

Research Paper:

# The Mediating Role of Identity Styles in the Relationship Between Procrastination and Academic Performance in High School Boy Students



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## ABSTRACT

**Background:** Academic performance is associated with an individual's psychological state.

**Objectives:** The purpose of this study was to investigate the mediating role of identity styles in the relationship between procrastination and academic performance in high school boy students.

**Materials and Methods:** This correlational research using a structural equation modeling was conducted on 330 9th grade high school boy students from 10 high schools in Qaemshahr, Iran in winter 2019 selected by convenience sampling. Data collection tools included the Academic Performance Questionnaire, the Identity Style Inventory, and Procrastination Assessment Scale-Students. In the present study, the structural equation modeling was utilized to analyze the collected data using SPSS V. 18 and Amos V. 23 software.

**Results:** The results showed a significant relationship between procrastination and identity styles, and academic performance ( $P \leq 0.01$ ). Also, the research model was fit and showed that 0.57 of the dispersion of the academic performance was influenced by procrastination and identity styles. Besides, identity styles had a mediator role in the relationship between procrastination and academic performance.

**Conclusion:** The present research indicated the importance of identity styles and procrastination in explaining academic performance. Therefore, identifying students' identity styles and improving their status in educational settings can reduce academic procrastination leading to better academic performance.

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## Introduction

**T**he success and development of today's societies are associated with some crucial students' abilities and talents [1]. Many students face problematic social and educational situations in the classroom and at home and at school [2]. Practice and application are the most important criteria for evaluating learners in the process of learning [3]. The learning process can be evaluated by academic performance and academic achievement [4] and the term "academic performance" is defined as the amount of individual learning measurable by various tests [5]. Numerous factors, such as intelligence, aptitude, family status, and even parents' attitudes toward education affect students' academic performance [6].

Psychological processes in the educational field can explain behavioral performances, such as procrastination [7]. Procrastination refers to a person's voluntary delay and is common among learners [8]. Although not always problematic, it can often have undesirable and irreparable consequences by affecting the person's progress towards goal achievement [9].

Due to the complexity and cognitive, emotional, and behavioral components, procrastination has various manifestations, including academic procrastination, general procrastination, decision procrastination, neurotic procrastination, and obsessive-compulsive procrastination [10]. It is perceived by individuals as the dominant tendency to postpone activities and is considered as an important factor affecting the person's goals, desires, and overall identity [11]. Identity is a fundamental and intrinsic aspect, by which a person relates to his past and feels a sense of continuity and integration [12]. According to Berzonsky, three identity styles, namely information, normative, and confused or avoidant styles can be considered [13]. Individuals with information styles actively evaluate information and actively modify the aspects of their identities when confronted with incompatible situations [14]. In normative style, people consider core values and follow them [15]. In a confused or avoidant style, people generally avoid encountering conflicting situations [16].

Shah Karamipour and Mehdi-Nejad [7] showed that environmental stress factors affect academic performance. McIntyre et al. [18] reported that academic performance prediction was influenced by psychological characteristics, dimensions of acquired identity, the extent of social communication, and communica-

tion patterns of the learners. Kyere and Huguley [15] showed that the type and quality of the style of identity acquired in adolescents, in addition to predicting their academic performance, could determine their future job well-being. According to Kim et al. [10], the degree of procrastination of individuals can be influenced by their personality traits, which can affect their academic performance. Semprebon et al. [19] found that procrastination and academic procrastination had a significant effect on academic performance and increased feelings of personal inefficiency. Also, Suri and Ishala [20] showed that there is a relationship between identity crisis and procrastination among students. Zhang et al. [21] reported a significant relationship between the dimensions of identity and procrastination.

