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ABSTRACT

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Academic procrastination is common among university students, but how efficacy beliefs, risk-taking, and conflict management together affect it has not been studied. This research looked at whether self-efficacy and social efficacy predict risk-taking, whether risk-taking predicts procrastination, and how four conflict management strategies, avoiding, compromising, collaborating, and competing, relate to both. The study used a cross-sectional survey with first-, second-, and third-year medical students at a Saudi Arabian university. Of 250 questionnaires handed out, 209 were retained after removing incomplete or low-variance responses. The study used adapted seven-point Likert scales to measure the main ideas and analyzed the data with partial least squares structural equation modeling. Self-efficacy (0.18, $p < 0.001$) and social-efficacy (0.20, $p < 0.01$) both predicted more risk-taking, explaining 8% of its variance. Both also predicted less procrastination (-0.33, $p < 0.001$; -0.15, $p < 0.01$), explaining 15% of its variance. Risk-taking by itself did not predict procrastination (0.16, not significant), explaining only 2%. In the full model, avoiding (0.27, $p < 0.01$) and compromising (0.23, $p < 0.01$) were linked to more procrastination, while competing was linked to less procrastination (-0.22, $p < 0.05$). Collaborating had no significant effect, and the model explained 25% of the variance. The study found that assertive conflict management is linked to more risk-taking and less procrastination, while unassertive strategies show the opposite pattern. The results suggest that schools may help reduce procrastination by building students' efficacy beliefs, risk-taking, and conflict-management skills.

Contribution/Originality: This study contributes to the literature by examining interrelationships among procrastination, conflict management, and personal risk-taking, and evaluating self-efficacy and social efficacy as predictors of risk-taking. It introduces two-dimensional charts that synthesize findings and depict associations between conflict management, risk-taking, and procrastination as components of an integrated system.

1. INTRODUCTION

When discussing time management, procrastination emerges as an important issue to consider. The first formal definition of procrastination is believed to have emerged in 1751 in the first comprehensive English dictionary by Johnson (1751). Procrastination is generally defined as “The folly of allowing ourselves to delay what we know cannot be finally escaped” (Janssen, 2015). This phenomenon is particularly common in educational systems. Students preparing for examinations or submitting assignments tend to delay their work until the last minute. Worldwide statistical analyses have shown that 80–95% of students engage in procrastination in one form or another (Fentaw, Moges, & Ismail, 2022; O'Brien, 2000; Özer, Demir, & Ferrari, 2009). As much as 25% of students who practice procrastination think their problem is chronic (Argiropoulou & Ferrari, 2015).

While procrastination is often seen as a dysfunctional behavior (Silver & Sabini, 1981), its complexity means no direct, unequivocal relationship can be posited between openness or intelligence and procrastination. In fact, some workers even suggest that such attainment is not possible (Steel, 2007). One purpose of this study is to assess the role played by self-efficacy in the practiced level of procrastination. Several studies have attempted to understand the underpinning causes of procrastination, which has proven to be a complex problem. This study contributes to the literature by examining interrelationships among procrastination, conflict management, and personal risk-taking, and evaluating self-efficacy and social efficacy as predictors of risk-taking. It introduces two-dimensional charts that synthesize findings and depict associations between conflict management, risk-taking, and procrastination as components of an integrated system.

Initial studies suggested that procrastination resulted from the inability to manage time (Burka & Yuen, 1983), but soon after, it was realized that the problem was more involved. The link between interpersonal skills and procrastination continues to attract many studies (Shaw & Choi, 2022). As an example, when procrastination is combined with students' competencies as an important factor in impacting academic performance, the analysis of root causes can be segregated into three patterns: negative emotional procrastination, optimistic habits of procrastination, and planned procrastination (Chu & Choi, 2005; Kooren, Van Nooijen, & Paas, 2024). For academic performance, these categories are linked in the following ways: (a) negative emotions worsen students' academic performance in an attempt to avoid failure, (b) the optimistic pattern represents those with poor academic performance and, hence, little competence, and (c) the planning procrastination pattern with positive feelings includes those students associated with favorable academic performance. Given these data and their impact on future careers and students' performance, it is not surprising that procrastination has attracted much attention from the research community. Therefore, educators believe that intervention is required to mitigate its negative impact. This is particularly evident in recent studies, which show that procrastination interventions might help students better manage their study styles and time-management behaviors (Itach, Hen, & Ferrari, 2022; Sholichah, 2025; Ugwuanyi et al., 2020).

Relevant research has consistently shown that students' character significantly predicts academic achievement (O'Connor & Paunonen, 2007). In this respect, the personality factor of conscientiousness and its constituent narrow personality traits are especially relevant for predicting academic achievement. Since procrastination impacts the student's ability to complete academic assignments and meet academic achievement expectations, it creates academic and interpersonal conflicts (Senécal, Julien, & Guay, 2003; Sherry, Stoeber, & Ramasubbu, 2016). Therefore, students must, at some stage, deal with these conflicts.

This study considers two personality traits: risk-taking and conflict-management skills. Risk-taking is usually defined as the ability to accept a loss (Alexander et al., 1990; Assailly, 2013). An extensive search was performed for studies that link risk-taking and procrastination. Apart from two studies by Akbay and Delibalta (2020) and Watson (2001), none were found. To the best of our knowledge, there are no studies linking conflict-management strategies to procrastination. Generally, there are five widely adopted strategies for managing conflicts between behavior and attitude (Kleinman, Palmon, & Lee, 2003; Rahim & Magner, 1995). In this study, only four conflict strategies are considered due to the high similarity between two strategies. They are Competing, when an assertive and power-oriented approach is used to defend and win a position; Collaborating, when the student works with others to identify the underlying causes and reach a satisfactory resolution; Compromising, where the student accepts an outcome that partially satisfies the intended objectives; and Avoidance, a type of denial to put off a conflict indefinitely and hope the problem resolves itself.

Regarding the combined effect, while soft skills and procrastination have received considerable attention in the literature, no studies have attempted to associate risk-taking and conflict management strategies with procrastination. This study offers novel contributions to the literature in four ways. First, it assesses self-efficacy as a predictor of risk-taking behavior; second, it assesses whether risk-takers are susceptible to procrastination; third, it explains the extent to which conflict management strategies influence the level of procrastination adopted; and fourth, it presents

two-dimensional empirical models that link risk-taking, conflict management, and procrastination. In summary, to improve our understanding and subsequent adoption of appropriate procrastination management strategies, the present study intends to answer the following three research questions:

1. Would students' self-efficacy predict their risk-taking propensity?
2. Does risk-taking behavior influence procrastination and/or the adopted conflict-management strategy?
3. Would the selected conflict management strategy influence the adopted procrastination level?

The structure of this study is designed to first introduce a literature review on why understanding procrastination is essential in education. It then focuses on soft skills, offering a unique contribution by linking self-efficacy, risk-taking, and conflict management to procrastination. A conceptual model was then proposed with relevant hypotheses, which were tested using statistical analysis and structural equation modeling.

2. RESEARCH METHOD AND APPROACH

2.1. Theoretical Framework

Students with high confidence and self-efficacy are expected to challenge the status quo and be involved in riskier behavior than their contemporaries. In designing the research setup to address the problems of this study, self-efficacy is used as a predictor of risk-taking. Apart from studies on risk-taking by Akbay and Delibalta (2020) and Watson (2001), no research has been published linking risk-taking to procrastination. This study aims to address this gap as a novel contribution to the literature. Furthermore, since procrastination is considered an unhealthy practice (Argiropoulou & Ferrari, 2015; Johansson et al., 2024) that hinders academic performance (Kooren et al., 2024; Lakshminarayan, Potdar, & Reddy, 2013; Nemtcen, Sæle, Gamst-Klaussen, & Svartdal, 2022), conflicts will result as a consequence. Therefore, skills for effectively managing these potential conflicts and disputes become necessary to manage procrastination as a possible underpinning cause. In addition to the stated objectives, this study further evaluates whether adopting different conflict management approaches affects procrastination. The conceptual model that schematically presents these factors and their interactions is shown in Figure 1.

