

The Relationship between Academic Procrastination and Beliefs about  
Effort and Capability in High School Students

Caroline Trezza

## Personal Section

Most people cannot deny having procrastinated at some time; almost everyone can sympathize with the desire to delay working on an uninviting task. As a high school student, I have seen the extent to which both my peers and I postpone our work, putting off assignments until “crunch time” when we rush to get it done. Empirical studies have largely classified procrastination as a maladaptive trait, as it has been correlated with irritation, regret, self-condemnation, low self-esteem, despair, test anxiety, and lower GPAs (Burka & Yuen, 2008; Ferrari, Johnson, & McCown, 1995; Ferrari, 1998; Lay, Edwards, Parker, & Endler, 1989; Schouwenburg & Lay, 1995, Schraw et al, 2007, Tice & Baumeister, 1997) – though I was well-acquainted with these findings long before I read about them in scientific journals. Experiences with all-nighters, avoidable typos in papers that were not given the time to be properly proofread, and stress caused by piles of work left until Sunday night had taught me first-hand about the dangers of procrastination. Yet I could never explain to myself *why* I dawdled in beginning my work – it was simply a habit I had grown to accept. And for that reason, I began my research to understand why students procrastinate. Procrastination is something so common and relatable, yet something that we rarely take the time to understand – and I wanted to change that.

I chose to study possible predictors of procrastination, with the ultimate hope of lessening its prevalence in the academic sphere. Specifically, I conducted one study in which I looked at the relationships between academic procrastination and students’ perfectionism and fears of failure, and later I revised my study and added self-efficacy to the model. I began this project at the end of my sophomore year, and I performed my research through my school’s behavioral science research program. Before this project, I took an introductory class in which I learned general research techniques and completed a small-scale project in a seminar class. My study of

procrastination, however, was close to a two year process in which I worked with my school's research advisor to review past literature, design a study, create a survey, and write a paper based on my findings. I also contacted professors from various universities who had done similar research, in order to receive suggestions about literature, scales, data analysis, and general questions regarding the research process.

I administered my surveys to students in my school, entered all the data into the computers in our research center using SPSS, and ran my initial analysis there. I also ran a new set of analyses at Penn State University, under the guidance of a professor whom I had contacted based on his familiarity with the fear of failure and perfectionism. This new set of analyses required that I enhance my understanding of statistics past what I had learned previously. My study was correlational; however, there are different statistical tests used to measure correlation. I needed to have a better understanding of the differences in statistical tests, particularly between a bivariate correlation and a multiple regression, in order to understand why a relationship may be significant in one test yet insignificant in another. Working with the professor at Penn State, I came to understand how both tests look at the relationship between two variables, yet they relate different portions of the predictor and outcome variables to each other.

I gained a new appreciation for science and research after completing this project. There is a definite satisfaction to being able to pose your own question and do the necessary work to answer it. My advice to other high school students pursuing research is to choose a topic and question that you yourself find interesting, because that will help motivate you to find the answer. My project took a over year and a half, a process which incorporated reading, writing, physically collecting data, and then learning new math to make sense of it – but by the time I was finished, I had the knowledge that my work successfully led me to a new understanding of a behavior so

common in everyday life. This sense of satisfaction and accomplishment in completing my own project fueled my interest in behavioral and social science, and from this experience I have come to realize that I want to continue researching and understanding human behavior with future opportunities in research.

## Research Section

Academic procrastination is the intentional delay of academic work (Schraw, Wadkins, & Olafson, 2007), and this phenomenon is extremely prevalent, affecting 70% of college students (Burka & Yuen, 2008). Many studies have looked at the various outcomes of procrastination, yet this study sought to understand reasons why students may be inclined to procrastinate.

One theory suggests that procrastination may be fueled by a fear of failure (Burka & Yuen, 2008). This fear, supported by empirical studies (Ferrari, 1991; Milgram, 1991; Solomon & Rothblum, 1984), is based on the idea that the work a person produces defines his or her ability, and thus his or her worth. Contrary to common belief, instead of leading to hard work, the fear of failure often leads to procrastination in order to avoid feeling that one did not meet the standards required of him or her (Burka & Yuen, 2008). Essentially, people who fear failure self-handicap to avoid the disapproval they associate with a sub-par performance. They blame their failure on their lack of trying, as opposed to their lack of ability. It should be noted that a few recent studies have found the fear of failure and procrastination to be unrelated in college students (Ackerman & Gross, 2005; Schraw et al., 2007); however, these discrepancies may be attributed to the use of less conventional definitions of the fear of failure (Ackerman & Gross, 2005) or qualitative methodology (Schraw et al., 2007). These findings indicate the need for research to expound further the relationship between the fear of failure and procrastination.