On the other hand, following the self-determination theory by Ryan and Deci [22], which examines the factors affecting academic performance, they emphasized that cognitive factors, such as identity and motivation, as well as behavioral factors, like procrastination, play a central role in academic performance. Accordingly, it can be concluded that students' academic failure and inappropriate performance are of particular importance. Students who do their tasks inappropriately, their lives will be changed because of the association between their education and their future jobs and social status. Also, this issue is one of the research priorities of the educational assistants of the education organizations to bridge the gap between census results so far as a model. This research aimed at determining the mediating role of identity styles in the relationship between procrastination and academic performance in male students.

## Materials and Methods

This correlational research using a structural equation modeling was conducted on 9th-grade high school boy students from 10 high schools in Qaemshahr, Iran in winter 2019. To determine the sample size, according to the number of observed variables and considering the coefficient of 30 for each observed variable (11 variables were observed in the model) [23], as well as due to the probability of incomplete questionnaires, 330 students were selected by the convenience sampling method.

Inclusion criteria were 9th-grade high school students studying in Qaemshahr city, male gender, and the age of 15 years. Exclusion criteria included incomplete answers to the questionnaires and an unwillingness to continue the study.

Before sampling, the students were informed about the research objectives and the confidentiality of infor-

mation. The informed consent letter was received from the students and then, the questionnaires were distributed to collect the data.

The relevant data were collected by the Academic Performance Questionnaire designed by Pham and Taylor (1999), Procrastination Assessment Scale-Students (PASS) developed by Solomon and Rothblum (1984), and Identity Style Inventory (ISI) developed by Berzonsky et al. (1992). Data analysis was done by structural equation modeling using SPSS v. 18 and Amos v. 23 software at the 0.05 probability level.

### Study instruments

#### Academic Performance Questionnaire by Pham and Taylor

The academic performance questionnaire was designed by Pham and Taylor (1999) [24] with 48 questions to evaluate academic performance from various domains (self-efficacy, emotional effects, planning, lack of consequence control, and motivation). It is scored on a 5-point Likert scale from strongly disagree to strongly agree. Its construct validity and convergent validity were confirmed by the developers. The reliability of the questionnaire was 0.94 using Cronbach's alpha for self-efficacy, 0.86 for emotional effects, 0.95 for planning, 0.77 for lack of consequence control, and 0.82 for motivation. Dortaj in Iran confirmed the content validity and construct validity of this scale by factor analysis [25]. The reliability of the questionnaire using Cronbach's alpha was obtained 0.92 for self-efficacy, 0.73 for emotional effects, 0.93 for planning, 0.64 for lack of consequence control, 0.73 for motivation, and 0.74 for the whole scale. In the present study, Cronbach's alpha reliability for self-efficacy was 0.88, 0.81 for emotional effects, 0.82 for planning, 0.72 for lack of consequence control, 0.68 for motivation, and 0.73 for the whole scale.

#### Procrastination Assessment Scale-Students (PASS) by Solomon and Rothblum

PASS was designed by Solomon and Rothblum in 1984 [26], with 27 questions to assess procrastination in three areas of homework preparation (questions 1-8), exam preparation (questions 9-19), and preparation of articles at the end of the semester (questions 20-27). It is scored on a 5-option Likert scale from strongly disagree to strongly agree. Its construct validity and convergent validity were confirmed by the creators and its reliability using Cronbach's alpha method was 0.81 for homework preparation, 0.83 for exam preparation, 0.87

for preparation of articles at the end of the semester, 0.89 for the whole scale. In Iran, Nariman and HosseinChari using Cronbach's alpha method reported construct validity and concurrent validity and reliability of 0.79 for homework preparation, 0.78 for exam preparation, 0.83 for and preparation of articles at the end of the semester, and 0.82 for the whole scale [27]. In the present study, its reliability was obtained by Cronbach's alpha for preparing assignments (0.80), exam preparation (0.76), and preparation of articles at the end of the semester (0.82), and also for the whole scale (0.81).

