

Instructions for authors, subscriptions and further details:

<http://ijep.hipatiapress.com>

## **Predicting Procrastination: The Role of Academic Achievement, Self-efficacy and Perfectionism**

Ana Kurtovic<sup>1</sup>, Gabrijela Vrdoljak<sup>1</sup>, Anita Idzanovic<sup>1</sup>

1) University J. J. Strossmayer Osijek

Date of publication: February 24<sup>th</sup>, 2019

Edition period: February 2019-June 2019

---

**To cite this article:** Kurtovic, A. Vrdoljak, G., & Idzanovic, A. (2019). Predicting Procrastination: The Role of Academic Achievement, Self-efficacy and Perfectionism, *International Journal of Educational Psychology*. 8(1),1-26. doi: [10.17583/ijep.2019.2993](https://doi.org/10.17583/ijep.2019.2993)

**To link this article:** <http://dx.doi.org/10.17583/ijep.2019.2993>

---

PLEASE SCROLL DOWN FOR ARTICLE

The terms and conditions of use are related to the Open Journal System and to [Creative Commons Attribution License \(CC-BY\)](https://creativecommons.org/licenses/by/4.0/).

# Predicting Procrastination: The Role of Academic Achievement, Self-efficacy and Perfectionism

Ana Kurtovic  
*University J.J. Strossmayer Osijek*

Gabrijela Vrdoljak  
*University J.J. Strossmayer Osijek*

Anita Idzanovic  
*University J. J. Strossmayer Osijek*

## Abstract

The aim of this study was to examine the relations of academic achievement, self-efficacy, and perfectionism with procrastination in University students, and to examine whether procrastination can be predicted by academic achievement, self-efficacy, and perfectionism dimensions. 227 University students from different faculties completed Tuckmans' procrastination scale, Almost Perfect Scale – Revised (APS-R; Slaney Rice, Mobley, Trippi, & Ashby, 2001) and General self-Efficacy Scale (GSE; Schwarzer & Jerusalem, 1995), as well as data about academic achievement at the end of last academic year. Results have shown negative correlations of academic achievement, self-efficacy and adaptive perfectionism with procrastination, and a positive correlation between maladaptive perfectionism and procrastination. Results have also shown that self-efficacy is positively correlated with adaptive perfectionism and negatively with maladaptive perfectionism. Maladaptive perfectionism was a positive predictor of procrastination, while academic achievement, self-efficacy and adaptive perfectionism were all negative predictors. Finally, we used Hayes bootstrapping method to examine possible mediations. The results have shown that self-efficacy, by its self, is not a significant mediator, while paths containing self-efficacy and adaptive or maladaptive perfectionism mediate the relation between academic achievement and procrastination. Furthermore, both adaptive and maladaptive perfectionism mediated the relation between self-efficacy and procrastination.

**Keywords:** procrastination, academic achievement, self-efficacy, perfectionism, University students



# Predicción de la Procrastinación: El Papel del Logro Académico, la Autoeficacia y el Perfeccionismo

Ana Kurtovic

*University J.J. Strossmayer Osijek*

Anita Idzanovic

*University J. J. Strossmayer Osijek*

Gabrijela Vrdoljak

*University J.J. Strossmayer Osijek*

## Abstract

El objetivo de este estudio fue examinar la relación entre rendimiento académico, autoeficacia, perfeccionismo y procrastinación en los estudiantes universitarios, y para examinar si la procrastinación puede ser predicha de acuerdo con las variables del logro académico, la autoeficacia y el perfeccionismo. 227 estudiantes universitarios de diferentes facultades completaron la Escala de Procrastinación de Tuckmans, la Escala casi Perfecta - Revisada y la Escala de Autoeficacia General, así como datos sobre logros académicos al final del último curso. Los resultados han mostrado una correlación negativa entre logro académico, autoeficacia, perfeccionismo adaptativo y procrastinación. Se halló una correlación positiva entre el perfeccionismo desadaptativo y la procrastinación. La autoeficacia tiene una correlación positiva con el perfeccionismo adaptativo y una correlación negativa con el perfeccionismo desadaptativo. El perfeccionismo desadaptativo fue un predictor positivo de la procrastinación, mientras el logro académico, la autoeficacia y el perfeccionismo adaptativo fueron predictores negativos. Finalmente, utilizamos las técnicas de Bootstrapping de Hayes para analizar posibles mediaciones. La autoeficacia, por sí misma, no es un mediador significativo, mientras que los caminos que contienen las variables moderadoras de la autoeficacia y el perfeccionismo adaptativo o desadaptativo median la relación entre los logros académicos y la procrastinación. Además, tanto el perfeccionismo adaptativo como el desadaptativo mediada la relación entre la autoeficacia y la procreación.

**Keywords:** procrastination, academic achievement, self-efficacy, perfectionism, University students



Steel (2007) explains procrastination as delaying the commencement or completion of a planned behavior or delay of making a decision. All people occasionally procrastinate (Van Eerde, 2003), and procrastination can occur at school and at work, daily activities, obligations, free time, family and partnership, as well as in social contacts (Klingsieck, 2013). Although it occurs in various areas, it is most commonly associated with education and work, due to external and specific deadlines set for the completion of a task or a job (Klingsieck, 2013). Procrastination is widespread among students and, according to some studies, about 80-95% of students procrastinate (Ellis & Knaus, 1997). A survey of academic procrastination conducted by Hill, Hill, Chabot and Barral (1978) has found that about 50% of students are prone to academic procrastination, and that there was a noticeable increase in procrastination in the later years of study.

Procrastination is often investigated because of potential negative consequences such as low academic achievement, poor physical and mental health or problems in interpersonal relationships. Longitudinal studies show that procrastination has a significant effect on physical health. Tice and Baumeister (1997) reported that students, who procrastinate, experience lower stress levels and are less sick at the beginning of the semester, but by the end of the same semester, they become more susceptible to stress and illness compared to students who do not procrastinate. Rice, Richardson, and Clark (2012) also found that students, who were more likely to procrastinate early in the semester, were the most distressed by the end of the term. Therefore, procrastination is often accompanied by distress, which led some authors to include distress in the definition of procrastination (Ferrari, 1998; Milgram, 1991). Procrastination is also related to many psychological problems, including depression, anxiety, and low self-esteem (Abbasi & Alghamdi, 2015; Beswick, Rothblum, & Mann, 1988; Beutel et al., 2016; Boysan & Kiral, 2017), although correlations are usually moderate (Van Eerde, 2003).

