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ABSTRACT

This study examined whether there were gender and ethnic differences in students' willingness to delay gratification, intrinsic and extrinsic motivation, self-efficacy beliefs, use of cognitive strategies (such as rehearsal, organization, elaboration, and metacognition), and use of learning strategies (help seeking, time management, effort regulation, and peer learning). Participants were 369 college students, of whom 79 were members of minority groups. Students were administered the Academic Delay of Gratification Scale (H. Bembenutty and S. Karabenick, 1998) and the Motivational Strategies for Learning Questionnaire. Results suggest that females and males do not homogenously activate and sustain behaviors oriented toward the attainment of academic goals. Results also support the notion that delay of gratification matters; it is an important determinant of academic achievement. Self-efficacy is highly related to course grade regardless of the gender and ethnic group of students, but the association between self-efficacy and delay of gratification in this study depends on the gender and ethnic group of students. Self-efficacy is related to delay of gratification among male and female Caucasian students, but this association is not significant among male and female minority students. Overall, minority students tended to report lower delay of gratification and obtained lower course grades than Caucasian students. (Contains 5 tables and 10 references.) (SLD)

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Self-regulation of Learning and Academic Delay of Gratification: Individual Differences among College Students

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Self-Regulated of Learning and Academic Delay of Gratification: Individual Differences among College Students

To date, only a few studies in self-regulation of learning have been undertaken to examine individual differences such as gender and ethnicity among learners. Specifically, little work has been done to examine whether there are gender and ethnic differences with respect to students' motivational beliefs, use of cognitive and learning strategies, and delay of gratification. The field of self-regulation has left primarily the individual differences such as gender and ethnicity to other fields such as developmental and personality psychology. Perhaps the reason is because the area of self-regulation does not have a current theoretical approach that could effectively explain the aforementioned individual differences. In addition, it may be an indication that the area of self-regulation does not have an effective self-regulatory instructional program that could be effectively applied to students regardless of their gender and ethnicity (Boekaerts, Pintrich, & Zeidner, 2000; Pintrich & Schunk, 2002).

The purpose of the present study was to examine how college students' motivational beliefs, use of cognitive and self-regulatory strategies, willingness to delay gratification, and academic achievement vary as a function of their gender and ethnicity. Specifically, this study examined whether there were gender and ethnic differences with respect to students' willingness to delay gratification, intrinsic and extrinsic motivation, self-efficacy beliefs, use of cognitive strategies, such as rehearsal, organization, elaboration, metacognition, and use of learning strategies such as help seeking, time management, effort regulation, and peer learning (Pintrich & De Groot, 1990; Pintrich et al., 1993).

Theoretical Background

In the last few decades, students' self-regulation of learning has been a continual concern for researchers and educators (Bandura, 1986; Zimmerman, 1998, 2000; Zimmerman & Martinez-Pons, 1986). Research has shown that to achieve academic excellence, learners must learn how to self-regulate their actions and maintain academic goals in spite of difficult task (Zimmerman, 1998, 2000). Skilled learners engage in self-generated thoughts, actions, and feelings while pursing academic goals (Zimmerman, 1998, 2000). Successful learners are those who use appropriate learning strategies and who maintain high level of motivation (Bandura, 1997; Zimmerman, 2000). However, two important individual characteristics associated with learning that deserve attention from a self-regulated point of view are students' gender and ethnicity.

In contrast to female learners, males often obtain higher academic performance in areas such as mathematics. Similarly, students from underrepresented populations often obtain low scores in standardized test in comparison to Caucasian students (Pintrich & Schunk, 2002). Similarly, researchers have found that females display greater tendencies for delay gratification than males and that minority students report higher delay of gratification than Caucasian students (Bembenutty & Karabenick, 1998).