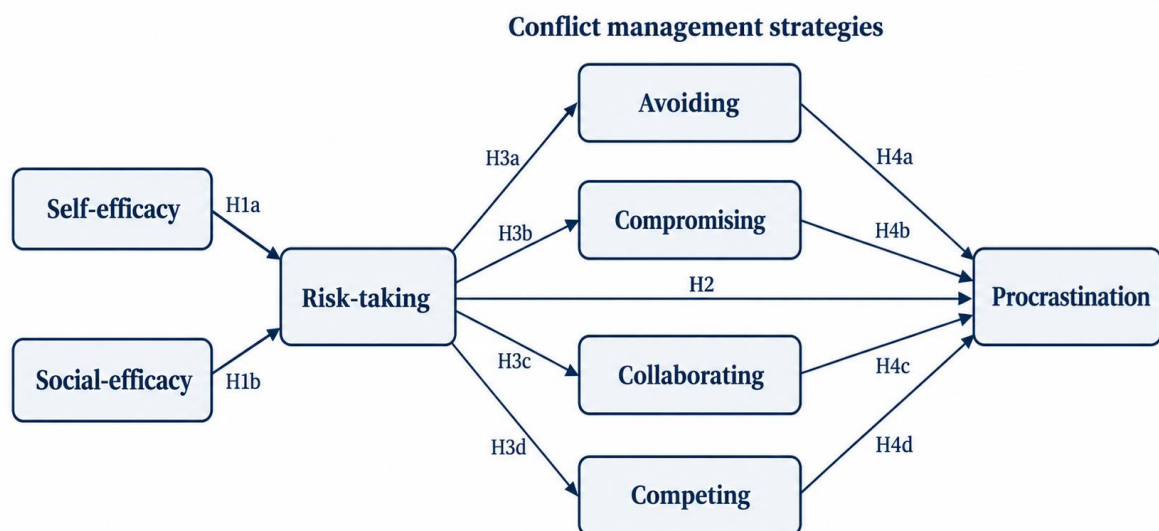


Figure 1. Conceptual diagram presenting the relationships between the constructs used for modeling the research problems.

With multiple freely accessible communication and social media channels, students are constantly faced with numerous distracting environments that impact their ability to manage educational expectations effectively. Consequently, academic educators are under high pressure to discover tools to help students achieve their academic potential. This study's contributions are threefold: first, exploring the importance of self-efficacy as a prerequisite for risk-taking; second, assessing whether risk-taking students are more likely to procrastinate; and third, investigating

the causality of the adopted conflict management strategy. To the author's best knowledge, the impact of risk-taking on procrastination has gained little attention, if any, in the literature. The paragraphs below briefly describe each construct used in the model with the relevant literature.

Self-Efficacy: The literature presents different definitions of self-efficacy. The consensus is that it is related to individuals' ability to judge their capabilities to organize and execute courses of action to attain designated types of performance (Bandura, 1986; Doménech-Betoret, Abellán-Roselló, & Gómez-Artiga, 2017; Schunk, 1991). Similar to Chu and Choi (2005), Michaelides (2008), and Zimmerman (1995), this study adopts the representation of self-efficacy as students' inner motivation to perform assigned tasks in an academic context. Studies have shown that self-efficacy directly correlates with students' performance (Schunk, Pintrich, & Meece, 2008), which in turn negatively correlates with procrastination. However, no studies have examined the internal mechanism by which risk-taking influences the relationship between self-efficacy and procrastination, which this study aims to address. The items used in the self-efficacy scale were developed by Jerusalem and Schwarzer (1981). The items used for the self-efficacy construct and associated statistical values are shown in Tables 2 and 3. In terms of the relationship with risk-taking, research showed that people with elevated levels of self-efficacy tend to undertake more challenging activities and risks (Slanger & Rudestam, 1997; Taniguchi, Bennion, Duerden, Widmer, & Ricks, 2017). The literature presents one study showing a negative relationship between self-efficacy and peer pressure (Kiran-Esen, 2012) but not the relationship between self-efficacy and risk-taking. In academia, students who take risks are more willing to make mistakes or receive low scores, which may indicate a higher level of self-efficacy. Therefore, the following hypothesis is assumed.

H₁: Self-efficacy has a positive impact on risk-taking.

Risk-Taking: Within the context of this study, risk-taking refers to the student's involvement in activities that threaten academic performance and attainment; this definition is generally consistent with the literature (Alexander et al., 1990). The items used for the risk-taking construct are adopted from Bolton and Lane (2012); Blais and Weber (2006) and Zhang, Highhouse, and Nye (2019). While the literature provides a plethora of studies on the root causes of procrastination, very little attention has been given to risk-taking behavior as a potential root cause. In fact, in published studies assessing potential predictors of procrastination, the literature does not usually include risk-taking as a predictor (Lowinger et al., 2016; Steel, 2010) except for one study by Milgram, Marshevsky, and Sadeh (1995). In the literature, only two studies (Akday & Delbaltá, 2020; Watson, 2001) have shown a negative correlation between risk-taking and procrastination. One explanation for the dearth of literature relating risk-taking to procrastination is that it is a dual construct. In other words, risk-takers may either enjoy or tend to procrastinate until the last minute, or they may procrastinate to avoid taking risks. The model adopted in this study supports a negative relationship between risk-taking and procrastination. Therefore, the relevant hypothesis is:

H₂: Risk-taking has a negative impact on procrastination.

Procrastination: For this study, and in the context of academic performance, the term 'procrastination' refers to the tendency of students to delay the start of an activity (e.g., preparing for an exam) or delay the completion of an activity (such as submission of an assignment) to a degree that it becomes uncomfortable (Senécal et al., 2003). As previously stated, procrastination is negatively correlated with academic performance, and the literature also shows that procrastination is negatively associated with risk-taking (Watson, 2001). Such a practice is commonly followed by college students and can affect over 50% of the population (Özer et al., 2009; Solomon & Rothblum, 1984). One possible reason procrastination is more prevalent at the university than in schools is the added flexibility and more relaxed schedules (You, 2015).

Conflict Management Strategies: Despite a detailed literature search, no studies were found associating risk-taking behavior with procrastination or examining the roles that adopted conflict management strategies play in such relationships. These topics are critical management areas with critical implications for students' performance and career prospects. This study aims to offer insights into these matters and contribute to the literature. From general management and academic performance perspectives, procrastination is considered an unhealthy practice that causes

multiple management issues. Therefore, when procrastination occurs, conflicts are expected and must be managed. The early definition of conflict is the "process which begins when one party perceives that the other has frustrated, or is about to frustrate, some concern of his (or hers)" (Thomas, 1976).

One of the research questions this study aims to answer is: to what extent do different conflict management strategies impact procrastination? In conflict management, various strategies have emerged from multiple theoretical models. For this study, two prominent theories are considered: Volkema and Bergmann (1995) and Rahim and Magner (1995). These models are based on the pioneering work of Blake and Mouton (1964). The common aspect of these models is the classification of conflict management strategies into five distinct styles. Depending on the individual's concern for relationships with others, these styles are further categorized into assertiveness and cooperativeness; the former is used by workers who are more self-concerned, while the latter is used by workers who are more peer-concerned. Since this study focuses more on self-efficacy than on the collaborative dimension, the proposed model will consider only the assertiveness dimension, as it directly relates to an individual's attempt to prioritize his or her concerns at different levels of impact on other parties.

Based on the conflict-handling behavior adopted by Thomas (1976) this study couples the assertiveness association of various conflict management strategies with two new dimensions: (1) risk-taking behavior and (2) procrastination behavior. In this new model, the study aims to generate a 'more' holistic view of procrastination through multiple dimensions. With self-efficacy as a confirmed predictor of risk-taking, these propositions aim to help educators, counselors, and parents focus on the root causes of procrastination to provide adequate assistance to students. As stated by Jehn (1995) conflicts in themselves are not harmful; quite the opposite, as they can be turned into opportunities for innovation and entrepreneurship. However, managing these conflicts is a crucial concern, which raises the question of the adopted type of conflict management strategy. Furthermore, one must also remember that conflicts experienced by the students are not necessarily academic; they can be related to other dimensions such as social and emotional support (Ferrari, Harriott, & Zimmerman, 1998).

Due to the significant similarities between avoiding and accommodating, this study grouped the considered conflict-management strategies broadly into the following four approaches.

