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The Relationship of Academic Procrastination, Rationalizations, and Performance in a Web Course with Deadlines<sup>1</sup>

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Summary. This study compared students' academic procrastination tendency with their (1) frequency and nature of rationalizations used to justify procrastination, (2) degree of self-regulation, and (3) performance in a web-based study strategies course with frequent performance deadlines. 106 college students completed the 16-item Tuckman Procrastination Scale, a measure of tendency to procrastinate, the Frequency of Use Self-Survey of Rationalizations for Procrastination, and a nine-item self-regulation scale. Students' subsequent course performance was measured by total points earned. A linear regression with Academic Procrastination as the independent variable and Rationalization score and Course Points as the dependent variables was run. Findings suggest that academic procrastinators support procrastinating by rationalizing, not self-regulating, and thus put themselves at a disadvantage, with respect to evaluation, in highly structured courses with frequent and enforced deadlines.

Academic procrastination is regarded as a behavior pattern that can have particularly serious consequences for students, whose academic lives are characterized by frequent deadlines. Ellis and Knaus (2002) regard it as an "interactive dysfunctional and behavior avoidance process," characterized by the desire to avoid an activity, the promise to get to it later, and the use of excuses to justify the delay and avoid blame. It is often reinforced, claim these authors, by success after last minute cramming, thus strengthening the belief in this approach as a viable strategy. Knaus (2000) proposes that procrastinators seek to exonerate themselves, thus maintaining a positive self-image and avoiding punishment, by deflecting blame through actions such as using excuses that are often fraudulent (Ferrari, Keane, Wolf, & Beck, 1998) and rationalizing. Nevertheless, there is some evidence that academic procrastination is associated with poor academic performance (Wesley, 1994; Beck, Koons & Milgram, 2000) and is a source of personal stress (Tice & Baumeister, 1997) among college students, undoubtedly because of the aforementioned deadlines.

One possible source of cognitive support for procrastinating in the face of deadlines is the use of rationalizations (Tuckman, Abry, & Smith, 2002), thoughts that help justify the delay behavior in a seemingly logical way to the delayer. Sigall, Kruglanski, and Fyock (2000) refer to such thinking as "wishful," because it allows people to expect positive outcomes resulting from an essentially dysfunctional behavior, such as delaying action on a task in the face of a deadline. In this way, such thinking provides the motivation for the delay. A common version of this is the thought: "I work better under pressure," as a way to make the delay seem rational. These researchers and others (Ferrari, 2001) found wishful thinkers to procrastinate more than non-wishful thinkers, particularly on unappealing tasks.

A conceptual approach to motivation is that of self-regulation. Self-regulation refers to the exercise of influence over one's own behavior (Bandura, 1986), or, "... self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals" (Zimmerman, 2000, p. 14). In other words, the purpose of self-regulation is to help oneself achieve desirable consequences, such as succeeding in school (Zimmerman, 1994), losing weight, or ceasing to smoke or drink alcohol. People self-regulate their learning by monitoring, directing and controlling their actions in order to acquire information and expertise (Paris & Paris, 2001).

Conceptually, procrastination and self-regulation would appear to be closely related, with the former reflecting a serious breakdown in the latter. Lay (1992) and Lay and Schouwenburg (1993) have found a relationship between procrastination and general self-report measures of self-control, while Ferrari (2001) demonstrated that chronic, dispositional procrastinators tend to fail at self-regulation. Steel, Brothen, and Wambach (2001) found self-report procrastination to be a strong predictor of performance in a psychology course taught using the computerized personalized system of instruction.

The first purpose of the current study was to assess whether a relationship existed between college students' academic procrastination tendency and the degree to which they employed rationalizations as sources of cognitive support, particularly those that reflected wishful thinking. The second purpose of the current study was to assess whether the concepts of academic procrastination tendency and self-regulation co-varied: first, based on self-reports, and second, using a behavioral measure of academic self-regulation (performance in an academic course featuring a large number of enforced deadlines).

It was hypothesized that students' self-reported academic procrastination tendency would be related to (1) the frequency and nature of the rationalizations they tell themselves to justify procrastination, (2) their self-reported degree of self-regulation, and (3) their performance points earned in a web-based course with a large number of required performances, all with deadlines. The more frequent the self-description as "academic procrastination," the greater the predicted report of rationalizations and smaller both self-reported and actual self-regulated behavior.