Procrastination also has been linked to certain kinds of perfectionism. Hewitt and Flett (1991) proposed that perfectionism can be divided into socially-prescribed perfectionism (SPP), other-oriented perfectionism (OOP), and self-oriented perfectionism (SOP). A wealth of research has shown that procrastination is negatively correlated with SOP (Klibert, Langhinrichsen-Rohling, & Saito, 2003; Saddler & Buley, 1999; Seo, 2008). SOP is the tendency for a person to hold high standards for his or her own performance (Hewitt & Flett, 1991; Klibert et al., 2005), and research argues that such a perfectionist does not delay his or her work. By managing his or her time well, a self-oriented perfectionist avoids compromising the quality of his or her results.

Other researchers have divided perfectionism into positive and negative constructs (Terry-Short, Owens, Slade, & Dewey, 1995). Positive perfectionism is similar to an individual's need for achievement; it is defined as the motivation to achieve a goal in order to obtain a favorable result. Negative perfectionism is the motivation to reach a goal to avoid negative consequences (Burka & Yuen, 2008, Flett & Hewitt, 2006; Haase & Prapavessis, 2004; Lotar & Kamenov, 2006). Neither positive nor negative perfectionism has been looked at in relation to procrastination, though it has been shown that negative perfectionism is correlated with self-handicapping (Lotar & Kamenov, 2006), the act of intentionally lessening the quality of one's work. Since procrastination is sometimes considered to be a means of self-handicapping (Burka & Yuen, 2008), it is possible that negative perfectionism and procrastination may be positively correlated. Additionally, similar to those who fear failure, negative perfectionists might postpone tasks to say they would have done better had they applied themselves earlier. Thus it may be theorized that negative perfectionists procrastinate in order to avoid the risk of trying and disappointing themselves. However, positive perfectionists likely avoid procrastinating in order to attain the achievement they desire.

Although Sud and Prahba (2003) split SOP into positive versus negative facets, these facets have never been studied in regards to procrastination. Despite negative correlations with procrastination, SOP as a whole has previously been considered to be both adaptive and maladaptive in nature (Hewitt & Flett, 1991; Klibert et al., 2005). The present study looked to see if SOP was broad enough to warrant two distinct subdivisions, adaptive and maladaptive, with different relations to procrastination habits in a high school population. It was hypothesized that negative SOP would be positively related to procrastination, while positive SOP would be negatively related to procrastination. It was also believed that the fear of failure would be positively related to procrastination.

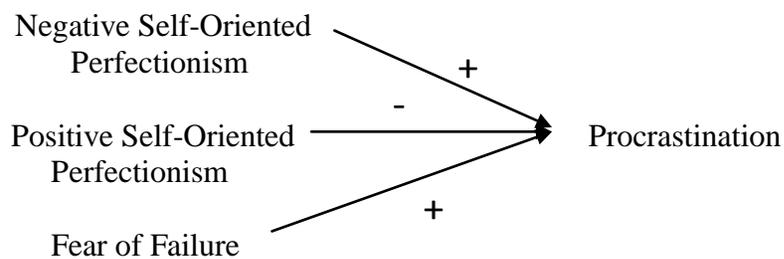


Figure 1. Hypotheses

### Study 1

#### *Method*

*Participants.* The population for the initial study consisted of 79 tenth grade students enrolled in a required sophomore health course at a high school in a suburb of New York City. Students in any of the health classes in session were given the opportunity to partake in the study. Thirty-six students were male (47.1%) and 43 were female (52.9%). 17.7% of the students were enrolled primarily in Regents level classes ( $N = 14$ ), 50.6% were in a majority of honors classes ( $N = 40$ ), and the remaining 31.6% ( $N = 25$ ) were AP students. The sample was

heavily Caucasian ( $N = 55$ ; 69.6%), though 20.3% were Asian ( $N = 16$ ), 8.9% identified themselves as “Other” or “Multiracial” ( $N = 7$ ), and 1.3% were Hispanic ( $N = 1$ ).

