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## ABSTRACT

The direct and indirect effects of academic delay of gratification and self-efficacy on academic performance of minority college students (n=45) were evaluated. The students were enrolled in an introductory writing course as part of a summer immersion program at a Midwestern university. The results of this study support the notion that delay of gratification is a significant mediator between students' motivational beliefs (i.e., self-efficacy) and their academic achievement (i.e., final course grade). However, among these students, the association between delay of gratification and final course grade is mediated by the student's ability to manage his or her time effectively and effort regulation. On the other hand, self-efficacy has a direct influence on achievement and an indirect effect by its association with the student's willingness to delay gratification, use of metacognition, and time management. These findings suggest that minority college students, with limited self-regulatory skills, can profit from instruction geared toward enhancing willingness to delay gratification, enacting time management, enhancing self-efficacy beliefs, and attaining effort regulation. Implications are discussed for bridging research and practice associated with minority college students in the area of self-regulation. An appendix contains sample items from a measure of academic delay of gratification. (Contains 3 tables and 20 references.) (Author/SLD)

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Running head: Delay of Gratification and Self-Efficacy

Academic Delay of Gratification and Self-Efficacy Enhance Academic Achievement  
among Minority College Students

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### Abstract

The direct and indirect effects of academic delay of gratification and self-efficacy on academic performance among minority college students ( $N = 45$ ) were evaluated. The students were enrolled in an introductory writing course as part of a summer immersion program at a Midwestern university. The results of the present study support the notion that delay of gratification is a significant mediator between student's motivational beliefs (i.e., self-efficacy) and their academic achievement (i.e., final course grade). However, among these students, the association between delay of gratification and final course grade is mediated by the students' ability to manage their time effectively and effort regulation. On the other hand, self-efficacy has a direct influence on achievement and an indirect effect by its association with the students' willingness to delay of gratification, use of metacognition, and time management. These findings suggest that minority college students, with limited self-regulatory skills, can profit from instruction geared toward enhancing willingness to delay gratification, enacting time management, enhancing self-efficacy beliefs, and attaining effort regulation. Implications are discussed for bridging research and practice associated with minority college students in the area of self-regulation.

Academic Delay of Gratification and Self-Efficacy Enhance Academic Achievement  
among Minority College Students

During the last few decades, self-regulation of learning has emerged as a useful theoretical approach for understanding students' motivation, use of learning strategies, and academic achievement (Boekaerts, Pintrich, & Zeidner, 2000; García, McCann, Turner, & Roska, 1998; Pintrich & De Groot, 1990; Pintrich & Schunk, 1996; Zimmerman, 2000). Self-regulation of learning is concerned with students' motivation for learning and their use of cognitive, metacognitive, and learning strategies to secure academic achievement (Zimmerman, 2000). From this perspective, learners are viewed as active, proactive, and as agent of actions to gain understanding, insight, and skill valuable to secure academic task completion, even in the light of distracting and competing alternatives.

From the self-regulated learning approach, learners are not longer considered as having primarily a performance goal orientation (Nicholls, 1984) or an ability-focused goal (Maehr & Midgley, 1991). Rather, the self-regulated learning approach clearly contrasts two types of learners: skilled self-regulated learners and less skilled learners. These two types of learners display different patterns of achievement-related outcomes, they have different motivational levels, and they use differently the learning strategies available to them (Pintrich & Schunk, 1996). Skilled learners have high feelings of self-efficacy and use effective learning strategies (Pintrich & Schunk, 2002; Pintrich & De Groot, 1990; Zimmerman, 2000).

In contrast to self-regulated learners, less skilled learners adopt maladaptive behavior, are less skilled using cognitive and learning strategies, and are focused on ability and competition (Zimmerman, 2000). Skilled learners sustain motivation when

impulse tendencies to act impulsively emerge (Corno, 1993). That is, they are willing and able to delay gratification in order to pursue long-term academic goals (Bembenutty & Karabenick, 1998). On the other hand, less skilled learners succumb to temptations and act impulsively, are sensation seekers, lack attention control, and have defective willpower (Bembenutty & Karabenick, 1998; Mischel, 1996; Mischel, Cantor, & Feldman, 1996; Peake, Hebl, & Mischel, 2002).