Conflict-Avoiding Strategy: Students use this approach for time-management issues by avoiding them. In this way, students effectively sidestep the issue and hope it goes away on its own. This is the least preferred conflict-resolution approach, as the underlying causes of the conflict remain intact. However, the perception is that adopting such a conflict-management strategy can only be used when other options have been tried and have been unsuccessful, or when students conclude that no other options are feasible. The associated hypotheses are thus:

H_{3a}: Risk-Taking is negatively correlated with conflict-avoiding strategy.

H_{3b}: Conflict-avoiding strategy has a positive impact on procrastination.

Conflict Compromising Strategy: This is concerned with making concessions to reach an intermediate middle ground common between the conflicting parties. This is achieved when each party gives up something to gain something, effectively producing a win-lose or lose-win outcome. The associated hypotheses are thus:

H_{3c}: Risk-taking is negatively correlated with conflict-compromising strategy.

H_{3d}: Conflict-compromising strategy has a positive impact on procrastination.

Conflict Collaborating Strategy: In this approach, students attempt to collaborate with other involved parties, such as tutors, advisors, counselors, or parents. The main drive of this approach is to study the potential causes of conflicts. This is the most preferred approach, as it may result in a satisfactory and lasting solution. The associated hypotheses are thus:

H_{3e}: Risk-taking is positively correlated with conflict-collaborating strategy.

H_{3f}: Conflict-collaborating strategy is negatively correlated with procrastination.

Conflict Competing Strategy: In this approach, students adopt a power-based approach to acting in a highly assertive way. The aim is to support and win their position. The outcomes of this approach are typically achieved at the expense of other involved parties. The associated hypotheses are thus:

H_{3a}: Risk-taking is positively correlated with conflict-competing strategy.

H_{3b}: Conflict-competing strategy is negatively correlated with procrastination.

2.2. Population and Sample

A set of survey questions on the different constructs shown in Figure 1 was developed using similar models in the literature. The questions were modified to suit the research problem and the intended self-administered survey. The research also considered some additional demographic information for statistical purposes. A pretest with 10 students was conducted to assess the clarity of the study and the time required to complete it. Following minor adjustments, 250 questionnaires were distributed by hand to male and female medical students in the first, second, and third years at Alfaisal University in Saudi Arabia. Responses to the survey questions were provided on a seven-point Likert scale, with 1 representing 'Strongly Disagree' and 7 representing 'Strongly Agree'. The collected data were analyzed, with each completed questionnaire reviewed for variance and level of engagement. In total, 41 questionnaires were excluded due to missing values and/or very low standard deviation. Therefore, 209 completed questionnaires were considered for analysis. The data that support the findings of this study are available on request from the corresponding author. The demographic characteristics of the respondents in this study are summarized in Table 1. The data used in this research can be made available to other researchers.

Table 1. Demographic distribution of the variables selected for the study.

Variable	Category	Frequency	Percent (%)
Current Academic Year	First year	85	41
	Second year	66	32
	Third year	58	28
Gender	Male	24	11
	Female	185	89
Age (Years)	18-20	93	44
	21-26	116	56
Decision to Study Medicine	Based on my own decision	153	73
	Family or/and social influence	56	27

Structural equation modeling was used for data analysis to assess the proposed conceptual model (Hair, Hult, Ringle, & Sarstedt, 2017). The SmartPLS statistical package (version 3.2.4) was selected as the most suitable tool for this analysis because the research is exploratory in nature (Hair et al., 2017). Interpretation of the results using SmartPLS explains the degree to which observed variances in the endogenous latent variables (dependent variables) can be attributed to the exogenous variables (independent variables). SmartPLS was applied using standard guidelines and principles for structural equation modeling (Esposito Vinzi, Chin, Henseler, & Wang, 2010; Peng & Lai, 2012). The selected constructs for the proposed model are modeled as reflective constructs aimed at solving the research problems and explaining the empirical levels of risk-taking, conflict management strategies, and procrastination.

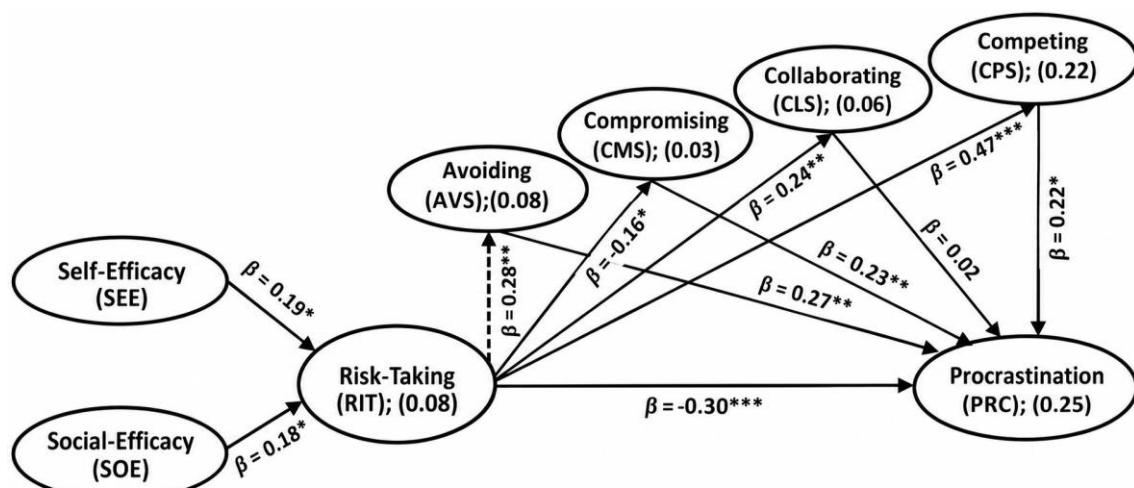
2.3. Assessing the Measurement Model

The questionnaire developed for this study was used to obtain data and populate the conceptual model, as shown in Figure 1. The components for each construct were adopted from the literature to address the research problem of this study, as shown in Table 2.

Table 2. Measurement items and associated constructs used in the model.

Construct	Item	Measure	Reference
Self-Efficacy	SEE1	I am always punctual	Chen, Gully, and Eden (2001); Schwarzer and Jerusalem (1995); Sherer et al. (1982) and Zimmerman (1995)
	SEE2	I perform perfectly	
	SEE3	I manage everything right	
Social-Efficacy	SOE1	I can easily make friends	Zimmerman (1995)
	SOE2	I perform well in social gatherings	
	SOE3	All students care about me	
Conflict Management Strategies			Northouse (2011); Rahim (1983); Rahim and Magner (1995); Stemmet, Roger, Kuntz, and Borrill (2015); and Thomas and Kilmann (1978)
Avoiding	AVS1	I leave problems unsolved to avoid conflicts	
	AVS2	I agree with others to avoid conflicts	
	AVS3	I keep my opinions to avoid conflicts	
	AVS4	I let others make decisions for me	
Compromising	CMS1	In conflicts, I prefer middle ground	
	CMS2	In conflicts, it is impossible to win	
	CMS3	In conflicts, it is impossible to change others	
Collaborating	CLS1	I prefer everyone to win	
	CLS2	I always reach an agreement with others	
	CLS3	I always consider the opinions of other parties	
Competing	CPS1	I must always succeed in conflicts	
	CPS2	I enjoy confrontation	
	CPS3	I always achieve my set goals	
Risk-Taking	RIT1	I prefer to take risks	Bolton and Lane (2012); Blais and Weber (2006) and Zhang et al. (2019)
	RIT2	I adapt to risky outcomes	
	RIT3	I am excited when taking risks	
	RIT4	I am ready to take new risks	
Procrastination	PRC1	I always miss deadlines	Nemtcen et al. (2022) and Steel (2010)
	PRC2	I don't stick to schedules	
	PRC3	I always procrastinate	
	PRC4	I always end up cramming tasks	

An analysis of the data obtained to test the proposed conceptual model started by assessing the measurement and structural models of the path diagram shown in Figure 1. The approach is based on the recommended methods of Hair et al. (2017). Figure 2 shows the path diagram linking the selected constructs, along with the loadings and p-values for all relationships. This path diagram was generated using the SmartPLS statistical package.



Note: The path loadings are shown. Values in brackets represent the acronyms of the constructs and the R² values. The number of stars indicates the level of significance: * p<0.05; ** p<0.01; *** p<0.001. Loadings without stars symbolize the non-significant values.

Figure 2. Path diagram showing the relationships among all constructs in the conceptual model presented in Figure 1.