*Materials.* A survey composed of three scales was created for this study. First, participants completed the shortened version of the Tuckman Procrastination Scale (Tuckman, 1991). The scale consisted of 16 items on a 5-point Likert-type scale. The statements included, “I delay making tough decisions,” and answers ranged from “Strongly Disagree” (1) to “Strongly Agree” (5). The reliability of the scale in this study was .88, consistent with the reliability of .86 in Tuckman’s 1991 study.

The Positive and Negative Perfectionism Scale (PANPS; Terry-Short, Owens, Slade, & Dewey, 1995) was adapted to determine participants’ levels of positive and negative self-oriented perfectionism. Initially, the scale had 40 questions regarding the participants’ views towards high standards set by both the individual themselves or people around them. Half of these questions dealt with positive perfectionism, the other half with negative. However, the version created for the present study used only the 18 questions pertaining to perfectionist standards held by the individual, as opposed to outside influences. Ten questions from the positive perfectionism subscale were used to create the Positive SOP Scale, which had a reliability of .89 on this sample. One sample item is “I take pride in being meticulous when I do things.” Eight items from the negative perfectionism subscale, such as “I set impossibly high standards for myself,” were compiled to form the Negative SOP Scale, which demonstrated a reliability of .77 for these participants. Both scales used a 5-point Likert-type scale, with answer choices ranging from “Strongly Disagree” (1) to “Strongly Agree” (5).

The Fear of Experiencing Shame and Embarrassment (FSE) subscale of the Performance Failure Appraisal Inventory (PFAI; Conroy, Willows, & Meltzer, 2002) was used to measure the fear

of failure in the students. This subscale consisted of 7 items assessing students' fears of falling short in the eyes of others. The items used a 5-point bipolar scale, with answers ranging from 1 (“Do not believe at all”) to 5 (“Believe 100% of the time). Items include statements such as “When I am failing, important others are disappointed.” The scale had a Cronbach’s alpha of .79 in this study. For all of the measures in this survey, the respective authors gave permission for their scales to be used.

*Results*

*Data Analysis.* A significance level of  $p < .05$  was used to determine statistical significance. The data were analyzed using SPSS version 13.0.

A multiple regression (see Table 1) was used to determine the predictive power of positive/negative SOP and the fear of failure with regards to academic procrastination. This model found that 18.0% of the variance in procrastination was related to these predictors. The only significant predictor was positive SOP ( $p < .01$ ), which displayed the hypothesized negative relationship with procrastination.

Table 1. Model summary for procrastination

Variables	Unstandardized Coefficients		Standardized Coefficient	<i>t</i>	<i>p</i>
	B	Std. Error	Beta		
PosSOP	-.40	.11	-.39	-3.59	<.01
NegSOP	.20	.12	.20	1.68	.10
FF	.12	.10	.15	1.26	.21

Note.  $R^2 = .18$ ,  $N = 79$

Predictors: Positive SOP (PosSOP), Negative SOP (NegSOP), Fear of Failure (FF)

Outcome Variable: Procrastination (Proc)

Similarly, bivariate correlations showed that only positive SOP was significantly related to procrastination (see Table 2). In addition, there was a significant, moderate positive correlation between the fear of failure and negative SOP. Therefore, two more multiple regressions were run; one in which only positive and negative SOP were predictors (Table 3),

and one in which the fear of failure and positive SOP were predictors (Table 4). These tests determined that both negative SOP and the fear of failure were significant positive predictors of procrastination when controlling for the fear of failure and negative SOP, respectively.

Table 2. Correlation matrix

	Proc	PosSOP	NegSOP	FF
Proc	1.00	...	...	...
PosSOP	-.32(**)	1.00	...	...
NegSOP	.19	.22	1.00	...
FF	.15	.23 (*)	.43(**)	1.00

Note: \*  $p < .05$ , \*\*  $p < .01$ ,  $N = 89$

Procrastination (Proc), Positive SOP (PosSOP), Negative SOP (NegSOP), Fear of Failure (FF)

Table 3. Positive and negative SOP as predictors of procrastination

Variables	Unstandardized Coefficients		Std. Coefficient	$t$	$p$
	B	Std. Error	Beta		
PosSOP	-.38	.11	-.37	-3.42	<.01
NegSOP	.26	.11	.26	2.38	.02

