exercise over the outcomes [13]. Learners may believe that they can produce responses that lead to desired academic outcomes, which is considered internal academic control beliefs; or they may feel that the academic results are decided by powerful others or caused by fate, known as external academic control beliefs [13]. Highly internal students perceive academic outcomes consistent with their own behaviors, and thus they are responsible for the outcomes. Learners with high external control beliefs consider academic outcomes as caused by certain factors beyond their controls. Therefore, they are not responsible for the outcomes. Noteworthy, locus of control beliefs are domain specific. That is a person can be internal in one domain/area, but external in another domain [13].

Many previous studies have shown a significant relationship between locus of control and academic achievement [4], [14]. However, they contribute little to understanding of why such an association exists unless we know what kinds of behaviors internal students demonstrate that may lead to their overall

high achievement. Surprisingly, so far only a few studies have examined academic control beliefs and learning behaviors together. For instance, significant correlations between internal control and verbal class participation, study time, and homework completion have been found [18]. A positive correlation of internal control and time management was reported by some researchers but not by others [6], [7]. Researchers also found a connection between internal control beliefs and self-perceived academic competence [10]. In sum, mixed results suggested further research should be done on the same topic.

II. THE PRESENT STUDY

This study was undertaken to better understand whether and to what extent undergraduate students' academic control beliefs can predict the learning behaviors they take when carrying out academic tasks. A large body of literature has demonstrated a significant association of academic performance with academic control beliefs. However, only a few studies have examined the relationship of academic control beliefs and students' learning behaviors, that is, what internal/external students actually do when they study. The purpose of this study is to contribute to the understanding of what kinds of learning behaviors internal students demonstrate that may lead to their overall high achievement. The author expected that the students who believe they have ultimate control over their academic outcomes be likely to utilized self-regulated learning behaviors. By contrast, those who believe the academic outcomes are beyond their own controls are probably reluctant to adopt effective learning behaviors.

III. METHOD

A. Participants
The study took place at a large public university in the Southeast of the United States. One hundred and fifty-two undergraduate students (96 women, 63%) volunteered to participate in this study. All participants were enrolled in Bachelor degree programs. Participants' ages ranged from 18 to 50 years old ($M = 23.93$, $SD = 4.89$). Participants were from a variety of disciplines including education (47%), STEM (science, technology, engineering, and mathematics, 31%) business (15%), and other areas (7%). The majority of the participants (80%) were full time students.

B. Procedure
After obtaining the approval from the university Institutional Review Board and the permission of course instructors, the researcher went to different class sessions to administer the questionnaire. The researcher gave a brief overview of the study and asked students to read consent information. Students wishing to participate completed the questionnaire at their own pace, taking approximately 15 minutes.

C. Measures
Academic Locus of Control Beliefs. The *Academic Locus of Control Scale* was used to measure students' personal control beliefs in the academic domain [17]. This instrument was chosen because domain-specific locus of control scales tend to have stronger correlation with specific behaviors in the same domain than generalized scales do [13], [16]. *Academic Locus of Control Scale* (ALC) is a self-report questionnaire designed to measure beliefs in personal control over academic outcomes. This instrument consists of 28 true-false items, with both internally orientated and externally oriented statements. The scores of the inventory range from 0 to 28, with higher scores indicating a preference toward external locus of control. ALC is a well-established academic control measure with a Kuder-Richardson 20 reliability coefficient of .70 and test-retest reliability of .92 after a 5-week interval with college students [17].

Self-Regulated Learning Behaviors. The *Study Behavior Inventory* was used to measure students' self-regulated learning behaviors [2]. *Study Behavior Inventory* (SBI) is multi-dimensional instrument with 46 self-report items that measures various learning behaviors of college undergraduate students. Participants respond to a series of statements on a 4-point scale based on how often a specific statement applies to them, ranging from 1 = rarely or never to 4 = always or almost always. The three dimensions of the instrument include (a) feelings of academic self-efficacy, (b) management of time for routine, recurring tasks, and (c) management of time for long-term, specific, nonrecurring tasks [2], [3]. SBI is a well-established measure with Cronbach's alpha estimates for the three factors of the instrument ranging from .70 to .86 [2]. Another indication of the construct validity of the instrument is that students' SBI scores strongly predicted their grade point averages [2].