Self-regulation during skill acquisition could explain individual differences among learners. In the classroom, some students exhibit adaptive self-regulatory strategies and motivational patterns while engaging in academic task, such as exerting appropriate effort for success, enjoying the challenge, using appropriate learning strategies, setting specific goals, and displaying high self-efficacy level (Pintrich & Schunk, 2002). In contrast, other students cease trying, lose interest in the activity, are

unable to set specific goals and strategies, and are low self-efficacious (Pintrich & Schunk, 2002). Students exhibiting the latter patterns of behavior rarely achieve high level of academic success.

Academic Delay of Gratification

This study integrated academic delay of gratification into the constellation of components of self-regulation. In the literature, there is a constellation of learning strategies known to be effective in enhancing learning and academic achievement. Recently, Bembenutty and Karabenick (1998) have suggested that students strategically delay gratification by voluntarily postponing immediate gratification in order to enact academic rewards temporarily distant but highly valuable. The researchers posited that delay of gratification is a learning strategy in a similar fashion that it is self-monitoring, effort regulation, and help seeking. They maintain that students' willingness to delay gratification influences learning. From this perspective, delay of gratification refers to students' willingness 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 rewards, goals, and intentions.

Academic delay of gratification is assessed by the Academic Delay of Gratification Scale (ADOGS; Bembenutty & Karabenick, 1998). The ADOGS assesses students' delay preference for an immediately available attractive option versus a delayed alternative. An example is, "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." Students responded on a four-point scale.

In a series of studies, Bembenutty and Karabenick (1998) using the ADOGS found an association between students' tendencies to use cognitive (e.g., retrieval, distributed practice, rehearsal, elaboration, organization) and self-management strategies (e.g., effort regulation, action control, time management, environmental control, peer learning) and their willingness to delay gratification. They also found a significant correlation between academic delay of gratification and students motivational tendencies (e.g., self-efficacy, task-value, intrinsic and extrinsic motivation). The aforementioned patterns of behavior suggest that delay of gratification is an important individual difference, which is enacted in relation to academic and classroom activities. In other words, students who are willing to delay gratification for the sake of future academic rewards appear to perceive classroom-related tasks in a more favorable way than students who are unwilling to delay gratification.

Method

Participants.

Participants in this study were 369 college students (190 females and 120 males) enrolled in introductory psychology courses at a Midwestern public university. Because of a small representation of minority students in the sample, ethnicity was coded as Non-Caucasian students (N = 231) as a group and minority students (N = 79) as the second group. Subsequently, four groups of students were created: Male Caucasians, Male Minorities, Female Caucasians, and Female Minorities

Instruments:

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 $\alpha = .72$. 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 introductory courses (e.g., Introduction to Psychology, Introduction to Political Science and Computer Science) 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

Correlations: Major findings

Academic delay of gratification, self-efficacy, and final course grade have greater correlations among Caucasian (male and female students) than among the minority students. Minority students (males and females) displayed the lowest motivational beliefs, lowest use of cognitive strategies and use of self-regulation, lowest grade and delay of gratification (see Tables 1 to Table 4).

Analysis of Variance (MANOVA, ANOVA GLM) and Tukey

Multivariate analyses of variance (MANOVA), using all of the variables in the study, indicate that there were gender and ethnicity main effects. However, there was not interaction between gender and ethnicity.

A General Lineal Model analysis was conducted to examine whether the four group of students differed on the variables used in the study. The results indicate that male Caucasians and female Caucasians obtained similar scores in most of the variables. However, they differed from the minority groups in some of the variables (see Table 5).

Discussion

Self-regulation of learning is determined and influenced by the students' individual characteristics such as gender and ethnicity. These results suggest that females and males do not homogenously activate and sustain behaviors oriented toward the attainment of academic goals. For example, male Caucasian differs reported higher tendency to delay gratification, self-efficacy beliefs than female minority students.