Therefore, procrastination clearly has an adverse effect on one's academic functioning, including academic achievement. However, less is known about possible reverse effects of academic achievement on procrastination as well as other factors that could explain students' tendency to procrastinate.

According to social-cognitive perspective, self-regulation entails generation of thoughts, emotions and behavior in a mutually dependent and cyclic manner (Zimmerman, 1998). Feedback, at either point of that cycle, will affect future goals, strategies and self-evaluation. Therefore, it is worthwhile to consider academic achievement as a predictor of various outcomes, and not solely as an outcome. In other words, we assume that feedback about performance (i. e. academic achievement) should have an effect on a person's approach to future tasks, in a sense that negative feedback could give rise to difficulties with either starting or completing similar tasks. Klassen, Krawchuk and Rajani (2008) have indeed found that GPA predicts procrastination and that its effect could be mediated by self-regulatory mechanisms.

Assuming that procrastination is not a strategic, conscientious choice (i.e. active procrastination), but that it is associated with negative emotions, such as uncertainty, anxiety or fear of failure, it seems useful to focus on cognitive factors that might explain what drives students to procrastinate. Since procrastination is, essentially, avoidant behavior, self-efficacy and perfectionism may be relevant in predicting it. Self-efficacy refers to students' belief whether they are able to achieve desired outcome (Bandura, 1977), successfully execute a particular task, and cope with obstacles or challenges (Pajares, 1996). It determines future behavior, the amount of effort that people will invest in certain situations, as well as the choices of activities and perseverance in coping with difficulties, which further affect the outcome of a certain behavior. Thus, individuals who have a higher level of self-efficacy will decide to take the necessary action more easily and approach the task with less anxiety, they will invest more effort in order to achieve their goals, and will be more persistent when faced with obstacles. People with a strong sense of personal efficacy attribute failure to insufficient effort and invest more effort in order to overcome certain difficulties. Those who doubt their self-efficacy will reduce their effort and quickly give up on achieving their goals (Bandura, 1977, 1986). Belief in one's efficacy also strongly affects one's emotional reactions to life events. Low self-efficacy in achieving one's goals can lead to depression, which can later affect a person's coping strategies (Bandura, 1986). Indeed, studies do show that students with higher general self-efficacy are less likely to procrastinate (Ferrari, 1992; Haycock, McCarthy, & Skay, 1998;

Hicks & Meng Yao Wu, 2015; Kurland and Siegel, 2016). Perfectionism is defined as the aspiration to and expectation of exceptionally high results, which are associated with high personal standards (Slaney, Rice, & Ashby, 2002). Perfectionists are often described as pessimistic people who tend to exaggerate and are too self-critical. Originally, perfectionism was considered as a one-dimensional maladaptive trait (Burns, 1980), with mostly negative consequences, such as depression, anxiety, personality disorders, and low self-esteem (Lessin & Pardo, 2017; Ashby & Rice, 2002). Later, authors developed multidimensional models of perfectionism, which included both adaptive and maladaptive features. Frost, Marten, Lahart and Rosenblate (1990) defined perfectionism in terms of six dimensions; Personal standards, Organization (adaptive dimensions), Concerns over mistakes, Doubts about actions, Parental expectations and Parental criticism (maladaptive dimensions). Hewitt and Flett (1991) introduced a three-dimensional model of perfectionism, which included an interpersonal aspect: self-oriented, other-oriented and socially prescribed perfectionism. The main difference between these dimensions does not apply to behavior but the object toward which perfectionistic tendencies are directed; toward oneself, toward others or the perception of expectations of others. Self-oriented perfectionism is considered adaptive, while other-oriented and socially prescribed perfectionism are considered maladaptive. Slaney and Ashby (1996) identified three basic characteristics of perfectionism; setting high standards of performance, order and perception of discrepancy between high goals and actual personal performance. In order to better explain positive and negative aspects of perfectionism, Slaney et al. (2001) constructed the revised scale of aspirations towards perfectionism (Almost perfect scale; APS-R). APS-R consist of three subscales: Standards and Order, which reflect adaptive perfectionism, and Discrepancy, which reflects maladaptive perfectionism (Slaney et al., 2001). Many studies have supported the adaptive/maladaptive perfectionism distinction, showing that adaptive aspects of perfectionism are associated with a variety of positive outcomes, including life satisfaction, extraversion, conscientiousness, persistence, hope, self-efficacy, resilience, optimism, and success on exams (Bieling, Israeli, Smith, & Antony, 2003; Chang, Watkin, & Banks, 2004; Hicks & Meng Yao Wu, 2015; Parker and Stumpf, 1995; Stumpf & Parker, 2000).

Maladaptive aspects of perfectionism have been connected to anxiety, depression, suicidality and neuroticism (Bieling et al., 2004; Enns et al., 2001; Rice, Richardson, & Clark, 2012).

When considering the relation between perfectionism and procrastination, researchers claim that many people procrastinate because they are perfectionists (Burke & Yuen, 1983; Onwuegbuzie, 2000). Perfectionists set unrealistically high standards for themselves and procrastinate because they believe that these standards cannot be achieved, because they are never satisfied with their performance or are afraid of making a mistake and being negatively evaluated. Studies consistently show that procrastination is positively related to maladaptive aspects of perfectionism, as conceptualized in different models of perfectionism, while adaptive aspects of perfectionism are either unrelated or negatively related to procrastination. Adaptive, "healthy" perfectionists strive to achieve, expect success and feel proud if they achieve their expectations and goals (Rice & Ashby, 2007; Seo, 2008). They are effective in using metacognitive and cognitive learning skills (Mills & Blankstein, 2000), have more effective time management skills (Klibert, Langhinrichsen – Rohling, & Saito, 2005) and a high level of self-efficacy (Locicero & Ashby, 2000). Maladaptive, "unhealthy" perfectionism is described as an assessment and ongoing concern about errors, doubt in their own abilities, feelings of guilt and shame (Fedewa, Burns, & Gomez, 2005). Maladaptive perfectionists have high expectations and a high level of self-blame if they do not achieve the standards they set (Rice & Ashby, 2007). They are motivated by fear of failure and concern about what others would say if they do not meet their expectations. In addition, they avoid certain situations, such as refusing to give an answer unless they are fully confident in it, so they procrastinate further.