#### Identity Style Inventory (ISI) by Berzonsky

ISI was designed by Berzonsky in 1992 [28] with 40 questions and three styles (informational, normative, and confused-avoidant). In this study, 30 questions were 30 identity style items and 10 questions were ISI commitment items. The questionnaire is scored on a 5-point Likert scale from strongly disagree to strongly agree. The construct validity and convergent validity of the ISI was approved by its creators and the Cronbach's alpha reliability was reported 0.62 for information identity style, 0.66 for normative identity style, and 0.73 for confused-avoidance identity styles. In Iran, it was standardized by Ghazanfari (2004) and its construct validity was confirmed by internal consistency [29]. Also, Cronbach's alpha reliability for information identity style was obtained 0.67, 0.52 for normative identity style, and 0.62 for confused-avoidance identity style. In the present study, Cronbach's alpha reliability was found to be 0.62 for information identity style, 0.58 for normative identity style, and 0.66 for confused-avoidance identity style.

### Results

Statistical assumptions were first evaluated by the Kolmogorov-Smirnov test and normal distribution of the data was confirmed. Also, the three-variable model was confirmed. The results of Table 1 indicate a significant correlation between procrastination, identity styles, and academic performance in the subjects. There was a significant inverse relationship between procrastination and avoidant identity style, and academic performance ( $P \leq 0.01$ ). Also, a significant direct relationship was found between informational and normative identity styles, and academic performance ( $P \leq 0.01$ ). According to Table 2, the root mean square error of approximation was 0.044, which was smaller than 0.1, indicating an acceptable model with a good fit for the model. Also, the ratio of Chi-square to its degrees of freedom (2.436) was between 1 and 3, and goodness of fit index, comparative fit index, and normed fit index were also roughly equal

**Table 1.** Descriptive statistics and Pearson correlation matrix of the relationship

Variables	Mean±SD	1	2	3	4	5
Homework preparation	19.51±2.59	1				
Exam preparation	26.64±3.66	0.63*	1			
preparation of articles at the end of the semester	19.34±3.21	0.47*	0.46*	1		
Procrastination	65.40±7.06	0.39*	0.53*	0.50*	1	
Information style	36.20±4.21	-0.31*	-0.33*	-0.25*	-0.24*	1
Normative style	31.28±4.59	-0.17*	-0.25*	-0.19*	-0.21*	0.57*
Confused-avoidant style	42.18±6.21	0.28*	0.24*	0.18*	0.33*	-0.44*
Efficacy	24.36±8.36	-0.19*	-0.21*	-0.19*	-0.20*	0.27*
Emotional effects	23.69±6.75	-0.22*	-0.20*	-0.18*	-0.27*	0.20*
Planning	37.71±5.06	-0.24*	-0.17*	-0.19*	-0.19*	0.24*
lack of consequence control	10.96±3.74	-0.21*	-0.19*	-0.24*	-0.21*	0.23*
Motivation	32.77±6.41	-0.26*	-0.16**	-0.21*	-0.16**	0.18*
Academic performance	148.07±24.25	-0.29*	-0.25*	-0.30*	-0.22*	0.28*

Variables	6	7	8	9	10	11	12	13
Homework preparation								
Exam preparation								
Preparation of articles at the end of the semester								
Procrastination								
Information style								
Normative style	1							
Confused-avoidant style	-0.48*	1						
Efficacy	0.31*	-0.32*	1					
Emotional effects	0.31*	-0.24*	0.42*	1				
Planning	0.21*	-0.26*	0.53*	0.44*	1			
Lack of consequence control	0.19*	-0.19*	0.39*	0.45*	0.38*	1		
Motivation	0.17*	-0.22*	0.47*	0.49*	0.52*	0.47*	1	
Academic performance	0.26*	-0.31*	0.42*	0.48*	0.51*	0.63*	0.58*	1

\*Significant at the level of 0.01; \*\* 0.001

**Table 2.** Fit indices derived from data analysis and variables

Tests	Acceptable Values	Obtained Values
The ratio of Chi-square to its degrees of freedom ( $\chi^2/df$ )	>3	2.436
Root Mean Square Error of Approximation (RMSEA)	>0.1	0.044
Goodness of Fit Index (GFI)	<0.9	0.996
Normed Fit Index (NFI)	<0.9	0.981
Comparative Fit Index (CFI)	<0.9	0.978
Degree of Freedom (DF): 152		

