

# How Do You Study? Study Strategies, Academic Goals, and Achievement

Chika Nwaelugo, Jessica Nibbelink, & Madison Scott Mentor: Dr. Jennifer Feenstra  
Psychology Department, Northwestern College

## Introduction

Throughout college students will use different study strategies, set many goals for themselves, and these may result in different levels of academic achievement. A series of researchers have looked into the most popular study behaviors and strategies. Geller et al. (2018) summarized these and found that across studies and institutions, students study in remarkably similar ways. These researchers also studied whether students' achievement goals, independent of academic achievement, would predict their beliefs about learning and use of study strategies. This study found very similar results to Hartwig and Dunlosky (2012) in that high performing students were less likely to cram and more likely to administer self-testing and schedule out time to study.

Geller et al. (2018) assessed approach and avoidance goals. Approach goals focus on competency in the form of positive possibility. Students want to master material or do better than others. Avoidance goals focus on competency in the form of negative possibility. Students want to avoid learning less than they could or avoid doing worse than others. In their study, Geller et al. found that, independent of GPA, achievement goals were predictors of certain study habits such as cramming. These results suggest that differences in student achievement as well as students' motivations for achievement are predictors for how students study.

A belief one knows how to study, known as studying self-efficacy, may also be important for achievement. In meta-analysis of the factors predicting GPA, studying self-efficacy was one of the best predictors (Robbins et al., 2004).

## Hypotheses

- 1) Similar percentages of Northwestern students will report using particular study strategies as Geller et al. (2018) and other previous researchers.
- 2) Students who report more use of cramming will have more avoidance goals, regardless of GPA.
- 3) Students who procrastinate more will report more avoidance goals.
- 4) Studying self-efficacy will be correlated with GPA.

## Method

### Participants

Participants were 88 college students from various psychology classes at Northwestern College. The students ranged in age from 18 to 22 years old with 50% first year students, 28.4% sophomores, 15.9% juniors, and 5.7% seniors. The majority of our sample was female 68.2%.

### Materials

**Study Habits Survey** The study habits survey is a series of questions about study decisions used first by Kornell and Bjork (2007) and repeated by Hartwig & Dunlosky (2012), McAndrew et al. (2016) and Geller et al. (2018). See the table for the questions and responses from previous studies.

**Achievement Goals Questionnaire** Elliott and Murayama (2008) created a revised version of the achievement goals questionnaire by Elliot and McGregor (2001). This 12 item questionnaire covers different types of approach and avoidance goals. Higher scores indicate more approach goals.

**The Study Skills Self-Efficacy Scale** (Silver et al, 2001) was used to assess academic self-efficacy. Students rate how much confidence they have in their study routines, their ability to read texts critically and use resources. For example, students respond on a 1 (very little) to 5 (quite a lot) scale "How much confidence do you have in doing these behaviors...maintaining a daily schedule of study hours."

The **Procrastination Scale** (Lay, 1986) is a 20-item scale asking participants to respond to statements such as "I usually have to rush to complete a task on time" on a 1 (extremely uncharacteristic of me) to 5 (extremely characteristic) scale.

**Academic Achievement** was measured by cumulative GPA.

## Results and Discussion

**Hypothesis 1:** To test the hypothesis that similar percentages of students would report using particular strategies as Geller et al. (2018) and other previous researchers, frequencies for each response were calculated.

As can be seen in the table, in the current study similar percentages as Geller et al. and others were found.

Question	Response options	Hartwig & Dunlosky (2012)	McAndrew et al. (2016)	Geller et al. (2018)	Current study
Would you say that you study the way you do because a teacher (or teachers) taught you to study that way?	Yes	36%	14%	28%	39.8%
	No	64%	84%	72%	60.2%
How do you decide what to study next?	Whatever's due soonest/overdue	56%	67%	58%	64.8%
	Whatever I haven't studied for the longest time	2%	3%	2%	0.0%
	Whatever I find interesting	5%	4%	4%	4.5%
	Whatever I feel like I'm doing the worst in	24%	11%	19%	9.1%
	I plan my study schedule ahead of time, and I study whatever I've scheduled	13%	19%	17%	21.6%
Do you usually return to course material to review it after a course has ended?	Yes	23%	14%	22%	26.1%
	No	78%	83%	78%	73.9%
When you study, do you typically read a textbook/article/other source material more than once?	Yes, I reread whole chapters/ articles	23%	14%	22%	9.1%
	Yes, I reread sections that I under-lined/highlighted/ marked	78%	83%	78%	50.0%
	Not usually	17%	10%	33%	40.9%
If you quiz yourself while you study..., why do you do so?	I learn more that way than I would through rereading	27%	30%	28%	28.4%
	To figure out how well I have learned the information I'm studying	54%	55%	46%	52.3%
	I find quizzing more enjoyable than rereading	10%	9%	13%	15.9%
	I usually do not quiz myself	9%	14%	13%	3.4%
Imagine that in the course of studying, you become convinced that you know the answer to a certain question.... What do you do?	Make sure to study ...it again later	46%	39%	38%	44.3%
	Put it aside and focus on other material	54%	59%	62%	55.7%
What time of day do you most often do your studying?/ What time of day do you believe your studying is (or would be) most effective?	Morning	<1%/15%	28%/50%	6%/21%	3.4%/17%
	Afternoon	11%/27%	27%/27%	19%/33%	12.5%/30%
	Evening	69%/50%	47%/22%	53%/37%	62.5%/44%
	Late night	20%/9%	37%/19%	22%/8%	21.6%/9%
Which of the following best describes your pattern of study?	I most often space out my study session over multiple days/weeks	47%	71%	17%	25.0%
	I most often do my studying in a couple of sessions before the test	N/A	N/A	65%	50.0%
	I most often do my studying in one session before the test	53%	30%	17%	25.0%