These results support the notion that delay of gratification matters: it is an important determinant of academic achievement (Mischel, 1996; Mischel, Cantor, & Feldman, 1996). Academic delay of gratification is associated with motivation, use of cognition, and self-regulation. Accordingly, delay of gratification plays an important role in helping students to activate mental representation of academic goals and plans as well as enactive behavioral actions to secure environmental control while pursuing long-term academic goals. Delay of gratification is necessary when pursuing academic goals and competing and attractive goals call for attention. Delay of gratification reflects learners' intentions to maintain academic commitments despite competing mandates

Self-efficacy is highly related to course grade regardless of the gender and ethnic group of the students. In contrast, the association between self-efficacy and delay of gratification in this study depends of the gender and the ethnic group of the students. To illustrate, self-efficacy is relate to delay of gratification among male and female

Caucasian students, but that association is not significant among male and female minority students.

Overall, minority students tend to report lower delay of gratification and obtained lower final course grade than Caucasian students. These results should be taken very seriously because if minority students are not receiving academic training to delay gratification at their college, then their academic performance could be negatively affected. In other words, if these students are succumbing to temptations when they should be enacting academic goals, then they could not survive to today's educational and career demands.

This study was correlational in design. A longitudinal study or an experimental study that examined students' beliefs, motivation, and willingness to delay of gratification is required to identify the extend to which the differences found in this study are consistent across time and with intervention techniques. Additional information regarding the students, such as socio-economical status, parental education, previous academic performance, beliefs about education, and attitude toward college, would be of interest. These limitations should be addressed in future research on the impact of students' delay of gratification tendencies, motivational beliefs, and use of cognitive and self-regulatory strategies on academic-related outcomes.

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Table 1 Pearson Correlations among Male Caucasian Students (N = 108)

	Correlations																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Final Course grade	--																
2. Delay of Gratification	.35	--															
3. Intrinsic motivation	.30	.40	--														
4. Intrinsic interest	.21	.43	.32	--													
5. Task Value	.41	.37	.70	.37	--												
6. Control Beliefs	.19	.25	.29	.08	.24	--											
7. Self-efficacy	.62	.38	.52	.38	.65	.45	--										
8. Test anxiety	-.24	.09	-.20	.15	-.24	.07	-.33	--									
9. Rehearsal	.17	.45	.30	.41	.34	-.00	.17	.01	--								
10. Elaboration	.30	.44	.52	.30	.56	.18	.41	-.15	.63	--							
11. Organization	.08	.30	.32	.36	.26	.12	.17	.12	.57	.52	--						
12. Critical thinking	.26	.22	.53	.18	.43	.15	.37	-.24	.33	.63	.32	--					
13. Metacognition	.26	.52	.59	.33	.50	.19	.40	-.13	.64	.73	.53	.64	--				
14. Time Management	.43	.68	.45	.27	.43	.18	.49	-.26	.49	.51	.33	.39	.68	--			
15. Effort Regulation	.44	.62	.44	.28	.52	.17	.59	-.34	.48	.53	.22	.30	.62	.80	--		
16. Peer Learning	.09	.13	.24	.21	.23	-.04	.13	-.04	.37	.38	.56	.37	.41	.16	.12	--	
17. Help seeking	-.08	.12	.19	.17	.16	-.09	.04	.10	.38	.26	.48	.22	.43	.10	.07	.62	--

Note: Correlations greater than .19 are significant at the $p < .05$ level.

Table 2 Pearson Correlations among Male Minority Students (N = 38)