In Table 3, the basic descriptive statistics for all constructs and their associated components are presented, together with assessments of the corresponding reliability and validity of the model.

Table 3. Summary of key properties for the reflective constructs of the outer models.

No.	Construct ^a	Item	β ^b	Mean	SD	IR	ρ	AVE
1	Self-Efficacy (SEE)	SEE1	0.50*	5.04	1.55	0.25	0.80	0.64
		SEE2	0.95***	5.55	1.41	0.90		
		SEE3	0.80***	5.17	1.58	0.64		
2	Social-Efficacy (SOE)	SOE1	0.77***	4.71	1.59	0.59	0.84	0.59
		SOE2	0.70***	4.76	1.58	0.49		
		SOE3	0.91***	4.59	1.76	0.83		
	Conflict Management Strategies							
3	Avoiding (AVS)	AVS1	0.73***	3.48	1.70	0.53	0.84	0.57
		AVS2	0.77***	3.32	1.70	0.59		
		AVS3	0.69***	3.79	1.76	0.48		
		AVS4	0.82***	2.78	1.68	0.67		
4	Compromising (CMS)	CMS1	0.88***	3.15	1.64	0.77	0.80	0.58
		CMS2	0.85***	3.26	1.62	0.72		
		CMS3	0.50***	3.73	1.71	0.25		
5	Collaborating (CLS)	CLS1	0.82***	4.75	1.41	0.67	0.76	0.52
		CLS2	0.74***	4.82	1.60	0.55		
		CLS3	0.58*	5.22	1.49	0.34		
6	Competing (CPS)	CPS1	0.53***	4.82	1.62	0.28	0.73	0.50
		CPS2	0.65***	4.17	1.61	0.42		
		CPS3	0.86***	4.94	1.47	0.74		
7	Risk-Taking (RIT)	RIT1	0.85***	4.73	1.49	0.72	0.85	0.59
		RIT2	0.74***	4.71	1.45	0.55		
		RIT3	0.71***	4.75	1.66	0.50		
		RIT4	0.78***	4.57	1.35	0.61		
8	Procrastination (PRC)	PRC1	0.71***	2.62	1.77	0.50	0.80	0.51
		PRC2	0.68***	4.58	1.82	0.46		
		PRC3	0.66***	5.01	1.67	0.44		
		PRC4	0.79***	4.37	1.86	0.62		

Note: a: Names in parentheses are the construct abbreviations used in the path diagram.
b: Level of significance; * $p < 0.05$; and *** $p < 0.001$.
SD: Standard deviation.
IR: Indicator Reliability.
Composite Reliability.
AVE: Average Variance Extracted.

The endogenous variables of the research model shown in Figures 1 and 2 (Conflict management and risk-taking) are measured using the indicators of the reflective constructs. As shown in Table 3, the relationships between the indicators and constructs have loading values close to or above the threshold of 0.7 and are significant (p -values < 0.05). The model's performance was assessed by measuring composite reliability, which exceeded the threshold of 0.7, and the minimum average variance extracted (AVE), which was 0.5. These results facilitate proceeding to analyze the discriminant validity of the model, which was performed in two ways: assessment of the cross-loading values and the application of the Fornell-Larcker criterion (Ringle, Sarstedt, & Zimmermann, 2011). Table 4 presents the loadings of all indicators with all model constructs. It can be clearly seen that each construct has the highest loadings within its own block compared with indicators belonging to other constructs.

For the second assessment of the model's discriminant validity, Table 5 shows the application of the Fornell-Larcker criterion analysis for assessing the model's discriminant validity. The values on the diagonal in Table 5 represent the square root of the AVE of the corresponding constructs. These values are larger than any correlation values across their intersecting rows and columns, indicating that these constructs share more variance within their own block of indicators than with another block belonging to a different construct.

Table 4. Cross-loading analysis of the model's indicators with all constructs used in the model.

Constructs	Items	Self-Efficacy	Social-Efficacy	Conflict Management Strategies				Risk-Taking	Procrastination
				Avoiding	Compromising	Collaborating	Competing		
Self-Efficacy	SEE1	0.50							
	SEE2	0.95							
	SEE3	0.80							
Social-Efficacy	SOE1		0.77						
	SOE2		0.70						
	SOE3		0.91						
Avoiding	AVS1			0.73					
	AVS2			0.77					
	AVS3			0.69					
	AVS4			0.82					
Compromising	CMS1				0.88				
	CMS2				0.85				
	CMS3				0.50				
Collaborating	CLS1					0.82			
	CLS2					0.74			
	CLS3					0.58			
Competing	CPS1						0.53		
	CPS2						0.65		
	CPS3						0.86		
Risk-Taking	RIT1							0.85	
	RIT2							0.74	
	RIT3							0.71	
	RIT4							0.78	
Procrastination	PRC1								0.71
	PRC2								0.68
	PRC3								0.66
	PRC4								0.79

Recent research suggests using an alternative technique for assessing discriminant validity known as the heterotrait-monotrait ratio (HTMT) (Henseler, Ringle, & Sinkovics, 2009). HTMT simply takes the ratio of between-trait correlations to within-trait correlations. If this ratio is less than 0.85 (Hair et al., 2017), discriminant validity is established. The results are shown in Table 6.

Table 5. Fornell-Larcker criterion analysis for checking discriminant validity of the model.

No.	Constructs	1	2	3	4	5	6	7	8
1	Avoiding	0.76							
2	Collaborating	-0.02	0.72						
3	Competing	-0.20	0.28	0.70					
4	Compromising	0.55	0.10	-0.20	0.76				
5	Procrastination	0.36	0.01	-0.18	0.37	0.71			
6	Risk-Taking	-0.28	0.24	0.47	-0.16	0.08	0.77		
7	Self-Efficacy	-	0.27	0.45	-0.28	-0.26	0.22	0.77	
8	Social Efficacy	-0.13	0.29	0.26	-0.12	-0.21	0.21	0.18	0.80

Table 6. HTMT criterion analysis for discriminant validity assessment.

No.	Constructs	1	2	3	4	5	6	7	8
1	Avoiding	1.0							
2	Collaborating	0.12	1.0						
3	Competing	0.33	0.60	1.0					
4	Compromising	0.78	0.33	0.41	1.0				
5	Procrastination	0.43	0.25	0.42	0.44	1.0			
6	Risk-taking	0.37	0.36	0.73	0.23	0.15	1.0		
7	Self-Efficacy	0.25	0.46	0.81	0.40	0.35	0.23	1.0	
8	Social Efficacy	0.17	0.50	0.38	0.21	0.23	0.23	0.26	1.0

Tables 4, 5, and 6 provide evidence of the discriminant validity of the model: the constructs are distinct from each other and unique in capturing specific data characteristics not represented by other constructs.

As in the assessment of the measurement model, assessing the structural model follows the steps of Hair et al. (2017). First, collinearity is assessed to establish whether the exogenous latent variables exhibit a degree of collinearity that influences the prediction of the endogenous variables. This is done by measuring the variance inflation factor (VIF), which is well below the cutoff value of 5. The path coefficients between the constructs of the structural model and their significance are shown in Figure 2. This indicates that both self-efficacy and social efficacy have a positive and significant relationship with risk-taking ($\beta = 0.19$ and 0.18 , respectively, at $p < 0.05$). The relationship between efficacy and risk-taking is presented as Model 1 and shown in Table 7. Therefore, self-efficacy and social efficacy are predictors of risk-taking. The relationship between efficacy and procrastination, presented as Model 2 in Table 2, showed a negative and significant relationship and highlights the importance of improving students' efficacy levels to reduce procrastination.

Examining only the direct relationship between risk-taking and procrastination (Model 3; Table 7) showed a weak, nonsignificant relationship ($\beta = 0.07$ and $p = 0.65$); i.e., risk-taking does not influence procrastination. However, as evident in Figure 2, when different conflict management strategies are considered, the structural equation analysis showed that risk-taking has a strong, negative, and significant relationship with procrastination. Furthermore, risk-taking seems to have a strong, negative, and significant relationship with the avoiding conflict strategy ($\beta = -0.28$ and $p < 0.000$).

Table 7. Regression analysis of the dependent variables using four different models.