Given the negative ramifications of procrastination in students, and lack of insight into its determinants, the aim of this study was to examine the relations of academic achievement, self-efficacy and perfectionism with procrastination in students, especially focusing on possible mediational paths that serve as mechanism at the base of procrastination.

## **Method**

### **Participants and Procedure**

A total of 227 university students (143 female, 84 male, mean age 20.59) participated in the study. Students from different faculties were involved in the study; Faculty of Economics (8,8%), Faculty of Electrical Engineering, Computer Science and Information Technology (28,2%), Faculty of Humanities and Social Sciences (22,4) and Faculty of education (18,9%), Faculty of law (21,6). The sample was convenient, i. e. there was no recruitment criteria except being a full time student at given faculties. The study was approved by institutional ethics committee, and permissions from each faculties dean was obtained. The questionnaires were administered during regular classes, and their order varied randomly. At the beginning of each questionnaire set, there were questions about socio-demographic variables (gender and age) and academic achievement at the end of last academic year (range from 1 to 5). The examination was anonymous and participant knew that they could terminate their involvement in the study at any time without consequences.

### **Measures**

**Procrastination.** Tuckmans procrastination scale – short form (TPS; Tuckman, 1991) was used to measure procrastination. It is a 16 item self-report measure of students' procrastination as a result of their ability to self-regulate or to manage their work schedule. The participants are supposed to rate each item on a 5-point scale ranging from 1 (doesn't apply to me at all) to 5 (completely applies to me). Possible range of the results is 16 to 64 with higher scores meaning higher tendency to procrastinate. Reliability coefficient was 0.93. **Perfectionism.** Almost Perfect Scale – Revised (APS-R; Slaney Rice, Mobley, Trippi, & Ashby, 2001) was used to measure perfectionistic tendencies. It is a 23 item self-report measure of adaptive and maladaptive aspect of perfectionism. The participants are supposed to rate each item on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). APR – R measures three dimensions; Standards – a person's tendency to set high standards for him/herself (7 items), Discrepancy – a person's perception that he/she cannot meet those standards (12 items), and Order - a person's need for order and organization



(4 items). Standards and Order reflect adaptive perfectionistic tendencies, while Discrepancy reflects maladaptive tendencies. Possible ranges are as follows; Standards (7 - 49), Discrepancy (12 to 84), and Order (4 to 28). Reliability coefficients were .86 for Standards, .91 for Discrepancy, and .88 for Order. **Self-efficacy.** General self-efficacy Scale (GSE; Schwarzer & Jerusalem, 1995) was used to measure self-efficacy. GSE scale is a 10 item self-report measure of a person's sense of efficacy in dealing with everyday situations and adapt to stressful life events. Participants are supposed to rate each item on a 4-point scale ranging from 1 (not at all correct) to 4 (completely correct). Possible range is 10 to 40, with higher scores meaning higher sense of self-efficacy. Reliability coefficient was .84.

## Results

Descriptive data are presented in table 1.

Table 1. *Descriptive data for measured variables*

Variable	<i>M</i>	<i>SD</i>	Range.	Theoretical range
Procrastination	45.60	14.93	16-80	16-80
Standards	36.24	7.48	8-49	7-49
Order	21.68	5.02	5-28	4-28
Discrepancy	41.20	13,77	13-81	12-84
Self-efficacy	31.22	3.98	19-40	10-40
Academic achievement	3.67	0.56	2.30-5.00	1 - 5

First, we examined correlations between gender, age, academic achievement, self-efficacy, perfectionism and procrastination. Correlations are shown in table 2.

Table 2. *Correlations matrix*

	1	2	3	4	5	6	7
1. Gender	-						
2. Age	.09	-					
3. Academic achievement	-.23**	-.10	-				
4. Self-efficacy	.01	-.01	.16*	-			
5. Standards	-.30**	-.10	.32**	.31**	-		
6. Order	-.31**	-.08	.24**	.16*	.43**	-	
7. Discrepancy	.00	-.00	-.11	-.32**	.13	-.02	-
8. Procrastination	.16*	.14*	-.28**	-.31**	-.43**	-.53**	.31**

\*  $p < 0.05$ , \*\*  $p < 0.01$

As expected, self-efficacy, as well as all three perfectionism dimensions were correlated with procrastination; self-efficacy, Standards and Order negatively, and Discrepancy positively. Furthermore, female and more successful students procrastinated less, while older students tended to procrastinate more. However, correlations of gender and age with procrastination were very low and their significance could have been due to sample size.

Next, a hierarchical regression analysis was performed in order to investigate the effects self-efficacy and perfectionism on procrastination. Gender, age, and academic achievement were entered in the first step of the HRA, self-efficacy in the second, and perfectionism dimensions in the third. HRA enables researchers to test predictions according to a proposed model, and it enables testing for possible mediations, which was important given the aim of our study.

10 Kurtovic, Vrdoljak & Idzanovic – Predicting procrastination

Table 3. Summary of hierarchical regression analysis predicting procrastination

Predictor	B	$\Delta R^2$
1. step		
Gender	.10	
Age	.12	.10***
Academic achievement	-.25***	
2. step		
<i>Gender</i>	.09	
<i>Age</i>	.12	.07***
<i>Academic achievement</i>	-.20**	
Self-efficacy	-.30***	
3. step		
<i>Gender</i>	.05	
<i>Age</i>	.08	
<i>Academic achievement</i>	-.06	
<i>Self-efficacy</i>	-.04	.30***
Standards	-.26***	
Order	-.39***	
Discrepancy	.32***	

\*\*\*  $p < 0.001$  \*\*  $p < 0.01$

The results show that, out of the variables entered in the first step, only academic achievement predicted lower procrastination. After controlling for variables in the first step, self-efficacy predicted lower procrastination in the second step. After controlling for variables in the first two steps, all three perfectionism dimensions predicted procrastination (Standards and Order negatively, and Discrepancy positively). Total variance explained by this model was 47%. However, once perfectionism was entered in the third step of the equation, neither academic achievement nor self-efficacy showed significant effects, suggesting that their effects were mediated. Preacher and Hayes (2008) suggest a bootstrapping method of testing multiple mediations instead of several simple mediations (Preacher & Hayes, 2008). So, instead of checking further whether the results meet Barons and Kennys (1989) requirements for mediation and then supplementing it with a Sobel test, we performed an analysis for testing

multiple mediations between a single predictor and criterion - for the relation between academic achievement and procrastination (potential mediators being self-efficacy and perfectionism dimensions). The results are shown in table 4.