IV. RESULTS

All analyses were conducted using SPSS package version 22. Descriptive statistics (Table 1) and correlations (Table 2) among all variables are provided. Multivariate multiple linear regression was employed to examine the predictive power of academic control beliefs on the three dimensions of self-regulated learning behaviors. As outcome variables, academic self-efficacy, time management for routine, recurring tasks, and time management for long-term, nonrecurring tasks were regressed on academic control beliefs.

The results indicated that academic locus of control beliefs was a statistically significant predictor of the three dimensions of self-regulated learning behaviors (Table 3). The effect of academic locus of control on each of the three dimensions of self-regulated learning behaviors was further decomposed (Table 3). Academic locus of control was a strong negative predictor of academic self-efficacy ($\beta = -.66$) and of time management for routine, recurring tasks ($\beta = -.61$). In other words, the more individuals hold beliefs of internal control, the more likely they exhibit high self-efficacy and the better they manage their time for working routine and recurring academic tasks such as homework and weekly readings. Interestingly, academic control beliefs only weakly (marginally statically significant) predicted how well individuals manage their time for long-term and non-recurring academic tasks such as term paper and final exams.

V. IMPLICATIONS AND FUTURE DIRECTIONS

By examining academic locus of control beliefs and self-regulated learning behaviors together, this study was able to reveal what internal students actually do when carrying out academic tasks. Specifically, students who have internal academic control beliefs are more self-efficacious. As Bandura [1] pointed out, beliefs of personal competence (i.e., self-efficacy) affect individual's level of performances, the efforts one puts into the task, and persistence in the performances. If students feel they have personal control of outcomes, they may very well be willing to devote more efforts to the given task, not give up easily when facing obstacles, which may lead them to feel more competent in accomplishing an academic task (i.e., high self-efficacy).

Additionally, the current study showed that internal students manage time for short-term routine academic tasks more effectively than external students do, which is similar with Janssen and Carton's findings that students with internal control beliefs tended to begin working on the assignment sooner, to complete and return the assignment sooner than external students [7].

Little research has specifically examined the relationship between students' beliefs of control and how they manage their time for completing long-term tasks, such as term paper, semester group project, etc. The current study did not find academic control to be a good predictor of good time management for long-term tasks. One possible explanation could be that over an extended period of time, such as one entire semester or longer, more unpredicted factors or events may occur, which are well beyond individual students' expectation and/or control. Therefore, students'

beliefs of control may not have a strong influence on how well they manage to complete long-term academic tasks.

Future research should continue to test the relationship of academic control beliefs and time management for long-term tasks over different samples. Another line of future research could examine the direct effect and indirect effect (through self-regulated learning behaviors) of academic control beliefs on academic achievement.

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Table 1

Means and Standard Deviations for There Dimensions of Learning Behaviors and Academic Locus of Control Beliefs (N = 151)

	Mean	Standard Deviation	Score Range
Self-Regulated Learning Behaviors			
Academic Self-Efficacy	41.85	7.42	14 ~ 56
Time Management for Routine, Recurring Tasks	42.72	7.52	16 ~ 64
Time Management for Long-Term, Nonrecurring Tasks	25.39	3.43	8 ~ 32
Academic Locus of Control Beliefs	9.95	3.91	0 ~ 28

Note: A higher score on Self-Regulated Learning Behaviors indicate more frequent demonstration of a learning behavior. A higher score on Academic Locus of Control Beliefs indicate a stronger external locus of control belief.

Table 2

Correlations among Three Dimensions of Learning Behaviors (N = 151)

	1	2	3
1. Academic Self-Efficacy	--	0.285**	0.260**
2. Time Management for Routine, Recurring Tasks		--	0.466**
3. Time Management for Long-Term, Nonrecurring Tasks			--

** $p < 0.001$ level.

Table 3

Multivariate Multiple Linear Regression: Standardized Coefficient, t values, F values, and partial eta-squared

Effect	β	t	F^1	Wilk's λ	η_p^2
Academic Locus of Control Beliefs			10.34**	0.826	0.174
Academic Self-Efficacy	-0.66	-4.49**			
Time Management for Routine, Recurring Tasks	-0.61	-4.11**			
Time Management for Long-Term, Nonrecurring Tasks	-0.12	-1.70*			

1. Degrees of freedom are 3, 147 for all analyses.

* Marginally significant at $p < 0.10$ level. ** $p < 0.001$ level.

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