Despite the evidence of the ineffective use of learning strategies and low motivation among less skilled learners, little is known about less skilled learners' willingness to delay gratification and how this tendency mediates their motivational beliefs, use of cognitive, metacognitive, and learning strategies to enact academic achievement. Examining less skilled learners' delay of gratification tendencies is an important research investigation because it would help to expand the theory of self-regulation and would help educators to create effective educational tools and instructional devices that could enhance learning among these learners.

In this study, therefore, I examined the associations between the students' motivational tendencies, use of cognition, and self-regulation among minority college students participating in a summer immersion program targeting underachiever learners. In particular, I investigated the mediating role of academic delay of gratification between self-efficacy beliefs and academic achievement among minority college students. This study focused on self-efficacy beliefs as a positive motivational tendency that facilitates self-regulation of learning (Zimmerman, 2000).

To remain task-focused self-regulated learners delay gratification in order to protect task-specific intentions from non-academic tasks (Corno, 1989; Zimmerman,

2000). *Academic delay of gratification* (ADOG) refers to students' willingness to postpone immediately available opportunities to satisfy impulses in favor of academic goals that are temporally remote but ostensible more valuable (Bembenutty & Karabenick, 1998). Academic delay of gratification is necessary for engaging in study time (Zimmerman, 2000). However, students' self-efficacy beliefs are an important determinant of students' willingness for self-regulation and willingness to delay gratification (Bembenutty & Karabenick, 1998). Previous findings have shown that academic delay of gratification and self-efficacy are significantly and positively related to students final grade (Bembenutty & Karabenick, 1998).

While the important role of delay of gratification and self-efficacy has been established in the literature, to date, both achievement' determinants have not been fully assessed concomitantly among minority college students. Further, it is not clear, whether delay of gratification and self-efficacy have a direct association with academic achievement in this population or whether those associations are mediated by the students' metacognitive or self-regulatory strategies that determine academic achievement. Thus, in the present study, it was important to examine these associations.

### ***Theoretical Overview of the Social Cognitive Model of Self-Regulation of Learning***

Bandura's social cognitive theory integrates triadic contributions of the person, the environment, and the behavior for what constitutes human functioning. Bandura (1986, 1997) posited that social factors are important determinants of efforts to self-regulate during learning. According to this view, there is a reciprocal interaction among the person's cognition, motivation and affect, the environment, and the behavior. Further,

social cognitive theory has been used successfully to explain academic studying and the development of personal skill (Zimmerman, 1998; Zimmerman & Martínez-Pons, 1986) by stressing the function of self-regulation of learning.

Zimmerman (1998) defines *self-regulation* as “self-generated thoughts, feelings, and actions for attaining academic goals” (p. 73). According to Zimmerman (2000), successful students are those who engage in self-regulation of their motivation, cognition, environment, and behavior. Self-regulated learners are indeed problem-solving agents (Bandura, 1997). They learn to plan their actions and setting specific academic goals in order to achieve their goals. In addition they can predict and estimate problems that could preclude them from achieving their goals. They are highly self-efficacious, are able to self-monitoring their academic progress, and have positive attribution about their performance (Zimmerman, 1998). In contrast, less skilled learners are less efficient in identifying facts related to their tasks, have low self-efficacy, engage in ineffective self-evaluation and self-monitoring of their academic progress, and have detrimental attribution skills.

### ***Zimmerman’s Cyclical Model***

Zimmerman’s *self-regulation cyclical model* has been successful in explaining success in education (Zimmerman, 1998, 2000), and it can be used to explain academic achievement among minority students. Zimmerman’s model incorporates important learning components necessary to turn less skilled learners into high skilled learners (Zimmerman, 1998, 2000). His model provides intense involvement in the structure of the skills and constant feedback from teachers and coaches. Zimmerman’s model

encompasses a dynamic feedback system of self-regulation, which can be implemented for instruction among minority students.

Closely based on Bandura's social cognitive perspective, Zimmerman's model suggests that learning is maintained through a cycle of self-regulatory processes that must be self-monitored during task performance and altered as needed. According to Zimmerman (2000), self-regulation involves three-phases. The *forethought phase* (pre-performance) includes processes that set the stage for action (e.g., goal setting, strategic planning, self-efficacy beliefs, and intrinsic interest). The *performance phase* (during performance) includes the processes that affect attention and action (e.g., attention focusing, self-instruction, and self-monitoring). The *self-reflection phase* (post-performance) includes learners' responses to their efforts (e.g., self-evaluation, attributions, self-reactions, and adaptivity). Self-efficacy is a key variable that affects all phases of self-regulation (Zimmerman, 2000). As the learners engage in the task, they use self-regulatory strategies and during self-reflection phase, they will evaluate their learning progress.