Table 4. *Mediations of academic achievement on procrastination through self-efficacy and perfectionism (standards, order and discrepancy)*

Total effect of academic achievement on procrastination						
	Effect	SE	T	p	Bootstrapping BCa 95% CI	
					Lower	Upper
	-	1.7656	-	.0002	-10.1466	-
	6.6668		3.7759			3.1871
Direct effect of academic achievement on procrastination						
	Effect	SE	T	p	Bootstrapping BCa 95% CI	
					Lower	Upper
	-	1.4629	-	.2342	-4.6286	1.1381
	1.7452		1.1930			
Indirect effect of academic achievement on procrastination						
	Effect	SE			Bootstrapping BCa 95% CI	
					Lower	Upper
<b>Total</b>	-4.9216		1.2009		-7.4358	-
						2.7092
1. Self-efficacy	-.1979		.2955		-1.0469	.2093
2. Self-efficacy - standards	<b>-.3189</b>		<b>.1797</b>		<b>-.8252</b>	<b>-.0704</b>
3. Self-efficacy – order	-.0797		.1673		-.5099	.1906
4. Self-efficacy- discrepancy	<b>-.5717</b>		<b>.2971</b>		<b>-1.3284</b>	<b>-.1226</b>
5. Standards	<b>-1.5419</b>		<b>.6656</b>		<b>-3.2809</b>	<b>-.5414</b>
6. Order	-.8424		.6813		-2.3480	.3333

12 Kurtovic, Vrdoljak & Idzanovic – Predicting procrastination

Table 4. Mediations of academic achievement on procrastination through self-efficacy and perfectionism (standards, order and discrepancy) (Continued)

7. Discrepancy	-1.0789	.6413	-2.4341	.1214
Comparison of indirect effects				
2 vs 4	.2527	.2221	-.0356	.8947
2 vs 5	<b>1.2230</b>	<b>.6594</b>	<b>.2370</b>	<b>2.9628</b>
4 vs 5	<b>-.4120</b>	<b>.2512</b>	<b>-1.1342</b>	<b>-.0707</b>

As can be seen in table 4, the difference between total and direct effects of academic achievement on procrastination (i.e. total indirect effect) was significant with confidence interval not containing zero, while direct effect was not, confirming that the effect of academic achievement on procrastination was mediated. However, upon inspection of specific indirect effects, it was clear that not all potential paths were significant. When it comes to single mediations, only Standards were a significant mediator. However, even though self-efficacy by itself did not mediate the relation between academic achievement and procrastination, the paths through self-efficacy and standards, as well as self-efficacy and discrepancy were significant. Basically, our data suggest that, self-efficacy is not a strong enough mediator by itself, but together with Standards and Discrepancy it does mediate between academic achievement and procrastination. Furthermore, pairwise comparisons of the magnitude of significant indirect effects showed that mediation through self-efficacy and Standards was stronger than mediation through Standards alone, which was stronger than mediation through self-efficacy and Discrepancy. In order to clarify the directions of indirect effects, table 5 shows the results of regressing perfectionism dimensions that were significant mediators on academic achievement and self-efficacy, and regressing self-efficacy on academic achievement.

Table 5. *Regressing standards and discrepancy on academic achievement and self-efficacy, and self-efficacy on academic achievement*

Criterion	Predictors	$\beta$	t	p
Standards	Academic achievement	.28	4.51	.000
	Self-efficacy	.26	4.22	.000
Discrepancy	Academic achievement	-.06	-.94	.349
	Self-efficacy	-.32	-4.95	.000
Self-efficacy	Academic achievement	.16	2.37	.019

As seen in table 5, lower academic achievement leads to lower self-efficacy, which can lead to less adaptive perfectionism or more maladaptive perfectionism, both of which can lead to more procrastinating. **Discussion**

The aim of our study was to examine the possibility of predicting procrastination based on academic achievement, self-efficacy and perfectionism, and to examine possible mediated effects.

Results of our study are consistent with previous research showing negative relations between academic achievement and procrastination (Steel, 2007; Solomon & Rothblum, 1984; Akinsola, Tella, & Tella, 2007; Fritzsche, Young, & Hickson, 2003; Jackson, Fritch, Nagasaka, & Pope 2003; Kljajic & Gaudreau, 2018; You, 2015). According to Steel (2007), procrastination is essentially self-handicapping behavior resulting from deficits in self-regulation, which understandably lead to poorer achievement. However, he believes that poor self-regulation in procrastinators could also explain why poor success can lead to more procrastinating, due to negative emotions following failure.

Academic achievement was positively correlated with self-efficacy, Standards and Order (adaptive perfectionism) which is also consistent with previous researches. Adaptive perfectionism is associated with various positive outcomes and characteristics including life satisfaction, extraversion, conscientiousness, persistence, hope, self-efficacy, resilience, optimism and success in examinations (Bieling, Israeli, Smith, & Antony, 2003, Chang, Watkin, & Banks, 2004; Hicks & Meng Yao Wu, 2015; Parker & Stumpf, 1995; Parker, 2000 Pintrich and De Groot, 1990) stated that students, who believe in their own capabilities, use more cognitive and

metacognitive strategies and are more likely to persevere in the task, thus more likely to succeed, compared to students who do not believe in their own ability to perform the task.

Age and gender also correlated significantly with procrastination, in a sense that students in the initial years of studying procrastinate less than graduate students, and male students procrastinate more than female students. Other studies have also shown that age and gender can affect delaying behavior, and authors assume that male students delay execution of academic commitments because they have poorer self-control, are more impulsive and more easily distracted by other activities than female students (Ferrari et al., 1995; Khan, Arif, Noor, & Muneer, 2014).

Similarly to other studies, Standard, Order and self-efficacy (negatively), as well as Discrepancy (positively) correlated with procrastination (Chang, 2014; Flett et al., 1992; Frost et al., 1990; Harrison, 2014; Hicks & Meng Yao Wu, 2015; Jadidi, Mohammadkhani, Shahram, & Komeil, 2011; Klibert et al., 2005; Narges, Salman, & Baharak, 2014; Onwuebuzie, 2000). Due to unrealistic and excessive expectations from themselves (whether self-imposed or perceived from others), maladaptive perfectionists are not like to feel in control and confident in achieving those standards. The discrepancy between personal or socially prescribed standards and one's ability is likely to lead to fear of failure, anxiety (Holloway, 2009), as well as worries about others' opinion of them, which may lead to procrastination as an attempt to avoid failure. Adaptive perfectionists, on the other hand, procrastinate less because they are motivated towards achievement, self-confident, and persistent in their efforts to achieve goals they have set for themselves (Seo, 2008). This assumption is also supported by positive correlations of self-efficacy with Standards and Order, and negative correlations with Discrepancy in our study.