Variables	Assessing Risk-Taking	Assessing Procrastination		
	Model (1)	Model (2)	Model (3)	Model (4)
Self-Efficacy	0.19*	-0.33***		
Social-Efficacy	0.18*	-0.15**		
Risk-Taking			0.07 (ns)	-0.30***
Avoiding Conflict Strategy				0.27**
Compromising Conflict Strategy				0.23**
Collaborating Conflict Strategy				-0.02 (ns)
Competing Conflict Strategy				-0.22*
N	196	196	196	196
R ²	0.08	0.15	0.02	0.25
Adj. R ²	0.07	0.14	0.02	0.23

Note: Model 1: Efficacy and risk-taking.
 Model 2: Efficacy and Procrastination.
 Model 3: Risk-Taking and Procrastination.
 Model 4: Full model that includes models 1, 2, and 3.
 Level of significance: * $p < 0.05$; ** $p < 0.01$; and *** $p < 0.001$.
 (ns)= Non-significant

The 'avoiding conflict management strategy' exhibited a negative and significant correlation with risk-taking ($\beta = -0.28$ and $p < 0.000$) and a positive and significant relationship with procrastination ($\beta = 0.27$ and $p < 0.001$). A

similar trend is observed for the adoption of the 'compromising conflict management strategy.' This finding is consistent with a recent study by Mansouri, Ashouri, Gharraee, and Farahani (2021).

The 'collaborating' and 'competing' strategies exhibited positive and significant correlations with risk-taking but variable correlations with procrastination. However, the 'competing' strategy showed a negative and significant correlation with procrastination. Overall, there is a gradual shift in the sign and significance as the conflict strategy changes from 'avoiding' to 'competing', i.e., moving from an unassertive to an assertive conflict-management strategy.

The next step in evaluating the structural model is assessing the target construct's coefficient of variation (R^2). The path diagrams (Figure 2) show no direct influence of risk-taking on procrastination. However, this relationship increased by 30% through mediation by adopting various conflict management strategies. The 25% variation in procrastination can be explained by the adopted conflict management strategy, with 'collaborating' making no impact on procrastination behavior. The Stone-Geisser criterion for assessing the model's predictive relevance was applied using blindfolding procedures to calculate Q^2 values. All values were greater than the threshold of 0.00, indicating that the model has the required predictive relevance (Henseler et al., 2009). Inspecting the corresponding q^2 values indicates that the size of its effect can be considered moderate (Hair et al., 2017).

All the above assessments of the measurement and structural models indicate and confirm the quality of the structural model. The analysis and discussion of these findings are presented in the next section.

3. DISCUSSION AND CONCLUSIONS

The assessment and quantification of the underlying causes of procrastination have attracted considerable interest in the literature. In managing the initial research problems of this study, self-efficacy is considered an antecedent to risk-taking (Figure 1). According to Sherer et al. (1982), the self-efficacy construct is represented through two sub-constructs: self-efficacy and social-efficacy. This study has shown that both have positive and significant correlations with risk-taking. Further, the analysis also showed that self-efficacy explains 8% of the variance in risk-taking. The classification of the size effect of this value varies in the literature. For example, Hair et al. (2017) classify $R^2 < 25\%$ as indicating that self-efficacy is a weak predictor of risk-taking, while Klassen, Krawchuk, and Rajani (2008) showed that greater than 5% is a modest effect. With due consideration for the diversity of the potential underpinning causes of risk-taking, the 8% of the variance in risk-taking explained by self-efficacy as the single exogenous variable is 'modest'. The conclusion is that self-efficacy plays an important role in predicting risk-taking practiced by the students. This result is consistent with earlier studies (Konaklı, 2015; Taniguchi et al., 2017). Such observed self-efficacy's impact on risk-taking is not limited to education but was also observed in different disciplines, such as financial management (Montford & Goldsmith, 2016) and sports (Llewellyn, Sanchez, Asghar, & Jones, 2008). These results satisfy hypotheses H1a and H1b.

H_{1a}: Self-Efficacy has a positive impact on risk-taking.

H_{1b}: Social-Efficacy has a positive impact on risk-taking.

The direct relationship between self-efficacy and procrastination produced a negative and significant correlational value ($\beta = -0.33$, $p < 0.000$ for self-efficacy and $\beta = -0.15$, $p < 0.05$ for social efficacy). Once again, this result seems to be consistent with the literature (see, for example, Kandemir (2014) [$\beta = -0.11$, $p < 0.001$]; Klassen et al. (2008) [$\beta = -0.18$, $p < 0.001$]; and Wäschle, Allgaier, Lachner, Fink, and Nückles (2014) [$\beta = -0.41$, $p < 0.001$]). Further, a correlational relationship of this type has also been reported in more recent studies by Bibi, Shabir, Kausar, and Akram (2022); Nemtcan et al. (2022) and Wang, Gao, Sun, Liu, and Fan (2021). Most explanations for this negative relationship indicate that students with high self-efficacy are more likely to monitor and self-regulate their impulses to maintain high productivity in times of difficulty (Komarraju & Nadler, 2013). The finding indicates that students who strongly believe in their ability to manage and control themselves are more likely to practice lower levels of procrastination. Specifically, students who set goals and achieve them persistently are less likely to procrastinate. Consequently, educational institutions must provide counseling services to support students in

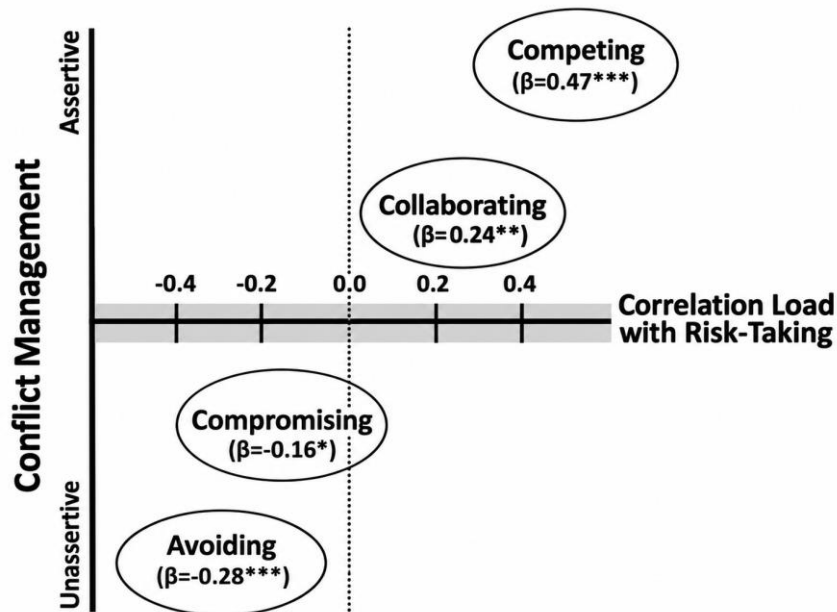
developing their goals with appropriate plans to achieve them. One option for offering such services is through a mandatory, graded course in the first semester of college. In our college, this was practiced, where an academic course of one credit has been developed and delivered by specialized counselors and administrators to be attended by all freshmen.

One of the contributions this study provides to the literature is exploring the relationship between risk-taking and procrastination. Contrary to the only two publications showing a negative correlation between risk-taking and procrastination (Akabay & Delibalta, 2020; Watson, 2001), this study showed that risk-taking does not directly impact the level of academic procrastination. This was evident from the low correlation coefficient and nonsignificant relationship between risk-taking and procrastination ($\beta=0.07$ and $p=0.65$). Therefore, the findings of this study failed to support hypothesis H2. However, despite the lack of a direct effect, risk-taking indirectly influences procrastination through conflict management, as shown in Figure 2 ($\beta=0.3$ and $p<0.00$). Therefore, the data indicate that adopting conflict management strategies helps risk-takers establish a negative correlation with procrastination, i.e., improve their task and schedule management skills. This outcome supports the regression analyses of model 2 (Table 7), indicating that a high level of self-efficacy is significantly negatively correlated with procrastination. One explanation for this outcome is that risk-taking students may enjoy procrastinating until the last minute, and similarly, risk-averse students may also procrastinate to avoid facing the risk of not completing the assignments (Cho & Lee, 2022). The overall tendency to procrastinate ultimately determines the balance among the selected respondents, which varies depending on multiple contextual, educational, and environmental factors. In this research, conflict management strategies show an overall negative and significant correlation with procrastination, a result that once again emphasizes the importance of developing students' interpersonal skills.