Consequently, in the present study, I examined several important aspect of self-regulation incorporated in Zimmerman's cyclical model. For example, the students will report their use of metacognitive strategies. *Metacognition* refers to students' awareness and control of their own cognition (Pintrich, et al, 1993). Students with a solid metacognitive awareness self-regulate their academic activities and tasks by engaging in effective planning, self-monitoring, and regulation of themselves and their environment. They engage in self-planning, self-testing, and self-correcting (Pintrich et al., 1993).



According to the social cognitive theory, self-efficacy is the major source of motivation (Bandura, 1986, 1997; Zimmerman, 2000). *Self-efficacy* refers to “personal beliefs about having the means to learn or perform effectively” (Zimmerman, 2000, p. 17). High self-efficacious learners are those who put effort and persist on task event on the light of competing alternatives, they set specific goals, engage initially on a *process goal* and eventually after mastering the task adopt an *outcome goal* orientation (Zimmerman, 2000).

### ***Academic Delay of Gratification***

Theorists and researchers have uncovered a constellation of learning strategies known to be effective for enhancing learning and academic achievement (Pintrich, 2000; Pintrich & De Groot; Corno, 1993; Zimmerman, 2000; Zimmerman & Martinez-Pons, 1986). Recently, Bembenutty and Karabenick (1998) have posited that delay of gratification could be conceptualized as a learning strategy because the students strategically delay gratification by voluntarily postponing immediate gratification in order to enact academic goals and rewards temporarily distant but highly valuable. The researchers argued that delay of gratification is a learning strategy in a similar line as it is self-monitoring, effort regulation, and help seeking. Delay of gratification deals with students’ preference for an immediately available option (e.g., go to a favorite concert the day before a test even though the student is not well-prepared) or a delayed alternative (e.g., stay home studying to get later a good grade in the course) to secure temporarily distant academic related-outcomes (Bembenutty & Karabenick, 1998).

To assess delay of gratification, Bembenuddy & Karabenick (1998) developed a questionnaire in which they have the students select one of the two competing alternatives, such as “Delay studying for an exam in this class the next day even though it may mean getting a lower grade, in order to attend a concert, play, or sporting event,” versus “Stay home to study to increase your chances of getting a high grade on the exam.” The researchers found an association between students’ tendencies to use cognitive strategies, motivational beliefs, use of metacognition, use of self-management strategies, and their willingness to delay gratification.

Despite the suggestion that delay of gratification is an important individual differences associated with academic achievement, little is still known about the association among these self-regulatory components among minority and less skilled learners. This gap in the literature needs the attention of theorists and researchers. Thus, the purpose of this study was to examine the mediating effect of delay of gratification between students’ motivational tendencies, use of self-regulation and academic performance.

## Method

### Participants

The present study expands our knowledge of academic delay of gratification by focusing on participants enrolled in a program designed primarily for minority college students who conditionally fail to meet the standard criteria for college admission. Participants were 45 African Americans (15 males and 30 females) participating in a college immersion program that is conducted during a summer term at a large

Midwestern public university. Participants took two courses: an introductory psychology course and a writing course.

### Measures

Academic Delay of Gratification. In this study, the students responded to 10 scenarios of the Academic Delay of Gratification Scale (ADOGS; Bembenutty & Karabenick, 1998). In this study, the ADOGS has an internal consistency Cronbach  $\alpha = .84$  ( $M = 3.12$ ,  $SD = .54$ ). In this particular study, the ADOGS examines students' delay of gratification preference in relation to the writing course in which the students responded to the study. In other words, ADOGS assesses content-specific and course-specific delay of gratification. The students rated their preference for an immediately available attractive option versus a delayed alternative. An example is "Go to a favorite concert, play, or sporting event and study less for this course even though it may mean getting a lower grade on an exam you will take tomorrow" versus "Stay home and study to increase your chances of getting a higher grade" (see Appendix). Students responded on a four-point scale: "Definitely choose A," "Probably choose A," "Probably choose B," and "Definitely choose B." Delay of gratification is considered here as a continuous variable, thus, responses were coded and added for the ten items then divided by ten so that higher total scores indicated greater delay of gratification (range 1 to 4).