**Hypothesis 2:** A linear regression was calculated to predict avoidance goal from amount of cramming and GPA. A significant regression equation was found,  $F(2, 82) = 5.46, p = .006$ , with an  $R^2$  of .12. However, contrary to predictions, cramming did not account for a significant portion of the variance in avoidance goals ( $\beta = -.17, t = -1.57, p = .119$ ).

Cramming was expected to coincide with avoidance goals because cramming may contribute to students' feelings of working only to stay away from failure or to avoid doing worse than other students. However, in this study, no significant contribution was found. The measurement of cramming may not have been as extensive and nuanced as needed to see the relationships.

**Hypothesis 3:** To test the hypothesis that procrastination would be correlated with avoidance goals a Pearson product moment correlation was performed. Students who reported more procrastination reported more avoidance goals,  $r(86) = -.24, p = .02$ .

Students who procrastinate may not be motivated to master material but instead may simply be trying to avoid looking bad in relation to others (Howell & Watson, 2007). In this study procrastination was associated with avoidance.

**Hypothesis 4:** We predicted that studying self-efficacy would be correlated with GPA. A Pearson product moment correlation showed a significant correlation,  $r(84) = .33, p = .002$ . Students who had a stronger studying self-efficacy did have a higher GPA.

As expected, studying self-efficacy was correlated with GPA in the present study. Students who feel they know how to study may be more motivated to study, engage in more studying, and do better.

## Conclusion

The present study shows that Northwestern students are similar to students from other institutions in the study choices they make (Geller et al., 2018). As previous researchers also found, most Northwestern students focus their studying on whatever is due next, they do not return to information from previous classes, and show a moderate amount of cramming. Research on effective study strategies for long-term learning does not support these behaviors. Use of these less effective strategies are not surprising, however, given the report from Northwestern students and others that very few study the way they do because they were taught to study that way. Students may simply do what they know how to do, not realizing some of their strategies may be ineffective.

The two other significant findings for this study are supported by previous research (Howell & Watson, 2007; Robbins et al., 2004). Avoidance goals are associated with procrastination. Staying away from a bad outcome may not be motivating for students. It is approach goals that may spur students on to get academic work done early or on time.

A belief that one knows how to study may also be motivating and lead to positive outcomes. In this study studying self-efficacy was associated with academic achievement. Students who felt they knew what to do when they sat down to study were doing better in school.

## References

- Elliot, A. J., & MacGregor, K. (2001). On the measurement of achievement goals: Critique, illustration, and application. *Journal of Educational Psychology, 100*(3), 613-628. <https://doi.org/10.1037/0022-0663.100.3.613>
- Geller, J., Toftness, A. R., Armstrong, P. I., Carpenter, S. K., Manz, C. L., Coffman, C. R., & Lamm, M. H. (2018). Study strategies and beliefs about learning as a function of academic achievement and achievement goals. *Memory, 26*(5), 683-690. <https://doi.org/10.1080/09658211.2017.1397175>
- Hartwig, M. K., & Dunlosky, J. (2012). Study strategies of college students: Are self-testing and scheduling related to achievement? *Psychonomic Bulletin & Review, 19*(1), 126-134. <https://doi.org/10.3758/s13423-011-0181-y>
- Howell, A. J., & Watson, D. C., (2007). Procrastination: Associations with academic achievement goal orientation and learning strategies. *Personality and Individual Differences, 43*(1), 167-178. <https://doi.org/10.1016/j.paid.2006.11.017>
- Kornell, N., & Bjork, R. A. (2007). The promise and perils of self-regulated study. *Psychonomic Bulletin & Review, 14*(2), 219-224. <https://doi.org/10.3758/BF03194055>
- Lay, C. (1986). At last, my research article on procrastination. *Journal of Research in Personality, 20*, 474-495. [https://doi.org/10.1016/0092-6566\(86\)90127-3](https://doi.org/10.1016/0092-6566(86)90127-3)
- McAndrew, M., Morrow, C. S., Atiyeh, L., & Pierre, G. C. (2016). Dental student study strategies: Are self-testing and scheduling related to academic performance? *Journal of Dental Education, 80*(5), 542-552.
- Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, R. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin, 130*(2), 261-288. <https://doi.org/10.1037/0033-2909.130.2.261>
- Silver, B. B., Smith, E. V., & Greene, B. A. (2001). A study strategies self-efficacy instrument for use with community college students. *Educational and Psychological Measurement, 61*, 849-865. <https://doi.org/10.1177/00131640121971563>