To further analyze the roles played by the adopted conflict management strategies, procrastination creates academic and interpersonal conflicts (Senécal, Loughhead, & Bloom, 2008). Students must manage these conflicts at some point, but first must decide on the appropriate approach. Four conflict management strategies are considered in this study: Avoiding, Compromising, Collaborating, and Competing (Rahim & Magner, 1995; Volkema & Bergmann, 1995). Except for collaborating, the results showed that all these strategies are strongly correlated with procrastination at a statistically significant level. Such correlations increased the explained variance of procrastination to 25%. In terms of the risk-taking effect, the competing strategy seems to have the strongest significant correlation with risk-taking, exhibiting $R^2 = 22\%$, but with a negative and significant correlation with procrastination. This indicates that risk-taking students are more capable of selecting competing strategies as their preferred approach to managing conflicts and, at the same time, maintaining a lower level of procrastination in managing their assigned tasks. In the bigger picture, these results show that higher self-efficacy is associated with a greater ability to take risks, which in turn leads to the adoption of competing as an effective conflict management strategy and a lower level of practiced procrastination. This provides further evidence for decision-makers and educational counselors on areas of focus. This is consistent with multiple published studies, including recent works by Itach et al. (2022); Shaw and Choi (2022); and Ugwuanyi et al. (2020).

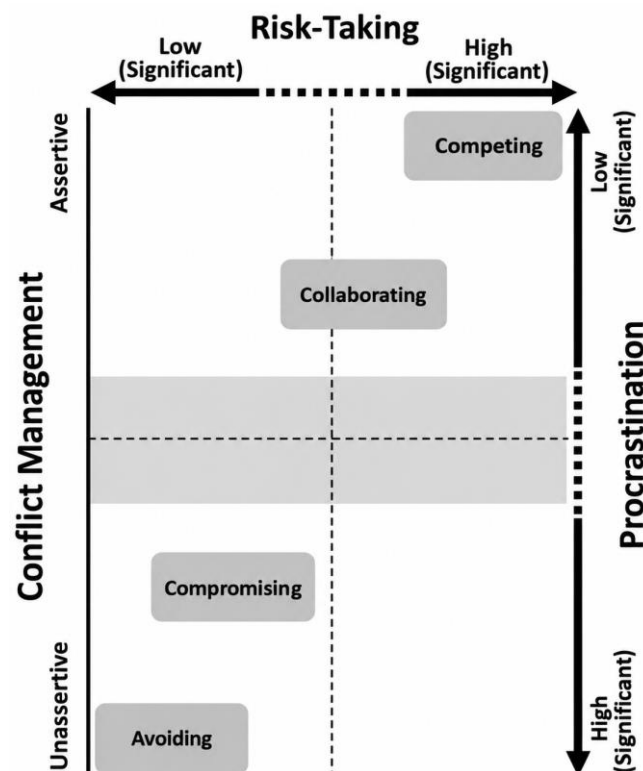
On the other hand, the 'avoiding strategy' shows the opposite behavior, i.e., a negative correlation with risk-taking and a positive correlation with procrastination. Such results indicate that risk-taking students are less likely to adopt avoidance as a strategy to manage conflicts. However, those who do will revert to procrastination as a mechanism to avoid the issues and are generally unassertive in achieving their goals. Considering the other two intermediate conflict management strategies, the results showed that the 'compromising strategy' behaves similarly to avoiding but to a lesser extent, while collaborating shows no impact on procrastination. To summarize these findings, Figure 3 presents a two-dimensional schematic representation of these relationships. Figure 3 shows that both avoiding and compromising strategies represent unassertive conflict management strategies and are negatively correlated with risk-taking. On the other hand, collaborating and competing are assertive conflict management

strategies and positively correlate with risk-taking and assertiveness. These findings are consistent with the widely adopted 'TKI Conflict-Handling Model' (Thomas & Kilmann, 1978).



Note: The vertical separations of the conflict management strategies are approximately scaled between 'Unassertive' and 'Assertive'. Values in brackets indicate the Pearson coefficient values, and the number of stars indicates the level of significance; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Figure 3. Empirical two-dimensional model of the strength of correlational relationships between conflict-handling behavior and risk-taking.



Note: The horizontal separations of the conflict management strategies are approximately scaled based on the empirical correlation coefficients shown in Figure 3.

Figure 4. Empirical two-dimensional model on the relationships between conflict-handling behavior, risk-taking, and procrastination.

Combining the findings of this study, it is possible to develop an empirical model that links conflict management strategies to both risk-taking and procrastination (Figure 4). The overall assessment of all observations showed that students with a tendency towards risk-taking are more likely to manage their conflicts using assertive strategies and, at the same time, are less likely to procrastinate. Equally, students who adopt an avoidance conflict management strategy are more likely to experience a high level of procrastination. Since academic procrastination eventually results in some types of conflict, such as role conflict (Senécal et al., 2003), which must be managed at some point, students need to select a suitable conflict management strategy. However, this choice will be underpinned by students' risk-taking utility function and their interpersonal skills.

Table 8 summarizes the outcomes of testing the null hypotheses associated with the research problems of this study. Not all hypotheses are rejected except H4c and H2. The latter is rejected only for its direct correlation with procrastination but is not rejected when conflict management strategies are added as mediators.

Table 8. Results for testing research hypotheses.

No.	Hypotheses	Testing
H1	Self-efficacy has a positive impact on risk-taking	Not Rejected
H2	Risk-taking has a negative impact on procrastination	Rejected
H3a	Risk-Taking is negatively correlated with conflict-avoiding strategy	Not Rejected
H3b	Risk-taking is negatively correlated with conflict-compromising strategy	Not Rejected
H3c	Risk-taking is positively correlated with conflict-collaborating strategy	Not Rejected
H3d	Risk-taking is positively correlated with conflict-competing strategy	Not Rejected
H4a	Conflict-avoiding strategy has a positive impact on procrastination	Not Rejected
H4b	Conflict-compromising strategy has a positive impact on procrastination	Not Rejected
H4c	Conflict-collaborating strategy is negatively correlated with procrastination	Rejected
H4d	Conflict-competing strategy is negatively correlated with procrastination	Not Rejected

The results showed that risk-taking plays an essential role in selecting conflict management strategies. Specifically, risk-takers are more likely to adopt a competing conflict management strategy and are less likely to procrastinate. This is because competing conflict management strategies are negatively correlated with procrastination. Therefore, improving students' risk-taking capabilities is one potential area for improving academic performance. However, while conflict management strategies show correlational relationships with interpersonal skills, they do not identify the root causes of procrastination. The presented models and correlational relationships will help educators predict the outcomes of different conflict management strategies and link them to procrastination and academic performance.

3.1. Contributions

This study contributes to the literature in multiple ways: firstly, it is the first study that integrates the adoption of different conflict management strategies to control for procrastination; secondly, the study pioneers a new empirical two-dimensional matrix to link conflict management with risk-taking and procrastination; thirdly, the study reinforces the published conclusions on the importance of self-efficacy in managing academic procrastination through the adoption of risk-taking behavior; fourthly, it is the second study that assesses the association between risk-taking and procrastination; and fifthly, the study facilitates insight into implementing new practical approaches to support students faced with procrastinating behavior that may potentially impact their academic performance.

3.2. Educational Implications

The educational implications of the study indicate that parents and educators must promote students' belief in their capacity to meet study challenges. To avoid falling into the vicious circle of procrastination (Wäschle et al., 2014), this can be achieved through the incremental build-up of self-efficacy as well as social efficacy. Furthermore, educational institutions must encourage students to adopt executable plans for high-performance attainment. A key

success factor for developing such plans seems to be associated with students' abilities to take risks. In summary, the findings of this study will help university administrators and counselors further tailor interventions that focus on potential drivers of procrastination. Specifically, students' self-efficacy and interpersonal skills should be related to risk and conflict management competencies.

3.3. Limitations and Suggestions for Future Research

Although the presented and discussed models provided some insights into managing procrastination, the limitations of the study include the fact that the data used were obtained only from medical students; thus, the results are limited and not generalizable to students in other disciplines. In addition, the study does not address or provide evidence of causality. Variables directly impacting procrastination, such as GPA scores and learning-environment factors, are not included. Finally, compared with a cross-sectional design, a longitudinal design may provide improved insight into the procrastination mechanism.