Motivational Strategies for Learning Questionnaire. The Motivational Strategies for Learning Questionnaire (MSLQ) assesses the students' course-specific motivation and use of learning strategies (Pintrich et al., 1993). The MSLQ consists of 81 statements in response to which students rated themselves using a 7-point scale ("not at all true of me" to "very true of me"). The MSLQ is divided into two major scales: motivation and

learning strategies. Motivation scales include intrinsic and extrinsic goal orientation, task value, control beliefs, self-efficacy, and test anxiety. Learning strategies scales include cognitive strategies (e.g., rehearsal, elaboration, organization, and critical thinking), metacognitive strategies, and resource management (structuring of time and study environment, effort regulation, peer learning, and help seeking). Coding was applied so higher scores represent higher levels of motivation and use of learning strategies.

Although the students responded to the entire questionnaire, only some of the scales are reported here (e.g., metacognition, time management, effort regulation, and self-efficacy) because the small sample size prevent me to include too many variables in a path analysis and because I was primarily interested in the students' general tendencies for self regulation.

Final Course Grade. Final course grade from the Writing course in which the students participated in the present study was used as an index of achievement performance. Final course grade in the course were converted to an 11-point scale ranging from E = 1 to A = 11.

## Results

### *Preliminary analyses*

Table 1 displays Cronbach alpha, means, and standard deviations of all the variables used in the study. To investigate the association between the variables used in this study, zero-order correlations between all the variables were examined. To examine the direct and indirect effect of delay of gratification and self-efficacy on students' academic outcome, a path analysis was conducted.

*Bivariate relations*

Pearson correlations between all the variables used in this study were examined (see Table 1). Among the most significant findings one was that academic delay of gratification was significantly related to self-efficacy, ( $r_{(45)} = .39, p < .05$ ), metacognition ( $r_{(45)} = .55, p < .05$ ), time management ( $r_{(45)} = .53, p < .05$ ), and effort regulation ( $r_{(45)} = .35, p < .05$ ). Delay of gratification was not significantly related to final course grade. Self-efficacy was significantly related to final course grade ( $r_{(45)} = .43, p < .05$ ), metacognition ( $r_{(45)} = .55, p < .05$ ), time management ( $r_{(45)} = .55, p < .05$ ), and effort regulation ( $r_{(45)} = .38, p < .05$ ). Final course grade was related to effort regulation ( $r_{(45)} = .39, p < .05$ ).

*Path analysis*

A path analysis was conducted to examine the direct and indirect effect of delay of gratification and self-efficacy on academic achievement (final course grade). The LISREL-8.51 (Jeroskog & Sorbom, 1999) was used to assess the model fit with a  $X^2$  maximum likelihood. In the hypothesized model (see Figure 1), I predicted that delay of gratification would mediate the association between self-efficacy and student' use of metacognition, learning strategies and academic performance. I predicted that self-efficacy would have a direct effect on delay of gratification, metacognition, effort regulation, time management, and final course grade. I predicted also that delay of gratification would have a direct effect on metacognition, time management, and effort regulation, but not to final course grade. In addition, hypothesized that effort regulation would have a direct association with final course grade and would mediate the relations between time management and final course grade.

The results of the path analysis indicate that self-efficacy was directly related to academic delay of gratification, metacognition, and final course grade. Delay of gratification mediates the association between self-efficacy and final course grade through its effect on metacognition, time management, and effort regulation. Study time was related to final grade through its effect on effort. The final model fits well the data:  $\chi^2_{(8)} = 7.32, p = .50$ ; Root Mean Square Error of Approximation (RMSEA) = .00; Goodness of Fit Index (GFI) = .95; Comparative Fit Index (CFI) = 1.00. Table 2 and Table 3 display the direct, indirect, and total effect among the variables, as well as how much the predicted equations explain the variances.

### Discussion

The results of the present study support the notion that delay of gratification is a significant mediator between student's motivation (self-efficacy) and their academic achievement (final course grade). However, among these students, the association between delay of gratification and final course grade is mediated by the time the students spent studying and their regulation of effort. Delay of gratification serves as an important self-regulatory strategy, which enhances students' study time and effort and which result in high academic achievement. On the other hand, self-efficacy has an indirect influence on academic achievement: by its association with the students' willingness to delay of gratification, use of metacognition, and final course grade.