Note.  $R^2 = .162$ ,  $N = 79$

Predictors: Positive SOP (PosSOP), Negative SOP (NegSOP)

Outcome Variable: Procrastination (Proc)

Table 4. Positive SOP and the fear of failure as predictors of procrastination

Variables	Unstandardized Coefficients		Std. Coefficient	$t$	$p$
	B	Std. Error	Beta		
PosSOP	-.38	.11	-.37	-3.35	<.01
FF	.19	.09	.23	2.09	.04

Note.  $R^2 = .149$ ,  $N = 79$

Predictors: Positive SOP (PosSOP), Fear of Failure (FF),

Outcome Variable: Procrastination (Proc)

### Discussion

The study accounted for 18.0% of the variance in academic procrastination scores, and the data supported the hypothesis that positive perfectionism would negatively predict academic procrastination. Results of the multiple regressions indicated that positive SOP was a significant negative predictor of procrastination; that is, students motivated by the desire to meet a self-determined standard of performance were less likely to delay their academic tasks than students without this motivation. This finding is similar to several other studies and sources which

reported that SOP as a whole demonstrated a negative relationship with procrastination (Klibert et al., 2003; Saddler & Buley, 1999; Seo, 2008).

Self-oriented perfectionists are unlikely to put off an assignment, as they enjoy the sense of achievement and accomplishment that comes when they complete a project to their standards (Klibert et al., 2003). Such students would likely maintain good time management habits in order to produce their desired results. However, the present study divided SOP into positive and negative SOP, and found that only positive SOP was correlated with procrastination. This construct described students who take pleasure in their accomplishments and are thus inspired to improve their work continually (Klibert et al., 2003), and it follows the hypothesis that such students might exert effort towards the completion of a task, rather than put it off. Students who enjoy having high expectations for their work would probably not be inclined to put off their assignments, as this behavior would likely result in a last-minute rush that might lessen the quality of their work and cause them to fall short of their goals. Yet the negative relationship with procrastination did not extend to other SOP beliefs.

Although Sud and Prahba (2003) found that negative SOP was correlated with maladaptive traits such as test anxiety and worry, as well as lower GPA, the present study found that this variable was not related to procrastination. It is possible that the “negative” and “self-oriented” aspects of this negative SOP counteract each other and weaken the relationship with procrastination. A self-oriented perfectionist may be motivated by past feelings of success to try to achieve the same feelings of accomplishment, thus implying a negative relationship with procrastination. Yet the “negative” aspect of negative SOP, in which the student expects to experience shame upon failing to meet his or her initial standards, may have a positive relationship with procrastination, as similar to the fear of failure. While it was hypothesized that

this fear of falling short of one's expectations would override the desire to achieve a sense of accomplishment, this does not appear to be the case. Additionally, though negative perfectionism has been associated with self-handicapping, self-handicapping is not synonymous with procrastination, thus explaining why this result was not replicated in the present study.

Surprisingly, the fear of failure was insignificantly related to procrastination and did not support the hypothesis. Previous studies have shown that some students believe failure lowers their worth in the eyes of others (Ferrari, Keane, Wolfe, & Beck, 1998; Morse, 1987), and it was expected that some students in this study would procrastinate as a method of self-handicapping. They would therefore be able to excuse their lack of success in a way that would not threaten their supposed worth as a person. Since this study's lack of a correlation between the fear of failure and procrastination was unexpected, I looked more closely at the relationship between negative SOP and the fear of failure with regards to academic procrastination. Both based on a fear of feeling ashamed, a relationship reflected in the correlation between these variables. This similarity may have impacted their predictive power. When only one of these two variables were predictors of procrastination in the multiple regression (Tables 3 and 4), each was a significant negative predictor. Thus, it may mean that since both predictors explained a similar portion of the variance, the predictive power of one was compromised by the presence of the other.

While this study accounted for a meaningful portion of the variance in procrastination, there is still much more variability to be understood. It may be possible that some students do not put in the effort towards an academic task because they do not believe it is within the realm of their capabilities; in other words, students with low self-efficacy may not believe that they can accomplish a task, and thus they delay their work (Ferrari, 1991; Haycock, McCarthy, & Skay, 1998; Klassen, Krawchuk, & Rajani, 2008; Wolters, 2003). Moreover, self-efficacy may also

play a role in the relationship between procrastination and SOP. Research has suggested that the negative relationship displayed between positive SOP and procrastination may be a result of self-efficacy as a mediator variable (Seo, 2008). This particular 2008 study showed that in a population of female Korean college students, students with higher levels of SOP tended to have higher levels of self-efficacy. This self-efficacy was, in turn, negatively correlated with procrastination habits, implying that the moderate negative correlations between SOP and procrastination in the current study's regression model and matrix may be explained by the addition of self-efficacy as an intermediate variable.