Method

## Sample and Procedure

The participants were 116 college students at a large Midwestern, Research I university for 106 of whom complete data were available. Slightly more than half of the participants were female (n = 60), 1/3 of the participants were classified as minority students (n = 39), and just over 60 percent were freshmen or sophomores (n = 71). The mean grade point average (GPA) for the sample was 2.40 (SD = .55), compared to a campus-wide mean GPA of 2.87. They were enrolled in a 5-credit (quarter hours) elective, letter-graded, "study skills" course that employed web-based instruction in a laboratory setting. The course met 4.5 hours per week for 10 weeks and taught learning and motivation strategies applied to learning from lecture and text, preparing for exams, writing papers, building self-confidence and responsibility, and time and life management. The course was taught in a computer classroom with regular meeting times, required attendance, live instructors, and a textbook, and included 216 learning activities, 90% of which were done online, and submitted electronically to a database. A unique feature of the course was that all 216 learning activities had deadlines for submission, were graded, and awarded points based on the classification of the activity (e.g., assignment, portfolio, paper, quiz, final exam). A maximum of 1,102 points could be earned and, at the end of the course, points were converted into grades on a predetermined scale. Electronic submissions were governed by a system of "windows" that made activities available for completion only during a specific period of time, after which a default grade of zero was given. Non-electronic submissions could be handed in up to one week late with an automatic grade penalty being incurred.

#### Measures

#### Academic Procrastination Tendency

At the beginning of the course, all students completed the 16-item Tuckman Procrastination Scale (Tuckman, 1991). Items on this self-report measure include: I always finish important jobs with time to spare; I postpone starting in on things I don't like to do; When I have a deadline, I wait till the last minute. Students respond on a four-point scale with anchors 1=That's me for sure and 4= That's not me for sure. Scores could range from 16 to 64 with higher scores indicating a greater tendency to procrastinate. Validity of this measure is based on a correlation of -.54 between scale scores and a behavioral measure of self-regulation (Tuckman, 1991). A previous Cronbach alpha reliability coefficient of .90 has been reported (Tuckman, 1991). In the current study, a Cronbach alpha reliability coefficient of .92 was obtained.

Students' scores on the Tuckman Procrastination Scale (Tuckman, 1991) were used as an indication of their academic procrastination tendency. Generally, scores in the 57-64 range are considered high, 50-56 range moderate, and 35-49 range low. Actual scores varied from 35-64 with  $\underline{M}$ =52.0 ( $\underline{SD}$  = 6.7). While this falls into the moderate procrastination range, it represents a 26% higher score than the average score for a university-wide sample of 886, tested for comparison purposes.

#### Frequency of Rationalizations

During the third week of the course, students completed a questionnaire (see Table 1) listing 15 common rationalizations for procrastination, each responded to on a four-point frequency scale with anchors 1=never to 4=always, when asked how often they "heard each one in their head." (Tuckman, et al., 2002). Included in the list were: "I didn't know I was supposed to do that," "I'm not in the mood," "But I've always done it this way and it's hard to change." A total frequency score (possible range=15-60) was computed (actual <u>M</u> = 32.0; <u>SD</u> = 6.5) as were separate scores for each rationalization (possible range=1-4; actual <u>M</u> range=1.56-2.85, and

actual SD range=0.70 to 1.14).

#### Self-Regulation

Also in the third week, students completed a nine-item scale of self-regulation, developed by the researcher, that yielded an alpha reliability coefficient of .88. Items included: "I seem to have enough time to complete my work," "I organize my time," "I make excuses when my work isn't done." Responses were made on the same four-point frequency scale as described above. A total self-regulation score was computed (possible range=9-36).

Course Performance

At the end of the 10-week course, the students' cumulative points earned in the course were determined. Self-surveys and discussion postings were worth 1 point each, assignments 3 points each, quizzes 10 points each, portfolios and papers 30 points each, attendance 60 points and the final exam 100 points, totaling a possible 1,102 points. It should be noted that no student completed the course with fewer than 767 points; because of the number of performances, grades were far more objective and criterion-referenced than in a more traditional academic course. The mean number of course points for the sample was 996.3 (SD=74.0) which is the equivalent of an A- grade.

Analysis

Linear regression was run with Academic Procrastination tendency as the criterion variable, and Frequency of Rationalizations, and Course Performance as the predictor variables. Since Self-Regulation scores were found to overlap considerably with Academic Procrastination scores (r=0.71), they were not included in the regression analysis. Frequency of use of each of the 15 rationalizations was also examined to identify those that were most frequently endorsed.