Taken together, these results suggest that in this study the minority college students who study more for their class are those who are highly self-efficacious, are willing to delay gratification, and put effort in their academic tasks. These results show that academic delay of gratification mediates the relationship between motivation and

academic-related outcomes and that delay of gratification functions as a self-regulated learning strategy.

These results suggest that among minority students, engaging in delay of gratification is beneficial to their academic success. However, these findings do not suggest that just delaying gratification would place the students in the pinnacle of academic success. Rather, the students, in addition of delay gratification, they must use appropriate metacognitive and learning strategies in order to succeed. Otherwise, they could fail their academic task. Similarly, it is not sufficient to have high self-efficacy: delay of gratification is also necessary. In addition, learners must engage in academic planning, time management, and effort regulation if they want to be successful learners.

These findings are important because they suggest key motivational and self-regulatory components that minority students could have at their disposal in order to enact and pursue academic goals. Consequently, less skilled learners would be benefited by interventions directed to enhance their ability to delay gratification. For example, less skilled learners could receive training directed to develop goal setting and planning skills and how to avoid or cope with distracting and competing options. In addition, learners could enhance their learning skills by creating a network of peers and teachers, who serve as self-regulated social models (Bandura, 1986; Zimmerman, 2000)

It is important also to comment on the limitations of this study. First, the small sample in this study limit generalization of this finding. However, the robust correlations and path coefficients are high enough to sustain that these findings are solid. Second, the ADOGS and the MSLQ are self-report instruments and therefore student's actual behavior is not known.

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Table 1  
Means, Standard Deviation, and Correlations between the Variables

Variables	Correlations					
	1	2	3	4	5	6
1. Academic Delay of Gratification	---					
2. Self-Efficacy	.39	---				
3. Metacognition	.55	.56	---			
4. Time Management	.53	.55	.71	---		
5. Effort Regulation	.35	.38	.39	.48	---	
6. Final Course Grade	.15	.43	.18	.27	.39	---
Mean	3.12	5.83	5.07	5.17	5.33	6.78 (B-)
Standard Deviation	.54	.95	.98	.98	1.07	1.82
Reliability Alpha	.84	.91	.84	.73	.59	---

Note: N = 45. Correlations greater than .29 are significant at the  $p < .05$ .