A negative correlation between self-efficacy and procrastination is in line with other studies (Cerina, 2014; Tuckman, 1991; Ferrari, Packer, & Ware, 1992; Klassen, Krawchuk, & Rajani, 2008; Tuckman and Sexton, 1992) found that the belief in one's efficacy mediates between external events (i.e. academic success or failure) and self-regulation. Given the fact that procrastination is, according to Steel (2007), a failure in self-regulation, Tuckman and Sexton (1992) concluded that lower sense of personal

efficacy in dealing with external events leads to procrastination. These findings are also in line with Bandura's (1977) theory of self-efficacy. Bandura (1977) concluded that strong beliefs about efficacy lead to initiating and perseverance in the task, while weak beliefs about the efficacy lead to weaker perseverance in the task as well as avoidance, which is a form of procrastination. High levels of self-efficacy are associated with positive outcomes, such as flexible coping skills, promotion of healthy behaviors and better psychological adjustment to stressful situations, while low levels of self-efficacy are associated with negative outcomes, such as depression, anxiety and helplessness (Ashby & Rice, 2002; Scholz, 2002), all of which are also associated with procrastination (Flett, Blankstein, & Martin, 1995; Ferrari, 2000).

As expected perfectionism was significantly correlated with procrastination, Standards and Order negatively, and Discrepancy positively, with Order showing the highest correlation with procrastination. Therefore, our results suggest that being an adaptive perfectionist (i.e. having high standards and being organized and punctual) is beneficial to students, as long as there is not a discrepancy between what they strive to achieve and what they actually achieve (or perceive to have achieved). Studies have confirmed negative relations of adaptive perfectionism and procrastination (Blackler, 2011; Harrison, 2014; Hicks & Meng Yao Wu, 2015; Rahmani, Zarei, & Hamed, 2014). However, when it comes to maladaptive perfectionism, results are inconsistent, with some studies reporting positive relations with procrastination (Rahmani, Zarei, & Hamed, 2014; Rice, Richardson, & Clark, 2012), while others have found no significant relation with procrastination (Blackler, 2011; Harrison, 2014; Seo, 2008). Those discrepancies could have been caused by different measures of perfectionism used in each study, or it is possible that the relation of procrastination with maladaptive perfectionism is not as straight forward as with adaptive perfectionism. Indeed, Blackler (2011) found that gender and mood moderated the relation between maladaptive perfectionism and procrastination.

Perfectionism and self-efficacy have similar behavioral patterns (Burns, 1980), so it is not surprising that they were correlated. There are two patterns of behavior in adaptive and maladaptive perfectionists. Maladaptive perfectionists have a strong fear of failure and they worry of



what others think of them (Fedewa, Burns, & Gomez, 2005). As opposed to maladaptive perfectionists, adaptive perfectionists have a strong motivation for success and achievement. They demonstrate approach behavior because they want to constantly improve themselves, learn, and be excellent (Seo, 2008). Therefore, the differences in motivation between maladaptive and adaptive perfectionist might be the main factors accounting for the difference in their relations with procrastination.

### **Prediction of Procrastination Based on Perfectionism and Self-Efficacy**

We used hierarchical regression analysis to examine prediction of procrastination based on academic achievement, self-efficacy and perfectionism. Both academic achievement and self-efficacy were significant predictors of procrastination in the expected direction. However, once perfectionism was entered in the third step of HRA, neither academic achievement nor self-efficacy showed significant effects. All three perfectionism dimensions predicted procrastination (Standards and Order negatively, and Discrepancy positively). Given that both academic achievement and self-efficacy were no longer significant after entering perfectionism in HRA, we tested mediational paths between academic achievement and procrastination; through self-efficacy alone, through self-efficacy and each perfectionism dimensions, and through each perfectionism dimension alone.

Mediation analysis has shown that lower academic achievement leads to lower self-efficacy, which can lead to less adaptive perfectionism or more maladaptive perfectionism, both of which can lead to more procrastinating. Interestingly, even though Order has shown the highest correlation with procrastination, it was not a significant mediator. Students, who are organized and punctual, usually don't procrastinate. However, failure (or low academic achievement) and consequent low self-efficacy should not affect someone's tendency for order. On the other hand, poor academic achievement can make a student doubt his or her ability to achieve goals. As a result, they will reduce their expectations (i. e. Standards) and thus procrastinate. Similarly, it can also lead to bigger discrepancy between what students strive for and what they actually achieve (or what they perceive their achievement to be). Therefore, our results suggest that there are two distinct paths between low self-efficacy and procrastination, one decreasing

adaptive perfectionistic tendencies and one increasing maladaptive perfectionistic tendencies. Although we are not aware of studies testing this particular directions of effects, there are studies suggesting that reduction in motivation (both intrinsic and extrinsic) might be the mechanism by which adaptive perfectionism affects procrastination, while emotional states (such as depression, anxiety or fear of failure) might account for relation between maladaptive perfectionism and procrastination (Chang, 2014; Schouwenburg, 1992). Simply put, first path would mean that after lowering their standards, students procrastinate because they are no longer motivated, probably because those goals are not as appealing anymore. Second path would mean that student procrastinate to avoid negative feelings associated with maladaptive perfectionism.

It is worth mentioning that, while low academic achievement did predict low self-efficacy, the path containing self-efficacy alone was not significant. It is possible that only perfectionists are at risk for procrastination after failure, because low self-efficacy will affect their perfectionistic tendencies, while non-perfectionistic students are less likely to start procrastinating even though their self-efficacy is diminished. However, we are not aware of any studies examining the moderating role of perfectionism in the relation of failure, self-efficacy and procrastination, so this assumption remains to be tested.