### Results

A power analysis (Cohen, 1992) at alpha=.05 and power=.80 for two predictors indicated that a sample size of 67 was sufficient to detect a medium effect size. Therefore, the sample size of 106 was not a concern. Academic Procrastination scores were regressed on Frequency of Rationalizations and Course performance. These two predictors accounted for 26% of the variance in Academic Procrastination scores ( $\underline{P}^2 = 0.26$ ), which was highly significant,  $\underline{F}(2,103) = 18.1$ ,  $\underline{p}=.000$ . The effect size for the model was 0.35. Both Frequency of Rationalizations ( $\underline{b} = 0.214$ ,  $\underline{p}=.018$ ) and Course Performance ( $\underline{b}=-0.401$ ,  $\underline{p}=.000$ ) demonstrated significant effects on Academic Procrastination. These results are shown in Tables 2-4.

The most frequently used rationalizations were item 10 ("I just can't seem to get started," <u>M</u>=2.88, <u>SD</u>=.88), item 3 ("I really don't want to do this," <u>M</u>=2.79, <u>SD</u>=.78), and item 8 ("I know I can pull this out at the last minute (<u>M</u>=2.64, <u>SD</u>=.93). Of the three, the third clearly reflects wishful thinking.

To assure that differences in Course Performance were not a function of overall academic performance, the correlation was computed between Academic Procrastination tendency and prior cumulative grade point average. The correlation of -0.067 was not significant.

#### Discussion

Results indicated that those who scored higher on academic procrastination were more inclined to utilize rationalizations, less inclined to self-regulate, and perhaps consequently, performed more poorly in a highly structured, web-based course with many performances with deadlines. Academic procrastinators may be more successful in traditional college courses where they are more likely to avoid serious penalties for procrastinating (witness the almost zero correlation between procrastination and prior cumulative GPA). On the other hand, procrastination may begin with poor academic performance, creating an approach-avoidance conflict or a basis for self-handicapping.

The findings that procrastinators perform more poorly academically and rationalize their postponement of action, reinforces the supposition that beliefs in working better under pressure or being able to start late and still succeed are indeed rationalizations that enable academic procrastinating behavior to persist even in the face of failure. Ferrari (2001) found experimentally that chronic procrastinators are ineffective in regulating their performance speed and accuracy when they work under the pressure of high cognitive load and imposed time limitations.

The key to change may well be getting academic procrastinators to recognize the inaccuracy and dysfunctionality of their rationalizations. To accomplish this it would appear necessary to get procrastinating students to try doing their academic preparation on a more timely basis and noting the results. Tuckman (1997) found that when given frequent tests rather than homework assignments, the academic performance of procrastinators improved dramatically, so much so as to move them from the bottom to the top of their class. It still remains to be determined whether such students are able to subsequently maintain their more timely regimen of preparation in much less structured environments.

### References

Bandura, A. (1986) Social foundations of thought and action: a social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

Beck, B. L., Koons, S. R., & Milgram, D. L. (2000) Correlates and consequences of behavioral procrastination: the effects of academic procrastination, self-consciousness, self-esteem, and self-handicapping. Journal of Social Behavior and Personality, 15, 3-13.

Cohen, P. (1992). A power primer. Psychological Bulletin, 112, 155-159.

Ellis, A. & Knaus, W. J. (2002) Overcoming procrastination (Rev. ed.). NY: New American Library.

Ferrari, J. R. (2001) Procrastination as self-regulation failure of performance: effects of cognitive load, self-awareness and time limits on 'working best under pressure'. European Journal of Personality, 15, 391-406.

Ferrari, J. R., Keane, S., Wolf, R., & Beck, B. L. (1998) The antecedents and consequences of academic excuse-making: examining individual differences in procrastination. Research in Higher Education, 39, 199-215.

Knaus, W. J. (2000) Procrastination, blame, and change. Journal of Social Behavior and Personality, 15, 153-166.

Lay, C. (1992) Trait procrastination and the perception of person-task characteristics. Journal of Social Behavior and Personality, 7, 483-494.

Lay, C., & Schouwenburg, H. (1993) Trait procrastination, time management, and academic behavior. Journal of Social Behavior and Personality, 8, 647-662.