Figure 1  
Hypothesized Path Model

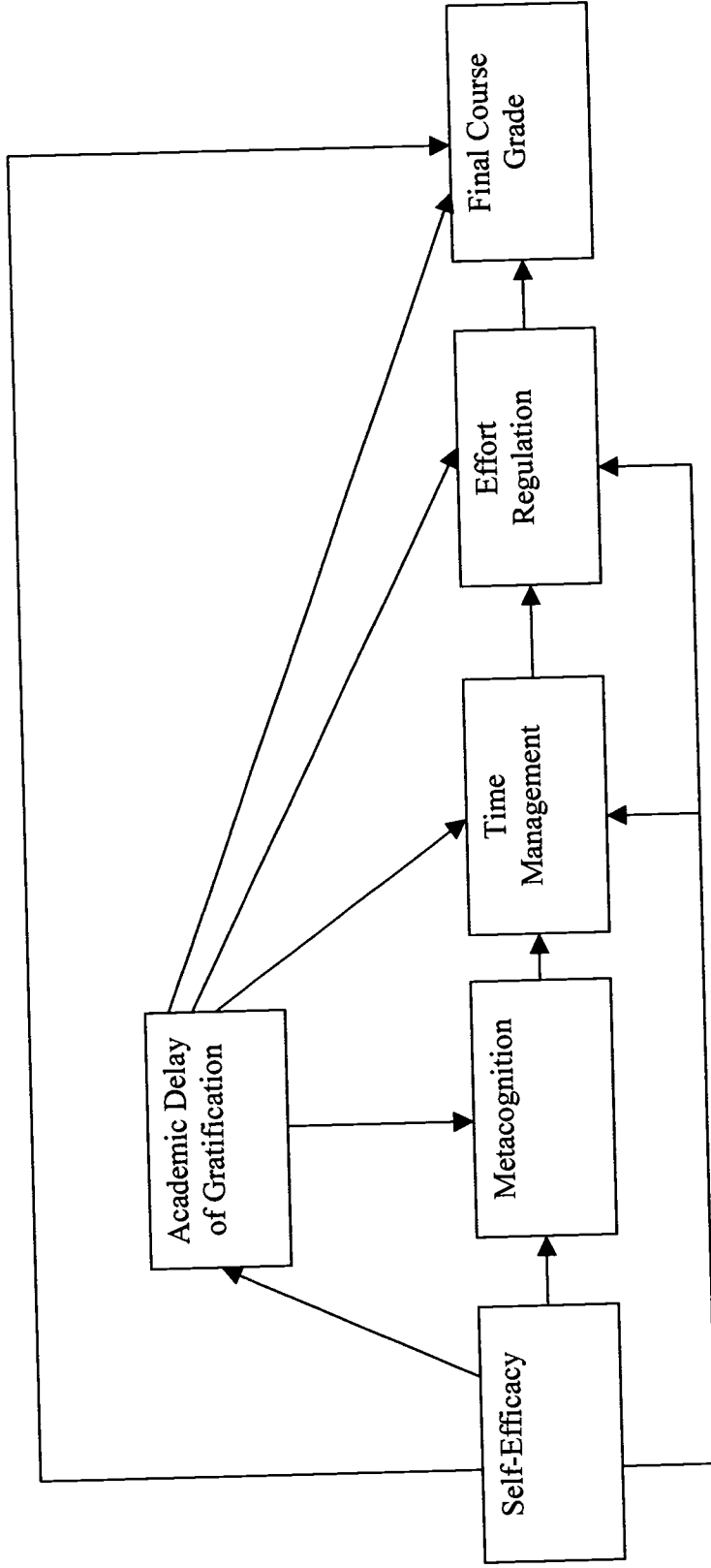
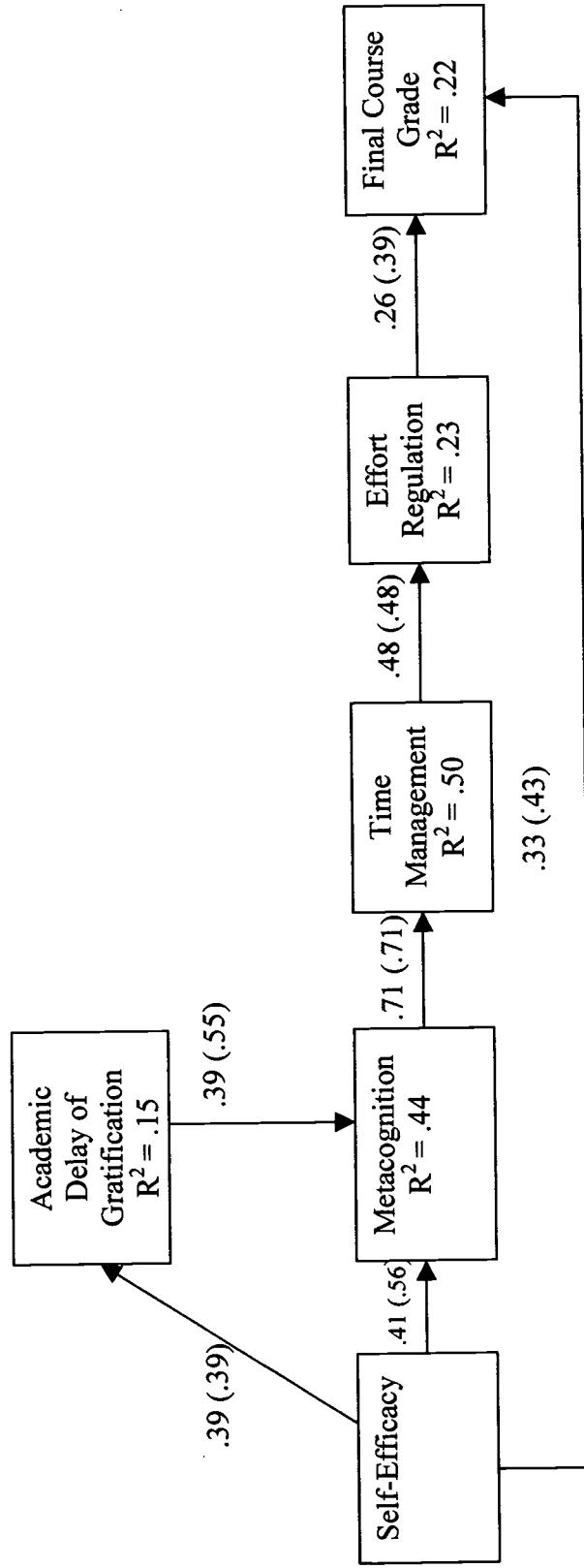


Figure 2  
Final Path Model



Note: All path coefficients are significant .05 level.  $\chi^2_{(8)} = 7.32$ ,  $p = .50$ . Root Mean Square Error of Approximation (RMSEA) = .00. Goodness of Fit Index (GFI) = .95. Comparative Fit Index (CFI) = 1.00.