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**Table 3.** Direct estimation of the model through the maximum likelihood method

Variable	b	$\beta$	R <sup>2</sup>	t	P
Effect of procrastination on academic performance	-0.504	-0.217	0.109	5.124	0.001
Effect of information identity style on academic performance	0.396	0.224	0.088	5.428	0.001
Effect of the normative identity style on academic performance	0.341	0.212	0.072	5.089	0.001
Effect of confused-avoidant identity style on academic performance	-0.287	-0.166	0.047	3.864	0.002

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to and larger than 0.9, which indicate that the appropriate used measurement model. According to Table 3, procrastination and identity styles had a significant direct effect on academic performance.

As can be seen in Table 4, the three considered indirect paths based on the obtained values were significant and confirmed by the Bootstrap method at the level of 0.01. According to Figure 1, 0.57 of the academic performance dispersion was influenced by procrastination and identity styles.

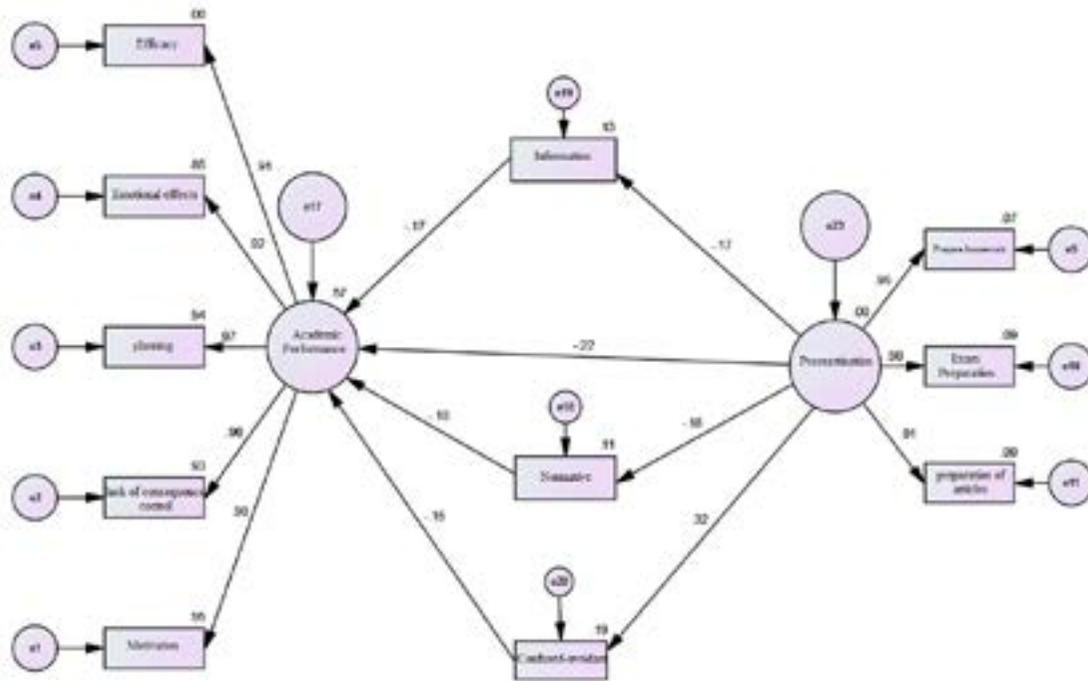
## Discussion

According to the obtained results, identity styles had a mediating role in the relationship between procrastination and academic performance. In this regard, Sempere et al. [19] showed that academic procrastination had a significant effect on academic performance and increased feelings of personal inefficiency. Shah Karamipour and Mehdi Nejad [7] reported that environmental stress factors affected academic performance. According to Kim et al. [10], the degree of procrastination of individuals can be influenced by their personality traits,