### **Implications and Limitations**

The major contribution of our study is in examining directions of effect, which are still understudied. First, the attention is usually focused on procrastinations effects on academic achievement, but rarely the other way around. We feel that our results highlight an important risk for students who are vulnerable to procrastinating, but have not yet been in a position to do so. Poor success, especially when first starting University, may be the trigger which leads students to procrastinate, even if they have not done so before (probably due to a relatively structured schedule in high school). This hypothesis is supported by results, which show that students who procrastinate have a low risk of stress and stress-related illness at the beginning of the semester, while a higher degree of stress and illness occurs later during the semester (Tice & Baumeister, 1997). Second, in examining relations between self-efficacy, perfectionism and procrastination, authors

focus on self-efficacy as a mediator between perfectionism and procrastination. We are not aware of any studies testing whether perfectionism mediates the relations of academic achievement and self-efficacy with procrastination. We believe that our findings provide a better insight into this, relatively unexplored, relations and provide important implications.

There are few implications of this study that are important for students' education. Student should be taught about planning and time organization because, in high school, obligations and responsibilities are more structured, as opposed to University, where responsibility for organizing their time is entirely on them. It would be useful to teach students efficient ways of dealing with failures, in order to prevent feelings of inadequacy after initial failures. Students should also be taught to set realistic goals and to expect success. Interventions to overcome academic procrastination can include exercises to improve perceived time control and highlighting experience where tasks are successfully completed on time. Finally, feedback from teachers could help students, who are afraid of failure and perfectionistic (Fritzsche, Young, & Hickson, 2003). It would be advisable for teachers to build feedback into student's assignments, so that all students get constructive and informative feedback for their work from the teachers or their colleagues.

Furthermore, there are implications for Universities counseling services, in a sense that attention should be given to identifying the effects of academic underachievement and self-efficacy on perfectionism and procrastination, for they might require different approaches. When it comes to effects on adaptive perfectionism, interventions should include improving self-efficacy, learning skills and reevaluating ones goals. On the other hand, when it comes to maladaptive perfectionism, attention should be focused on possible distortions. Maladaptive perfectionists are usually not realistic in their goal setting nor evaluating their actual performance. Therefore, interventions should include more realistic goal setting, correcting distortions about ones capabilities, discrepancy between goals and achievement, tolerance of occasional setback and equating mistakes with failure.

Future research should focus on identifying students, who are at risk of procrastinating based on personal characteristics (e. g. personality factors),

other motivational factors (e. g. goal orientations or task value), or their interactions. Identifying risk factors and mechanisms through which they affect procrastination as well as moderating factors could help efforts to prevent procrastination. Finally, there are some limitation of this study that should be addressed. First, the sample was convenient, and the proportion of students from different faculties in the sample did not fully correspond to the population. Self-report measures were used to assess self-efficacy, perfectionism and procrastination, which increases the likelihood of socially desirable responses. Finally, correlational nature of the design limits the possibility of conclusions about causality.

### References

- Abbasi, I. S., & Alghamdi, N. G. (2015). The Prevalence, Predictors, Causes, Treatment, and Implications of Procrastination Behaviors in General, Academic, and Work Setting. *International Journal of Psychological Studies*, 7, 59-66. doi:10.5539/ijps.v7n1p59
- Akinsola, M. K., Tella, A., & Tella, A. (2007). Correlates of Academic Procrastination and Mathematics Achievement of University Undergraduate Students. *Eurasia Journal of Mathematics, Science & Technology Education*, 3, 363-370. doi: 10.12973/ejmste/75415
- Ashby, J. S., & Rice, K. G. (2002). Perfectionism, dysfunctional attitudes, and self-esteem: A structural equations analysis. *Journal of Counseling and Development*, 80, 197-184. doi: 10.1002/j.1556-6678.2002.tb00183.x
- Bandura, A. (1977). Self-efficacy: Toward a Unifying Theory of Behavioral Change. *Psychological Review*, 84, 191-215. doi: <http://dx.doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, New Jersey, NJ: Prentice Hall, Inc.
- Beswick, G., Rothblum, E. D., Mann, L. (1988). Psychological antecedents of student procrastination. *Australian Psychologist*, 23, 207–217. doi: 10.1080/00050068808255605
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic,

- and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173-1182. doi: 10.1037/0022-3514.51.6.1173
- Beutel M.E., Klein E.M, Aufenanger S. Brähler E., Dreier M., Müller K.W., & Wölfling, K. (2016). Procrastination, Distress and Life Satisfaction across the Age Range – A German Representative Community Study. *PLoS ONE* *11*. doi:10.1371/journal.pone.0148054
- Bieling, P.J., , A.L., Smith, J., & Antony, M.M. ( 2003). Making the grade: The behavioural consequences of perfectionism in the classroom. *Personality and Individual Differences*, *35*, 163-178. doi: 10.1016/S0191-8869(02)00173-3
- Blackler, K. (2011). The Effect of Adaptive Perfectionism, Maladaptive Perfectionism, and Feedback on Procrastination Behaviour (Unpublished thesis).
- Boysan, M., & Kiral, E. (2017). Associations between procrastination, personality, perfectionism, self-esteem and locus of control. *British Journal of Guidance & Counselling*, *45*, 284-296. doi: 10.1080/03069885.2016.1213374
- Burka, J. & Yuen, L. M. (1983). *Procrastination: Why you do it, what to do about it*. Reading, MA: Addison-Wesley.
- Burns, D. D. (1980). The perfectionist's script for self-defeat. *Psychology Today*, November, 34-52.
- Cerino, R. S. (2014). Relationship between academic motivation, self-efficacy, and academic procrastination. *Journal of Psychological Research*, *19*, 156-163. Retrieved from <https://pdfs.semanticscholar.org/8095/649cde648fcd39c8ac13b8af6087af979046.pdf>
- Chang, E. C., Watkins, A. F., & Banks, K. H. (2004). How adaptive and maladaptive perfectionism relate to positive and negative psychological functioning: Testing a stress mediation model in black and white female college students. *Journal of Counseling Psychology*, *51*, 93-102. doi: 10.1037/0022-0167.51.1.93
- Chang, H. K. (2014). Perfectionism, anxiety, and academic procrastination: the role of intrinsic and Extrinsic motivation in college students. Electronic Theses, Projects, and Dissertations, Paper 28. doi: 10.1002/per.2410060305