Understanding the role of academic self-efficacy, or one's belief in his or her academic capabilities, in the relationship between perfectionism and procrastination may lead to a greater understanding of how to prevent procrastination. Thus, a follow-up study was conducted to see if academic self-efficacy would be a negative predictor of academic procrastination, and/or if it would also mediate the relationship between SOP, particularly positive SOP, and procrastination.

## Study 2

### *Method*

*Participants.* The population for the second study was comprised of 89 eleventh grade students from the same high school described in Study 1. The seven classes used for the study were selected using stratified random sampling, in order to proportionately represent class level throughout the grade. Of the students surveyed, 21.3% ( $N = 19$ ) were enrolled in Regents level social studies classes, 42.7% ( $N = 38$ ) were in honors, and 36.0% ( $N = 32$ ) were AP students. There were slightly more male participants ( $N = 46$ ; 51.7%) than female participants ( $N = 43$ ;

48.3%), and the sample was predominately Caucasian ( $N = 54$ ; 60.7%), though other participants were Asian ( $N = 20$ ; 22.5%), Hispanic ( $N = 7$ , 7.9%), “other” or “multiracial” ( $N = 6$ , 6.7%), or African American ( $N = 2$ ; 2.2%).

*Materials.* In addition to the three scales in the original survey, the abridged Self-Efficacy for Learning Form (SELF-A; Zimmerman & Kitsantas, 2007) was used to measure academic self efficacy. The scale included 13 items, answered on a 5-point bipolar scale with responses ranging from “Definitely cannot do it” (1) to “Definitely can do it” (5). Questions included “When you find yourself getting increasingly behind in a new course, can you increase your study time sufficiently to catch up?” The scale demonstrated a reliability of .80 on this sample. Permission to use the scale was obtained from the authors.

## *Results*

*Data Analysis.* A multiple regression (Table 5) was run in which positive and negative SOP, the fear of failure, and academic self-efficacy were used to predict procrastination. This test determined that 25.7% of the variance in procrastination was related to these hypothesized predictors. Self-efficacy was the strongest predictor ( $p < .01$ ), and it exhibited a negative relationship with procrastination, as hypothesized. Additionally, the fear of failure was a significant positive predictor of procrastination ( $p < .05$ ).

Table 5. Model summary for procrastination

Variables	Unstandardized Coefficients		Standardized Coefficient	<i>t</i>	<i>p</i>
	B	Std. Error	Beta		
PosSOP	-.15	.11	-.16	-1.38	.17
NegSOP	-.08	.10	-.10	-0.81	.42
FF	.26	.11	.33	2.49	.02
SEff	-.52	.14	-.39	-3.70	<.01

Note.  $R^2 = .257$ ,  $N = 89$

Predictors: Positive SOP (PosSOP), Negative SOP (NegSOP), Fear of Failure (FF), Self-Efficacy (SEff)  
 Outcome Variable: Procrastination (Proc)

As shown in the correlation matrix (Table 6), procrastination was negatively related to both self-efficacy and positive SOP ( $p < .05$ ). Both of these results support the initial hypotheses. However, the correlation matrix did not show a relationship between procrastination and the fear of failure or negative SOP.

Table 6. Correlation matrix

	Proc	PosSOP	NegSOP	FF	SEff
Proc	1.00	...	...	...	...
PosSOP	-.21 (*)	1.00	...	...	...
NegSOP	.02	.31 (**)	1.00	...	...
FF	.16	.46 (**)	.64 (**)	1.00	...
SEff	-.43 (**)	.44 (**)	.09	.10	1.00

Note: \*  $p < .05$ , \*\*  $p < .01$ ,  $N = 89$

Procrastination (Proc), Positive SOP (PosSOP), Negative SOP (NegSOP), Fear of Failure (FF), Self-Efficacy (SEff)