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Informed Consent Statement: Informed verbal consent was obtained from all participants, and all data were anonymized to protect participants' confidentiality.

Transparency: The author states that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Competing Interests: The author declares that there are no conflicts of interest regarding the publication of this paper.

REFERENCES

- Akbay, S. E., & Delibalta, A. (2020). Academic risk taking behavior in university students: Academic procrastination, academic locus of control, and academic perfectionism. *Eurasian Journal of Educational Research*, 89, 159–178.
- Alexander, C. S., Kim, Y. J., Ensminger, M., Johnson, K. E., Smith, B. J., & Dolan, L. J. (1990). A measure of risk taking for young adolescents: Reliability and validity assessments. *Journal of Youth and Adolescence*, 19(6), 559–569. <https://doi.org/10.1007/BF01537176>
- Argiropoulou, M. I., & Ferrari, J. R. (2015). Chronic procrastination among emerging adults: Factor structure of the Greek version of the general procrastination scale. *Hellenic Journal of Psychology*, 12(2), 85–104.
- Assailly, J.-P. (2013). *Psychology of risk-taking*. Hauppauge, NY: Nova Science Publishers.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bibi, B., Shabir, S., Kausar, N., & Akram, B. (2022). Procrastination behavior and self-efficacy among students: A mixed method study. *Pakistan Journal of Psychological Research*, 37(1), 79–97.
- Blais, A.-R., & Weber, E. U. (2006). A domain-specific risk-taking (DOSPERT) scale for adult populations. *Judgment and Decision Making*, 1(1), 33–47. <https://doi.org/10.1017/S1930297500000334>
- Blake, R. R., & Mouton, J. S. (1964). *The managerial grid: Key orientations for achieving production through people*. Houston, TX: Gulf Publishing.
- Bolton, L. D., & Lane, M. D. (2012). Individual entrepreneurial orientation: Development of a measurement instrument. *Education + Training*, 54(2-3), 219–233. <https://doi.org/10.1108/00400911211210314>
- Burka, J. B., & Yuen, L. M. (1983). *Procrastination: Why you do it, what to do about it*. Reading, MA: Addison-Wesley Publishing Company.
- Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, 4(1), 62–83. <https://doi.org/10.1177/109442810141004>
- Cho, M., & Lee, Y.-S. (2022). The effects of medical students' self-oriented perfectionism on academic procrastination: The mediating effect of fear of failure. *Korean Journal of Medical Education*, 34(2), 121–129. <https://doi.org/10.3946/kjme.2022.224>
- Chu, C. A. H., & Choi, J. N. (2005). Rethinking procrastination: Positive effects of "active" procrastination behavior on attitudes and performance. *The Journal of Social Psychology*, 145(3), 245–264. <https://doi.org/10.3200/SOCP.145.3.245-264>

- Doménech-Betoret, F., Abellán-Roselló, L., & Gómez-Artiga, A. (2017). Self-efficacy, satisfaction, and academic achievement: The mediator role of students' expectancy-value beliefs. *Frontiers in Psychology*, 8, 1193. <https://doi.org/10.3389/fpsyg.2017.01193>
- Esposito Vinzi, V., Chin, W. W., Henseler, J., & Wang, H. (2010). *Handbook of partial least squares: Concepts, methods and applications*. Berlin, Germany: Springer-Verlag.
- Fentaw, Y., Moges, B. T., & Ismail, S. M. (2022). Academic procrastination behavior among public university students. *Education Research International*, 2022(1), 1277866. <https://doi.org/10.1155/2022/1277866>
- Ferrari, J. R., Harriott, J. S., & Zimmerman, M. (1998). The social support networks of procrastinators: Friends or family in times of trouble? *Personality and Individual Differences*, 26(2), 321–331. [https://doi.org/10.1016/S0191-8869\(98\)00141-X](https://doi.org/10.1016/S0191-8869(98)00141-X)
- Hair, J. F. J., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Los Angeles, CA: Sage.
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In: Sinkovics, Rudolf R. and Ghauri, Pervez N. (eds.) *New Challenges to International Marketing. Series: Advances in International Marketing* (Vol. 20, pp. 277–320). Bingley: Emerald JAI Press.
- Itach, H., Hen, M., & Ferrari, J. R. (2022). Managing academic procrastination: A brief exploratory intervention program with Israeli students. *Education*, 142(2), 81–90.
- Janssen, J. (2015). *Academic procrastination: Prevalence among high school and undergraduate student and relationship to academic achievement*. Doctoral Dissertation, Georgia State University.
- Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative Science Quarterly*, 40(2), 256–282. <https://doi.org/10.2307/2393638>
- Jerusalem, M., & Schwarzer, R. (1981). *Questionnaire for assessing self-efficacy*. In R. Schwarzer (Ed.), *Scales for well-being and personality*. Research Report No. 5. Berlin, Germany: Free University, Institute of Psychology.
- Johansson, F., Rozental, A., Edlund, K., Grotle, M., Rudman, A., Jensen, I., & Skillgate, E. (2024). Trajectories of procrastination among Swedish University students over one academic year: A cohort study. *BMC Psychology*, 12(1), 559. <https://doi.org/10.1186/s40359-024-02072-2>
- Johnson, S. (1751). *The Rambler, No. 106*. London, England: J. Payne & J. Bouquet.
- Kandemir, M. (2014). Reasons of academic procrastination: Self-regulation, academic self-efficacy, life satisfaction and demographics variables. *Procedia-Social and Behavioral Sciences*, 152, 188–193. <https://doi.org/10.1016/j.sbspro.2014.09.179>
- Kiran-Esen, B. (2012). Analyzing peer pressure and self-efficacy expectations among adolescents. *Social Behavior and Personality: An International Journal*, 40(8), 1301–1310. <https://doi.org/10.2224/sbp.2012.40.8.1301>
- 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(4), 915–931. <https://doi.org/10.1016/j.cedpsych.2007.07.001>
- Kleinman, G., Palmon, D., & Lee, P. (2003). The effects of personal and group level factors on the outcomes of simulated auditor and client teams. *Group Decision and Negotiation*, 12(1), 57–84. <https://doi.org/10.1023/A:1022256730300>
- Komarraju, M., & Nadler, D. (2013). Self-efficacy and academic achievement: Why do implicit beliefs, goals, and effort regulation matter? *Learning and Individual Differences*, 25, 67–72. <https://doi.org/10.1016/j.lindif.2013.01.005>
- Konaklı, T. (2015). Effects of self-efficacy on social entrepreneurship in education: A correlational research. *Research in Education*, 94(1), 30–43. <https://doi.org/10.7227/RIE.0019>
- Kooren, N. S., Van Nooijen, C., & Paas, F. (2024). The influence of active and passive procrastination on academic performance: A meta-analysis. *Education Sciences*, 14(3), 323. <https://doi.org/10.3390/educsci14030323>
- Lakshminarayan, N., Potdar, S., & Reddy, S. G. (2013). Relationship between procrastination and academic performance among a group of undergraduate dental students in India. *Journal of Dental Education*, 77(4), 524–528. <https://doi.org/10.1002/j.0022-0337.2013.77.4.tb05499.x>
- Llewellyn, D. J., Sanchez, X., Asghar, A., & Jones, G. (2008). Self-efficacy, risk taking and performance in rock climbing. *Personality and Individual Differences*, 45(1), 75–81. <https://doi.org/10.1016/j.paid.2008.03.001>