	Correlations																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Final Course grade	--																
2. Delay of Gratification	-.15	--															
3. Intrinsic motivation	.20	.10	--														
4. Intrinsic interest	.33	.27	.57	--													
5. Task Value	.35	.02	.82	.58	--												
6. Control Beliefs	.07	-.28	.35	.12	.33	--											
7. Self-efficacy	.51	.01	.54	.54	.58	.38	--										
8. Test anxiety	-.03	.05	-.20	-.18	-.18	-.02	-.16	--									
9. Rehearsal	-.05	.53	.18	.45	.15	-.02	.11	.20	--								
10. Elaboration	.28	-.02	.44	.48	.51	.34	.43	-.14	.23	--							
11. Organization	-.05	.56	.35	.48	.38	-.06	.05	.06	.63	.50	--						
12. Critical thinking	-.08	-.03	.35	.13	.21	.41	.21	.03	.06	.50	.23	--					
13. Metacognition	.12	.27	.66	.71	.63	.28	.44	-.29	.50	.65	.65	.52	--				
14. Time Management	.13	.54	.41	.50	.39	.09	.24	-.12	.70	.33	.68	.09	.67	--			
15. Effort Regulation	.19	.51	.56	.54	.53	.00	.51	-.22	.54	.43	.60	.14	.60	.72	--		
16. Peer Learning	.01	.16	.24	.19	.16	.11	-.06	.27	.12	.30	.36	.49	.37	.35	.03	--	
17. Help seeking	-.06	.16	.18	.24	.08	.19	.16	.25	.08	.24	.25	.26	.22	.23	.10	.68	--

Note: Correlations greater than .33 are significant at the $p < .05$ level.

Table 3 Pearson Correlation among Female Caucasian Students (N = 165)

	Correlations																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Final Course grade	--																
2. Delay of Gratification	.20	--															
3. Intrinsic motivation	.11	.30	--														
4. Intrinsic interest	.14	.37	.26	--													
5. Task Value	.23	.32	.62	.41	--												
6. Control Beliefs	.15	.02	.29	.21	.33	--											
7. Self-efficacy	.62	.24	.44	.33	.52	.40	--										
8. Test anxiety	-.12	.13	.04	.12	.09	-.08	-.26	--									
9. Rehearsal	.06	.34	.26	.50	.35	.15	.22	.18	--								
10. Elaboration	.13	.37	.56	.30	.54	.28	.41	.10	.48	--							
11. Organization	-.03	.38	.24	.23	.19	.04	.13	.14	.53	.52	--						
12. Critical thinking	.15	.26	.54	.20	.49	.13	.44	.16	.34	.68	.36	--					
13. Metacognition	.08	.53	.54	.38	.47	.18	.41	.12	.55	.69	.595	.62	--				
14. Time Management	.24	.66	.40	.46	.40	.11	.40	-.05	.48	.50	.43	.36	.60	--			
15. Effort Regulation	.41	.55	.50	.42	.54	.22	.56	-.04	.43	.54	.35	.40	.59	.67	--		
16. Peer Learning	-.11	.03	.15	.17	.10	-.05	-.03	.26	.23	.27	.36	.37	.28	.03	-.01	--	
17. Help seeking	-.03	.14	.09	.17	.16	-.02	.02	.10	.16	.22	.32	.18	.25	.08	.00	.63	--

Note: Correlations greater than .15 are significant at the $p < .05$ level.

Table 4 Pearson Correlation among Female Minority Students (N = 58)

	Correlations																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Final Course grade	--																
2. Delay of Gratification	.08	--															
3. Intrinsic motivation	.27	.32	--														
4. Intrinsic interest	.32	.20	.37	--													
5. Task Value	.38	.24	.53	.40	--												
6. Control Beliefs	.44	.09	.28	.33	.43	--											
7. Self-efficacy	.75	.17	.42	.51	.52	.53	--										
8. Test anxiety	-.40	-.14	-.18	-.02	-.06	-.23	-.53	--									
9. Rehearsal	.09	.39	.30	.14	.29	.09	.14	.00	--								
10. Elaboration	.18	.42	.52	.22	.43	.02	.32	-.05	.58	--							
11. Organization	-.08	.39	.10	.08	.12	-.10	.00	.01	.69	.57	--						
12. Critical thinking	.03	.11	.22	.28	.26	-.12	.17	-.05	-.06	.38	.12	--					
13. Metacognition	.16	.38	.43	.26	.45	-.05	.34	-.18	.52	.75	.52	.48	--				
14. Time Management	.15	.44	.52	.18	.38	.04	.35	-.32	.57	.50	.46	.14	.53	--			
15. Effort Regulation	.42	.58	.49	.41	.67	.32	.53	-.33	.40	.52	.27	.18	.54	.63	--		
16. Peer Learning	.11	.13	.23	.00	.07	-.04	.13	.01	.27	.25	.11	.26	.28	.35	.16	--	
17. Help seeking	.08	.19	.01	.02	.08	-.00	.19	-.17	.08	.11	.07	.22	.18	.24	.24	.39	--

Note: Correlations greater than .25 are significant at the $p < .05$ level.