**Table 4.** Indirect estimation of the model through the Bootstrap method

Variable	Values	Lower Limit	Upper Limit	P
Effect of procrastination on academic performance with information identity style as a mediator	-0.221	-0.173	-0.348	0.000
Effect of procrastination on academic performance with normative identity style as a mediator	-0.197	-0.153	-0.296	0.000
Effect of procrastination on academic performance with confused-avoidant identity style as a mediator	-0.187	-0.126	-0.277	0.000

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**Figure 1.** The final model tested with standardized prediction statistics

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which may affect academic performance. Kyere and Hugu-ley [15] showed that the type and quality of the style of identity acquired in adolescents, in addition to predicting their academic performance, could determine their future job well-being. Suri and Ishala [20] showed that there is a relationship between identity crisis and procrastination among students. Zhang et al. [21] showed that there is a significant relationship between the dimensions of identity and procrastination. McIntyre et al. [18] found that predictors of academic performance were influenced by psychological characteristics, acquired identity dimensions, and learners' communication patterns.

Procrastination reflects a lack of self-regulation behaviors in students. Also, confused identity and ineffective self-defense strategies are used to avoid failure, self-esteem, and personal value [30]. Therefore, students who postpone preparation for exams to the night before the exam experience severe psychological stress during the test. Procrastination causes high levels of stress and anxiety in students and reduces their self-esteem [31]. Neglectful behaviors have a high potential to cause painful social and psychological effects; therefore, avoiding them requires a high coping ability, which can impede adaptive identity [4]. This may be because procrastination is a personality trait rooted in one's personality and identity style rather than a variable factor [8]. On the other hand, adolescents who

use positive coping strategies to cope with academic stress have less adolescent neglect and are likely to have normative style [32], indicating the importance of gaining and increasing knowledge. However, they do not have the time or ability to understand the reason to delay their academic performance.

Procrastination first lowers students' ability to concentrate, regulate, and strengthen their intellectual cohesion, and then leads to reduced academic achievement. Notably, based on the theory of Berzonsky's [33], people with informational identity style have higher self-esteem than those with normative identity style. In general, identity styles focus on competitive strategies, effort, personal goals, and professional goals. Academic success concerns interests and outcomes, self-esteem, and effective leadership and strategies. Individuals with confused-avoidant identity styles do not have stable goals, higher-level skills, and self-efficacy, leading to poor academic performance.

The present study was limited to boy high school students in Qaemshahr city in 2019. Also, self-report tools and a cross-sectional method were used. Another limitation of this research was the lack of an etiology to indicate the effect of exogenous variables (identity styles and procrastination) on the endogenous variable (academic performance).

## Conclusion

The obtained results showed that identity styles mediated the relationship between procrastination and students' academic performance. We indicated the importance of identity and procrastination styles in explaining academic performance. It was found that 0.57 of the academic performance dispersion was influenced by procrastination and identity styles. Therefore, identifying students' identity styles and improving their status in educational settings will lead to reduced academic procrastination, and consequently better academic performance. Psychologists and school counselors should consider identity styles to reduce academic procrastination.

## Ethical Considerations

### Compliance with ethical guidelines

All ethical principles were considered in this article. The participants were informed about the purpose of the research and its implementation stages and signed the informed consent. They were also assured of the confidentiality of their information. Moreover, They were allowed to leave the study whenever they wish, and if desired, the results of the research would be available to them.

### Funding

This study was extracted from the PhD. thesis of first author in Educational Psychology by Najmeh Tavakoli. Also, This study was approved by the Islamic Azad University, Sari Branch (Code: IR.IAU.AH.REC.1397.024).

### Authors' contributions

Conceptualization, resources, and supervision: Najmeh Tavakoli; Methodology and writing -original draft: Olia Emadian; Investigation and writing-review & editing: Ramezan Hasanzadeh; Funding acquisition: All Authors.

### Conflict of interest

The authors declared no conflict of interest.

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