- Ellis, A., Knaus, W. J. (1977). *Overcoming procrastination*. New York, NY: Signet Books.
- Fedewa, B. A., Burns, L. R., & Gomez, A. A. (2005). Positive and negative perfectionism and the shame/guilt distinction: adaptive and maladaptive characteristics. *Personality and Individual Differences*, 38, 1609-1619. doi:10.1016/j.paid.2004.09.026
- Ferrari, J. R. (1992). Procrastinators and Perfect Behavior: An Exploratory Factor Analysis of Self - Presentation, Self - Awareness and Self - Handicapping components. *Journal of Research in Personality*, 26, 75-84. doi: [https://doi.org/10.1016/0092-6566\(92\)90060-H](https://doi.org/10.1016/0092-6566(92)90060-H)
- Ferrari, J.R., Johnson, J.L., & McCown, W.G. (1995). *Procrastination and task avoidance: Theory, research, and treatment*. New York, NY: Plenum Press.
- Ferrari, J. R. (1998). Procrastination. *Encyclopedia of Mental Health*, 5–1.
- Ferrari, J. R. (2000). Procrastination and attention: Factor analysis of attention deficit, boredom, intelligence, self-esteem, and task delay frequencies. *Journal of Social Behavior and Personality*, 15, 185–196. doi: 10.1016/0092-566(92)90060-H
- Flett, G. L., Blankstein, K. R., & Martin, T. R. (1995). Procrastination, negative self- evaluation, and stress in depression and anxiety. In J. R. Ferrari, J. L. Johnson, & W. G. McCown (Eds), *Procrastination and task avoidance: Theory, research, and treatment* (pp. 137–167). New York, NY: Plenum Press
- Flett, G. L., Hewitt, P. L., & Rosa, T. D. (1996). Dimensions of perfectionism, psychosocial adjustment, and social skills. *Personality and Individual Differences*, 20, 143-150. doi: [https://doi.org/10.1016/0191-8869\(95\)00170-0](https://doi.org/10.1016/0191-8869(95)00170-0)
- Fritzsche, B. A., Young, B. R., & Hickson, K. C. (2003). Individual differences in academic procrastination tendency and writing success. *Personality and Individual Differences*, 35, 1549-1557. doi: [https://doi.org/10.1016/S0191-8869\(02\)00369-0](https://doi.org/10.1016/S0191-8869(02)00369-0)
- Frost, R. O., Marten, P. I., Lahart, C., & Rosenblate, R. (1990). The Dimensions of Perfectionism. *Cognitive Therapy and Research*, 14, 449-468. doi:10.1007/BF01172967

- Harrison, J. (2014). Academic Procrastination: The Roles of Self-Efficacy, Perfectionism, Motivation, Performance, Age and Gender (Unpublished theses).
- Haycock, L. A., McCarthy, P. & Skay, C. L. (1998). Procrastination in College Students: The Role of Self-Efficacy and Anxiety. *Journal of Counseling & Development*, 76, 317-324. doi: <https://doi.org/10.1002/j.1556-6676.1998.tb02548.x>
- Hayes, A. F. (2013). Introduction to Mediation, Moderation, and Conditional Process Analysis. New York: The Guilford Press.
- Hicks, R. E., & Meng Yao Wu, F. (2015). Psychological capital as mediator between adaptive perfectionism and academic procrastination. *Global Science and Technology Forum (GSTF) Journal of Psychology*, 2, 34-40. doi: [10.5176/2345-7872\\_2.1\\_27](https://doi.org/10.5176/2345-7872_2.1_27)
- Hill, M., Hill, D., Chabot, A., & Barrel, J. (1978). A Survey of College Faculty and Student Procrastination. *College Student Journal*, 12, 256- 262.
- Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology*, 60, 456-470. doi:[10.1037/0022-3514.60.3.456](https://doi.org/10.1037/0022-3514.60.3.456)
- Holloway, B. E. (2009). *Does procrastination and stress have an affect on your health?* Missouri Western State University.
- Jackson, T., Fritch, A., Nagasaka, T., & Pope, L. (2003). Procrastination and perceptions of past, present, and future. *Individual Differences Research*, 1, 17–28. Retrieved from <https://psycnet.apa.org/record/2004-15383-003>
- Jadidi, F., Mohammadkhani, S, Shahram,T., and Komeil, Z. (2011). Perfectionism and academic procrastination. *Social and Behavioural Sciences*, 30, 534-537. doi: [10.1016/j.sbspro.2011.10.104](https://doi.org/10.1016/j.sbspro.2011.10.104)
- Khan, M. J, Arif, H., Noor, S. S., & Muneer, S. (2014). Academic Procrastination among Male and Female University and College Students. *FWU Journal of Social Sciences*,8, 65-70. Retrieved from <http://sbbwu.edu.pk/journal/FWUJournal,Winter%202014%20Vol.8,No.2/9.%20Academic%20Procrastination%20among%20.pdf>
- Klassen, R.M., Krawchuk, L.L., & Rajani, S. (2008), Academic procrastination of undergraduates: low self-efficacy to self-regulate

- predicts higher levels of procrastination. *Contemporary Educational Psychology*, 33, 915-931. doi: 10.1016/j.cedpsych.2007.07.001
- Kljajic, K., & Gaudreau, P. (2018). Does it matter if students procrastinate more in some courses than in others? A multilevel perspective on procrastination and academic achievement. *Learning and Instruction*, 58, 193-200. doi: 10.1016/j.learninstruc.2018.06.005
- Klibert, J. J., Langhinrichsen-Rohling, J. & Saito, M. (2005). Adaptive and maladaptive aspects of self-oriented versus socially prescribed perfectionism. *Journal of College Student*, 46, 141-157. doi: 10.1353/csd.2005.0017
- klingsieck, K. B. (2013). Procrastination in Different Life-Domains: Is Procrastination Domain Specific? *Current Psychology*, 32, 175-185. doi: <http://dx.doi.org/10.1007/s12144-013-9171-8>
- Kurland, R. M., & Siegel, H. I. (2016). Attachment and Academic Classroom Behavior: Self-Efficacy and Procrastination as Moderators on the Influence of Attachment on Academic Success. *Psychology*, 7, 1061-1074. doi: 10.4236/psych.2016.78107
- Lessin, D. S., & Pardo, N. T. (2017). The impact of perfectionism on anxiety and depression. *Journal of Psychology and Cognition*, 2, 78-82. Retrieved from <http://www.alliedacademies.org/articles/the-impact-of-perfectionism-on-anxiety-and-depression-6934.html>
- Locicero, K. A., & Ashby, J. S. (2000). Multidimensional Perfectionism and Self-Reported Self-Efficacy in College Students. *Journal of college students psychotherapy*, 15, 47- 56. doi:10.1300/J035v15n02\_06
- Milgram, N. A. (1991). Procrastination. In R. Dulbecco (Ed.), *Encyclopedia of human biology*, 6, 149–155. New York: Academic Press.
- Mills, J., & Blankstein, K. R. (2000). Perfectionism, intrinsic vs. extrinsic motivation, and motivated strategies for learning: A multidimensional analysis of university students. *Personality and Individual Differences*, 29, 1191-1204. doi: [https://doi.org/10.1016/S0191-8869\(00\)00003-9](https://doi.org/10.1016/S0191-8869(00)00003-9)
- Narges, R., Salman, Z., & Baharak H. (2014). Self-Efficacy, Perfectionism and Personality Traits as Predictors of Academic Procrastination among University Students, *Journal of Applied Environmental Biological Science*. 4, 265-271. Retrieved from