- Lowinger, R. J., Kuo, B. C. H., Song, H.-A., Mahadevan, L., Kim, E., Liao, K. Y.-H., . . . Han, S. (2016). Predictors of academic procrastination in Asian international college students. *Journal of Student Affairs Research and Practice*, 53(1), 90-104. <https://doi.org/10.1080/19496591.2016.1110036>
- Mansouri, K., Ashouri, A., Gharraee, B., & Farahani, H. (2021). Prediction of decisional procrastination based on fear of failure, self-compassion and intolerance of uncertainty in students. *Shenakht Journal of Psychology and Psychiatry*, 8(4), 51-62.
- Michaelides, M. P. (2008). Emerging themes from early research on self-efficacy beliefs in school mathematics. *Electronic Journal of Research in Educational Psychology*, 6(1), 219-234.
- Milgram, N., Marshevsky, S., & Sadeh, C. (1995). Correlates of academic procrastination: Discomfort, task aversiveness, and task capability. *The Journal of Psychology*, 129(2), 145-155. <https://doi.org/10.1080/00223980.1995.9914954>
- Montford, W., & Goldsmith, R. E. (2016). How gender and financial self-efficacy influence investment risk taking. *International Journal of Consumer Studies*, 40(1), 101-106. <https://doi.org/10.1111/ijcs.12219>
- Nemtcu, E., Sæle, R. G., Gamst-Klaussen, T., & Svartdal, F. (2022). Academic self-efficacy, procrastination, and attrition intentions. *Frontiers in Education*, 7, 768959. <https://doi.org/10.3389/educ.2022.768959>
- Northouse, P. G. (2011). *Introduction to leadership: Concepts and practice* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- O'Brien, W. K. (2000). *Applying the transtheoretical model to academic procrastination*. Doctoral Dissertation, University of Houston.
- O'Connor, M. C., & Paunonen, S. V. (2007). Big five personality predictors of post-secondary academic performance. *Personality and Individual Differences*, 43(5), 971-990. <https://doi.org/10.1016/j.paid.2007.03.017>
- Özer, B. U., Demir, A., & Ferrari, J. R. (2009). Exploring academic procrastination among Turkish students: Possible gender differences in prevalence and reasons. *The Journal of Social Psychology*, 149(2), 241-257. <https://doi.org/10.3200/SOCP.149.2.241-257>
- Peng, D. X., & Lai, F. (2012). Using partial least squares in operations management research: A practical guideline and summary of past research. *Journal of Operations Management*, 30(6), 467-480. <https://doi.org/10.1016/j.jom.2012.06.002>
- Rahim, M. A. (1983). A measure of styles of handling interpersonal conflict. *Academy of Management Journal*, 26(2), 368-376. <https://doi.org/10.5465/255985>
- Rahim, M. A., & Magner, N. R. (1995). Confirmatory factor analysis of the styles of handling interpersonal conflict: First-order factor model and its invariance across groups. *Journal of Applied Psychology*, 80(1), 122-132. <https://doi.org/10.1037/0021-9010.80.1.122>
- Ringle, C. M., Sarstedt, M., & Zimmermann, L. (2011). Customer satisfaction with commercial airlines: The role of perceived safety and purpose of travel. *Journal of Marketing Theory and Practice*, 19(4), 459-472. <https://doi.org/10.2753/MTP1069-6679190407>
- Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist*, 26(3-4), 207-231. <https://doi.org/10.1080/00461520.1991.9653133>
- Schunk, D. H., Pintrich, P. R., & Meece, J. L. (2008). *Motivation in education: Theory, research, and applications* (3rd ed.). Upper Saddle River, NJ: Pearson/Merrill Prentice Hall.
- Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, England: NFER-Nelson.
- Senécal, C., Julien, E., & Guay, F. (2003). Role conflict and academic procrastination: A self-determination perspective. *European Journal of Social Psychology*, 33(1), 135-145. <https://doi.org/10.1002/ejsp.144>
- Senécal, J., Loughhead, T. M., & Bloom, G. A. (2008). A season-long team-building intervention: Examining the effect of team goal setting on cohesion. *Journal of Sport and Exercise Psychology*, 30(2), 186-199. <https://doi.org/10.1123/jsep.30.2.186>
- Shaw, A., & Choi, J. (2022). Big Five personality traits predicting active procrastination at work: When self- and supervisor-ratings tell different stories. *Journal of Research in Personality*, 99, 104261. <https://doi.org/10.1016/j.jrp.2022.104261>
- Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: Construction and validation. *Psychological Reports*, 51(2), 663-671. <https://doi.org/10.2466/pro.1982.51.2.663>
- Sherry, S. B., Stoeber, J., & Ramasubbu, C. (2016). Perfectionism explains variance in self-defeating behaviors beyond self-criticism: Evidence from a cross-national sample. *Personality and Individual Differences*, 95, 196-199. <https://doi.org/10.1016/j.paid.2016.02.059>

- Sholichah, I. F. (2025). Psychoeducation processes academic procrastination through time management. *Jurnal Konseling Pendidikan Islam*, 6(1), 289–296. <https://doi.org/10.32806/jkpi.v6i1.755>
- Silver, M., & Sabini, J. (1981). Procrastinating. *Journal for the Theory of Social Behaviour*, 11, 207–221.
- Slanger, E., & Rudestam, K. E. (1997). Motivation and disinhibition in high risk sports: Sensation seeking and self-efficacy. *Journal of Research in Personality*, 31(3), 355–374. <https://doi.org/10.1006/jrpe.1997.2193>
- Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and cognitive-behavioral correlates. *Journal of Counseling Psychology*, 31(4), 503–509. <https://doi.org/10.1037/0022-0167.31.4.503>
- Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin*, 133(1), 65–94. <https://doi.org/10.1037/0033-2909.133.1.65>
- Steel, P. (2010). Arousal, avoidant and decisional procrastinators: Do they exist? *Personality and Individual Differences*, 48(8), 926–934. <https://doi.org/10.1016/j.paid.2010.02.025>
- Stemmet, L., Roger, D., Kuntz, J., & Borrill, J. (2015). General and specific avoidance: The development and concurrent validation of a new measure of avoidance coping. *European Journal of Psychological Assessment*, 31(3), 222–230. <https://doi.org/10.1027/1015-5759/a000220>
- Taniguchi, S. T., Bennion, J., Duerden, M. D., Widmer, M. A., & Ricks, M. (2017). Self-efficacy of risk taking in outdoor recreation as a predictor of the self-efficacy of risk taking in essay writing. *Journal of Outdoor Recreation, Education, and Leadership*, 9(4), 425–438. <https://doi.org/10.18666/JOREL-2017-V9-I4-8653>
- Thomas, K. W. (1976). Conflict and conflict management. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 889–935). Chicago, IL: Rand McNally.
- Thomas, K. W., & Kilmann, R. H. (1978). Comparison of four instruments measuring conflict behavior. *Psychological Reports*, 42(3, Suppl.), 1139–1145. <https://doi.org/10.2466/pr0.1978.42.3c.1139>
- Ugwuanyi, C. S., Gana, C. S., Ugwuanyi, C. C., Ezenwa, D. N., Eya, N. M., Ene, C. U., . . . Ede, M. O. (2020). Efficacy of cognitive behaviour therapy on academic procrastination behaviours among students enrolled in physics, chemistry and mathematics education (PCME). *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 38(4), 522–539. <https://doi.org/10.1007/s10942-020-00350-7>
- Volkema, R. J., & Bergmann, T. J. (1995). Conflict styles as indicators of behavioral patterns in interpersonal conflicts. *The Journal of Social Psychology*, 135(1), 5–15. <https://doi.org/10.1080/00224545.1995.9711395>
- Wang, Y., Gao, H., Sun, C., Liu, J., & Fan, X.-L. (2021). Academic procrastination in college students: The role of self-leadership. *Personality and Individual Differences*, 178, 110866. <https://doi.org/10.1016/j.paid.2021.110866>
- Wäschle, K., Allgaier, A., Lachner, A., Fink, S., & Nückles, M. (2014). Procrastination and self-efficacy: Tracing vicious and virtuous circles in self-regulated learning. *Learning and Instruction*, 29, 103–114. <https://doi.org/10.1016/j.learninstruc.2013.09.005>
- Watson, D. C. (2001). Procrastination and the five-factor model: A facet level analysis. *Personality and Individual Differences*, 30(1), 149–158. [https://doi.org/10.1016/S0191-8869\(00\)00019-2](https://doi.org/10.1016/S0191-8869(00)00019-2)
- You, J. W. (2015). Examining the effect of academic procrastination on achievement using LMS data in e-learning. *Journal of Educational Technology & Society*, 18(3), 64–74.
- Zhang, D. C., Highhouse, S., & Nye, C. D. (2019). Development and validation of the general risk propensity scale (GRiPS). *Journal of Behavioral Decision Making*, 32(2), 152–167. <https://doi.org/10.1002/bdm.2102>
- Zimmerman, B. J. (1995). Self-efficacy and educational development. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 202–231). New York, NY: Cambridge University Press.

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