Table 5

Means, Standard Deviations, One-Way Analysis of Variance (ANOVA), and Post Hoc Analyses (Tukey HDS) Results for Gender and Ethnicity

	Male-Caucasian N = 108 M (SD) 1	**Male-Minority** N = 38 M (SD) 2	**Female-Caucasian** N = 161 M (SD) 3	**Female-Minority** N = 57 M (SD) 4	F
Final Course Grade	9.82 (2.38) A-	8.19 (2.89) B	10.12 (2.39) A-	8.37 (3.40) B	**10.07*** **
	1differs from 2 & 4	*2 differs 1 & 2*	*3 differs from 3 & 4*	*4 differs from 1 & 3*	
Delay of	2.70 (.45)	2.87 (.45)	2.84 (.47)	2.99 (.46)	**5.19****
Gratification	*1 differs from 4*			*4 differs from 1*	
Motivation Scales					
Intrinsic Motivation	4.80 (1.00)	4.78 (1.03)	4.80 (.99)	5.00 (.97)	0.69
Extrinsic Motivation	5.41 (1.06)	5.63 (1.01)	5.33 (1.16)	5.50 (.87)	0.92
Task Values	5.19 (1.29)	5.09 (1.32)	5.55 (1.11)	5.50 (.97)	**3.07***
Control Beliefs	5.83 (.89)	5.58 (1.03)	5.71 (.89)	5.48 (.89)	1.92
Self-efficacy	5.57 (1.04)	5.17 (1.14)	5.49 (1.11)	5.04 (1.29)	**3.63***
	1 differs fro. 4		*3 differs from 4*	*4 differs from 1 & 3*	
Test anxiety	3.78 (1.34)	3.90 (1.34)	3.78 (1.34)	4.07 (1.34)	0.96

Table 5 continuation

Cognitive Strategies	Male-Caucasian M (SD) 1	Male-Minority M (SD) 2	Female-Caucasian M (SD) 3	Female-Minority M (SD) 4	F
Rehearsal	4.24 .25)	4.77 (1.24)	4.69 (1.24)	4.71 (1.37)	**3.51***
	1 differs from 3 & 4		***3 differs from 1***		
Elaboration	4.45 (1.10)	4.40 (.97)	4.73 (1.06)	4.81 (.91)	**2.70***
Organization	3.48 (1.07)	3.64 (1.39)	3.87 (1.25)	3.94 (1.31)	**2.83***
	1 differs from 3		***3 differs from 1***		
Critical Thinking	4.36 (1.22)	4.23 (1.25)	1.08 (1.31)	4.16 (1.19)	1.03
Metacognition	4.29 (.99)	4.11 (.94)	4.30 (.93)	4.45 (1.02)	1.17

Table 5 continuation

Resource Management Strategies	Male-Caucasians M (SD) 1	Male-Minorities M (SD) 2	Female-Caucasians M (SD) 3	Female-Minorities M (SD) 4	F
Time and Study Management	4.50 (1.14)	4.45 (1.06)	4.44 (1.19)	4.69 (1.09)	0.73
Effort Regulation	4.59 (1.35)	4.41 (1.32)	4.94 (1.33)	5.15 (1.23)	**3.89****
		2 differs from 4		***4differs from 2***	
Peer Learning	2.85 (1.39)	3.20 (1.51)	2.90 (1.48)	2.87 (1.45)	0.58
Help Seeking	3.31 (1.26)	3.55 (1.19)	3.49 (1.30)	3.27 (1.36)	.76

APPENDIX

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

Bembenutty & 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.

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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