[https://www.textroad.com/pdf/JAEBS/J.%20Appl.%20Environ.%20Biol.%20Sci.,%204\(8\)265-271,%202014.pdf](https://www.textroad.com/pdf/JAEBS/J.%20Appl.%20Environ.%20Biol.%20Sci.,%204(8)265-271,%202014.pdf)

- Onwuegbuzie, A. J. (2000). Attitudes towards statistics assessments. *Assessment and Evaluation in Higher Education*, 25, 321-339. doi: 10.1080/713611437
- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, 66, 543-578. doi: <https://doi.org/10.3102/00346543066004543>
- Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82, 33–40. Retrieved from <http://rhartshorne.com/fall-2012/eme6507-rh/cdisturco/eme6507-eportfolio/documents/pintrich%20and%20degroot%201990.pdf>
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879-891. doi: 10.3758/BRM.40.3.879
- Rahmani, N., Zarei, S., & Hamed, B. (2014). Self – Efficacy, Perfectionism and Personality Traits as Predictors of Academic Procrastination among University Students. *Journal of Applied Environmental Biological Sciences*, 4, 265-271.
- Rice, K. G., & Ashby, J. S. (2007). An efficient method for classifying perfectionists. *Journal of Counseling Psychology*, 54, 72-85. doi: 10.1037/0022-0167.54.1.72
- Rice, K. G., Richardson, C. M. E., & Clark, D. (2012). Perfectionism, procrastination, and psychological distress. *Journal of Counseling Psychology*, 59(2), 288-302. doi: 10.1037/a0026643
- Scholz, U., Gutiérrez Doña, B., Sud, S., & Schwarzer, R. (2002). Is general self-efficacy a universal construct? Psychometric findings from 25 countries. *European Journal of Psychological Assessment*, 18, 242–251. doi: 10.1027//1015-5759.18.3.242
- Schouwenburg, H. C. (1992). Procrastinators and fear of failure: an exploration of reasons for procrastination. *European Journal of Personality*, 6, 225-236. doi:10.1002/per.2410060305
- Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health*

*psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-NELSON.

- Seo, (2008). Self-efficacy as a Mediator in the Relationship between Self-oriented Perfectionism and Academic Procrastination. *Social Behavior And Personality*, 36, 753-764. doi:10.2224/sbp.2008.36.6.753
- Slaney, R. B., & Ashby, J. S. (1996). Perfectionists: Study of a Criterion Group. *Journal of Counseling and Development*, 74, 393-398. doi: 10.1002/j.1556-6676.1996.tb01885.x
- Slaney, R. B., Rice, K. G., & Ashby, J. S. (2002). *A programmatic approach to measuring perfectionism: The Almost Perfect Scales*. D. C. Washington, American Psychological Association.
- Steel, P. (2007). The Nature of Procrastination: A Meta-Analytic and Theoretical Review of Quintessential Self-Regulatory Failure. *Psychological Bulletin*, 133, 65-94. doi: 10.1037/0033-2909.133.1.65
- Solomon, L. J., & Rothblum, E. D. (1984). Academic Procrastination: Frequency and Cognitive Behavioral Correlates. *Journal of Counseling Psychology*, 31, 503-509. doi:10.1037/0022-0167.31.4.503
- Stumpf, H. & Parker, W. D. (2000). A hierarchical structural analysis of perfectionism and its relation to other personality characteristics. *Personality and Individual Differences*, 28, 837-852. doi: [https://doi.org/10.1016/S0191-8869\(99\)00141-5](https://doi.org/10.1016/S0191-8869(99)00141-5)
- 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. doi:10.1111/j.1467- 9280.1997.tb00460.x
- Tuckman, B. W. (1991). The development and concurrent validation of the Procrastination Scale. *Educational and Psychological Measurement*, 51, 473-480. doi: <https://doi.org/10.1177/0013164491512022>
- Tuckman, B. W., & Sexton, T. L. (1992). The effects of informational feedback and self-beliefs on the motivation to perform a self-regulated task. *Journal of Research in Personality*, 26, 121-127. doi: [https://doi.org/10.1016/0092-6566\(92\)90048-9](https://doi.org/10.1016/0092-6566(92)90048-9)

- Van Eerde, W. V. (2003). A meta-analytically derived nomological network of procrastination. *Personality and Individual Differences*, 35, 1401-1418. doi: 10.1016/S0191-8869(02)00358-6
- You, J. W. (2015). Examining the Effect of Academic Procrastination on Achievement Using LMS Data in E-learning. *Educational Technology & Society*, 18, 64–74. Retrieved from <https://eric.ed.gov/?id=EJ1070043>
- Zimmerman, B. J. (1998). Developing self-fulfilling cycles of academic regulation: An analysis of exemplary instructional models. In D. H. Schunk, & B. J. Zimmerman (Eds), *Self regulated learning: From teaching to self-reflective practice* (pp. 1–19). New York, NY: Guilford Press

**Ana Kurtovic** is Assistant Professor at the Department of Psychology, University J. J. Strossmayer Osijek.

**Gabriela Vrdoljak** is Postdoctoral Researchers at the Department of Psychology, University J. J. Strossmayer Osijek.

**Anita Idzanovic** is student at the Department of Psychology, University J. J. Strossmayer Osijek.

**Contact Address:** Faculty of Humanities and Social Sciences. Lorenza Jäger 9, 31000 Osijek, Croatia. Email: akurtovi@ffos.hr