In order to test the hypotheses, and explain the discrepancy between the significant bivariate correlation between procrastination and positive SOP and the insignificant relationship between the two in the multiple regressions, self-efficacy was removed as a predictor variable and another multiple regression was run (Table 7). According to the bivariate correlation, self-efficacy was significantly correlated with both procrastination and positive SOP, making it possible that self-efficacy was a mediator in the relationship between the two. The new multiple regression, which used only positive SOP, negative SOP, and the fear of failure as predictors,

found that positive SOP was a significant negative predictor of procrastination. This implied that it had shared predictive power with self-efficacy in the initial multiple regression (Table 5). However, since self-efficacy was the overall stronger predictor, it may have overshadowed the relationship between positive SOP and procrastination, which could therefore only be seen when self-efficacy was removed.

Table 7. Multiple regression without self-efficacy

Variables	Unstandardized Coefficients		Standardized Coefficient	<i>t</i>	<i>p</i>
	B	Std. Error	Beta		
PosSOP	-.32	.37	-.36	-3.12	<.01
NegSOP	-.09	.10	-.11	-0.86	.40
FF	.31	.11	.39	2.76	.01

Note.  $R^2 = .134$ ,  $N = 89$

Predictors: Positive SOP (PosSOP), Negative SOP (NegSOP), Fear of Failure (FF)

Outcome Variable: Procrastination (Proc)

## General Discussion

The multiple regression run in Study 2 accounted for 25.7% of the variance in procrastination. In this regression, academic self-efficacy exhibited the hypothesized relationships found in Seo's sample of female Korean college students (2008), demonstrating that these relationships are also valid in a sample of American high school students of both genders. Academic self-efficacy was a moderate and significant negative predictor of procrastination in this study; this finding has been asserted in many different studies (Ferrari, 1991; Haycock et al., 1998; Wolters, 2003). This relationship is logical and has often been explained by the idea that the more students believe in their own capability to accomplish a task, the more likely and willing they will be to complete it without delay.

Self-efficacy is an interesting variable because of its relationship with positive SOP. In the past, studies have shown that self-efficacy mediates the relationship between procrastination

and SOP, although SOP was a single variable, without positive and negative classifications. These past studies found that SOP was positively related to self-efficacy, which was then negatively related to procrastination (Mills & Blankstein, 2000; Seo, 2008). This present study found a similar relationship, as positive SOP had a positive relationship with academic self-efficacy, and academic self-efficacy was then negatively related to procrastination.

The fear of failure was found to be a significant predictor of procrastination only in the multiple regression. The relationship found was positive as hypothesized; however, it was unexpected that the two variables would be related in the regression and not the correlation matrix. This finding may be attributed to the differences in these statistical tests. A correlation looks at the relationship between the overall levels of two variables in question. In this study, the bivariate correlation determined that the relationship between the fear of failure and the overall procrastination value was insignificant. However, a multiple regression looks at the relationship between multiple predictor variables and the portions of the outcome variable explicitly attributed to each individual predictor. Thus, Table 5 displays the relationship between the fear of failure and the portion of procrastination *not* correlated with any of the other variables. This implies that the fear of failure is only a significant predictor of *adjusted* procrastination; that is, fear of failure predicts students' levels of procrastination when they demonstrate the average levels of self-efficacy and positive and negative SOP, such that these variables do not influence their work habits. Therefore, the fear of failure is neither the most significant nor powerful of the predictors, yet it nevertheless accounts for a portion of the variance in procrastination.

The findings of Study 2 may help explain and reinforce the results of the initial study. For example, the mediator relationship in the second study complements the association between

positive SOP and procrastination in Study 1. Perfectionist students tend to have high self-efficacy, and the high standards they hold for themselves correlate with their beliefs in their own capabilities to reach their goals. This sense of ability then relates to a greater desire to exert effort towards the completion of an assignment and lesser likelihood to engage in task delay, giving a more complete understanding of how such perfectionist tendencies are negatively correlated to procrastination.