Paris, S. G., & Paris, A. H. (2001) Classroom applications of research on self-regulated learning. Educational Psychologist, 36, 89-101.

Sigall, H., Kruglanski, A., & Fyock, J. (2000) Wishful thinking and procrastination. Journal of Social Behavior and Personality, 15, 283-295.

Steel, P., Brothen, T., & Wambach, C. (2001) Procrastination and personality, performance, and mood. Personality and Individual Differences, 30, 95-106.

Tice, D. M. & Baumeister, R. F. (1997) Longitudinal study of procrastination, performance, stress, and health: the costs and benefits of dawdling. Psychological Science, 8, 454-458.

Tuckman, B. W. (1991) The development and concurrent validity of the Procrastination Scale. Educational and Psychological Measurement, 51, 473-480.

Tuckman, B. W. (1997) Using tests as an incentive to motivate procrastinators to study. Journal of Experimental Education, 66, 141-147.

Tuckman, B. W., Abry, D. A., & Smith, D. R. (2002) Learning and motivation strategies: your guide to success. Upper Saddle River, NJ: Prentice Hall.

Wesley, J. (1994) Effects of ability, high school achievement, and procrastinator behavior on college performance. Educational and Psychological Measurement, 54, 404-408.

Zimmerman, B. J. (1994) Dimensions of academic self-regulation: a conceptual framework for education. In D. H. Schunk & B. J. Zimmerman (Eds.), Self-regulation of learning and performance: issues and educational applications. Hillsdale, NJ: Erlbaum, pp. 3-21.

applications. Hillsdale, NJ: Eribaum, pp. 3-21.

Zimmerman, B. J. (2000) Attaining self-regulation: a social cognitive perspective. In M. Boekarts, P. Pintrich, & M. Zeidner (Eds.), Self-regulation: theory, research, and applications. Orlando, FL: Academic Press, pp.

13-39.

# Table 1

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Frequency of Use Self-Survey of Rationalizations for Procrastination

Read over the following list of frequently heard rationalizations. For each one indicate how often you hear this rationalization in your head.

Respond to the items using the following scale:

Never (N)	Sometimes (S)	Frequently (F)	All the time (A)					
			1. Ignorance - "I didn't know I was supposed to do that.	Ν	s	F	А	
			2. Skill Deficiency - "I don't know how to do it."	Ν	s	F	А	
			3. Apathy 1- "I really don't want to do this"	Ν	s	F	А	
			4. Apathy 2 - "It really doesn't make any difference if I put this off."	Ν	s	F	А	
			5. Apathy 3 - "No one really cares whether I do this or not."	Ν	s	F	А	
			6. Apathy 4 - "I'm not in the mood."	Ν	s	F	А	
			7. Fixed Habits 1 - " But I've always done it this way and it's hard to	Ν	s	F	А	
			<ol> <li>Fixed Habits 2 - "I know I can pull this out at the last minute."</li> </ol>	Ν	s	F	А	
			9. Fixed Habits 3 - "I work better under pressure."	Ν	s	F	А	
			10. Inertia - "I just can't seem to get started."	Ν	s	F	А	
			11. Frail Memory - "I just forgot."	Ν	s	F	А	
			12. Physical Problems - "I couldn't do it; I was sick."	Ν	s	F	А	
			13. Appropriate Delays 1- "I'm just waiting for the best time to do it."	Ν	s	F	А	
			14. Appropriate Delays 2 - "I need time to think this through."	Ν	s	F	А	
			<ol> <li>Appropriate Delays 3 - "This other opportunity will never come again, so I can't pass it up."</li> </ol>	N	s	F	А	

Table 2. Regression Model Summary

	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
						R Square Change	F Change	df1	df2	Sig. F Change
	1	.510(a	.260	.245	5.870	.260	18.072	2	103	.000
a Predictors: (Constant), course points, rationalizations										

# Table 3. ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1245.549	2	622.775	18.072	.000(a)
	Residual	3549.366	103	34.460		
	Total	4794.915	105			

a Predictors: (Constant), course\_points, rationalizations b Dependent Variable: procrastination

# Table 4. Coefficients (a)

	Model Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		
		в	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant) Rationaliza-tions Course	84.888 .214 040	8.699 .089 .008	.206 437	9.758 2.399 -5.100	.000 .018 .000	67.635 .037 055	102.141 .390 024

a Dependent Variable: procrastination