Table 2  
Effects from the Path Analysis

Effect	Standardized Estimate (Beta or Gamma)	Standard Error (SE)	t <sup>a</sup>	R <sup>2</sup>
Of Self-Efficacy On Delay of Gratification	.39 (Gamma)	.14	2.78	.15
Of Delay of Gratification Of Self-Efficacy On Metacognition	.39 (Beta) .49 (Gamma)	.12 .12	3.16 3.30	.44
Of Metacognition On Time Management	.71 (Beta)	.11	6.61	.50
Of Time Management On Effort Regulation	.48 (Beta)	.13	3.59	.23
Of Effort Regulation Of Self-Efficacy On Final Course Grade	.26 (Beta) .33 (Gamma)	.13 .13	1.96 2.44	.22

Note: p < .05.

Table 3  
Direct, Indirect, and Total Effects on Delay of Gratification, Use of Self-Regulation, and Final Course Grade

Variables	Direct Effect	Indirect Effect	Total Effect
<b>Of Delay of Gratification</b>			
On Metacognition	.39	.00	.39
On Time Management	.00	.28	.28
On Effort Regulation	.00	.13	.13
On Final Course Grade	.00	.04 <sup>a</sup>	.04 <sup>a</sup>
<b>Of Self-Efficacy</b>			
On Delay of Gratification	.39	.00	.39
On Metacognition	.41	.15	.56
On Time Management	.00	.40	.40
On Effort Regulation	.00	.19	.19
On Final Course Grade	.33	.05 <sup>a</sup>	.38
<b>Of Metacognition</b>			
On Time Management	.71	.00	.71
On Effort Regulation	.00	.34	.34
On Final Course Grade	.00	.09 <sup>a</sup>	.09 <sup>a</sup>
<b>Of Time Management</b>			
On Effort Regulation	.48	.00	.48
On Final Course Grade	.00	.13 <sup>a</sup>	.13
<b>Of Effort Regulation</b>			
On Final Course Grade	.26	.00	.26

Note: <sup>a</sup>These effects are not statistically significant at the  $p \geq .05$  level.



APPENDIX  
SAMPLE ITEMS FROM THE ACADEMIC DELAY OF GRATIFICATION SCALE (ADOGS)

*Bembenuty & Karabenick, (1998)*

Below is a series of choices between two alternative courses of action. Please read each set of statements carefully, and relate each statement to this (introductory psychology) course. Then tell which course of action you would be more likely to choose and the strength of that choice. There are no right or wrong answers. Please respond with your true beliefs rather than the way you think you should respond. That is, tell us what you really would do under the conditions described in the statements. Do this by placing an "x" in front of that choice using the scale below:

\_\_\_ Definitely choose A    \_\_\_ Probably choose A    \_\_\_ Probably choose B    \_\_\_ Definitely choose B\*

1.    A.    Go to a favorite concert, play, or sporting event and study less for this course even though it may mean getting a lower grade on an exam you will take tomorrow, OR  
       B.    Stay home and study to increase your chances of getting a higher grade.
  
2.    A.    Study a little every day for an exam in this course and spend less time with your friends, OR  
       B.    Spend more time with your friends and cram just before the test.
  
3.    A.    Miss several classes to accept an invitation for a very interesting trip, OR  
       B.    Delay going on the trip until the course is over.
  
4.    A.    Go to a party the night before a test for this course and study only if you have time, OR  
       B.    Study first and party only if you have time.
  
5.    A.    Spend most of your time studying just the interesting material in this course even though it may mean not doing so well, OR  
       B.    Study all the material that is assigned to increase your chances of doing well in the course.
  
6.    A.    Skip this class when the weather is nice and try to get the notes from somebody later, OR  
       B.    Attend classes to make certain that you do not miss something even though the weather is nice outside.

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Note: \*This response scale follows each question. Responses are coded 1 to 4. Mean item scores are added and divided by 10. The mean total ranges from 1 to 4.



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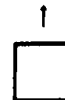
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