Moreover, the finding that the fear of failure is a significant positive predictor of procrastination only in the absence of other variables is similar to Study 1, where the fear of failure was only significant in the absence of negative SOP. The differences in statistical tests may have played a role then as well; the fear of failure and negative SOP may have accounted for the same variance in the multiple regression, as shown in Study 1, but their lack of bivariate correlation with procrastination may mean that they were correlated only with a small part of procrastination, not the overall variable. Only when other, more influential variables are controlled for does it appear that the fear of failure demonstrates a relationship with procrastination. Also, it appears that negative SOP is an unreliable and insignificant predictor of procrastination. In Study 1, it was significant in the absence of the fear of failure, yet the relationship was still weak; in Study 2, it was an altogether insignificant predictor. As stated previously, negative SOP has been studied before and has been correlated with various negative outcomes other than procrastination (Sud & Prahba, 2003). However, it may not make sense as a correlate of procrastination. This lack of relationship may be explained with the same reasoning used in Study 1; being a self-oriented perfectionist and being a negative perfectionist may elicit two different reactions to procrastination, which may cancel each other out and result in an insignificant relationship.

### *Limitations and Further Study*

Both Study 1 and Study 2 were somewhat limited by their populations. The surveys were administered in a predominately affluent, Caucasian community, and thus cannot be generalized to a broader population. However, from the first study to the second, the survey was administered to different grade levels; it appears that the results are not unique to students in a specific grade, and can be generalized beyond one grade level.

Another issue is that self-report surveys, like the one utilized in this study, only measure a person's procrastination and dependent variable levels at a given point in time. This means that there is a potential for students' feelings towards themselves and their work to vary from day to day or from context to context. In order to understand procrastination fully, it may be useful to study intra-individual changes; how do students' procrastination tendencies change based on class, type of assignment, or how they feel about the subject in order to account for all the variability in procrastination levels. This could be tested by asking students questions about procrastinating on specific class assignments or by monitoring how procrastination tendencies change over a given time interval. For example, students may be more inclined to procrastinate on a subject they dislike or on the weekend versus during the school week.

Moreover, the study was correlational, which means that while relationships can be displayed, causation cannot. The proposed reasons for the relationships shown in this study are largely based on inferences and theories in previous studies. It is possible that procrastination habits influence students' self-efficacious tendencies or their beliefs about effort; these characteristics may be results, rather than antecedents, of procrastination. Thus, though the explanations in this study build upon that of previous literature, it is important to note the

correlation cannot prove causation. However, experimental studies may provide support for the relationships inferred from this study. For example, future studies could monitor students' procrastination habits after the experimenter has manipulated the emphasis a teacher places on perfectionism, the fear of failure, or self-efficacy when administering a task to students.

Furthermore, this study showed that SOP was a complex variable. While it appears that positive SOP is adaptive, insignificant results were found regarding negative SOP. Thus, though the latter variable may not be related to procrastination, it may be useful to investigate its relationship with other variables, such as depression, frustration, or self-esteem.

### *Conclusion*

Both studies accounted for significant and meaningful portions of the variance in procrastination. The initial study found both a relationship between positive perfectionist tendencies and procrastination and weaker relationship between failure-avoidances motivation characteristics (the fear of failure and negative SOP) and procrastination when negative SOP and the fear of failure were controlled for, respectively. The second study built upon the initial findings by determining that self-efficacy was an even stronger predictor of procrastination tendencies and that it also mediated the relationship between positive SOP and procrastination. Only the fear of failure was a significant shame-induced predictor of procrastination.

Taken together the studies have practical applications for educators and parents looking to reduce academic procrastination in students. Though the study was correlational, it appears that a potentially promising method for controlling procrastination may be to increase students' academic self-efficacy and enhance their beliefs in their own capabilities. Self-efficacy was negatively related to procrastination on its own, yet it may also influence the relationship

between procrastination and positive SOP. If students can be identified as positive self-oriented perfectionists, this characteristic may then be honed to urge the students to become more self-efficacious as well. This combination appears to be inversely related to procrastination.

Additionally, though the relationship was not as strong, the fear of failure was also found to predict procrastination. Some students may not be perfectionists or may not demonstrate high levels of self-efficacy. For these students, it is likely important that they learn that performance is not a measure of worth. If they believe that it does measure worth, then they may believe that any chance of failure will demean them as a person, thus making them more inclined to self-handicap and procrastinate.

Procrastination is a serious problem faced by student. With new technologies and distractions available each day, it is becoming increasingly important to know how to control and reduce such tendencies in students. The academic procrastination prevalent in both college and high school should be reduced as much as possible, and past studies have focused much more on college academics than high school students. The findings of this study help suggest areas where parents and educators of adolescents should be most concerned, as they work to teach their children and students the value of working today and not waiting for tomorrow.

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